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BY THE COMPTROLLER GENERAL
Report To The Chairman, Subcommittee On
Fossil And Synthetic Fuels,
Committee On Energy And Commerce,
House Of Representatives
OF THE UNITED STATES

Evaluation Of The Department Of Energy's Plan To Sell Oil From The Strategic Petroleum Reserve

The administration plans to reduce the effects of a severe oil supply disruption by selling oil from the Strategic Petroleum Reserve (SPR). Under a Department of Energy (DOE) plan, the oil would be sold at periodic auctions, with sales contracts awarded to the highest bidders. All interested parties who agree to DOE's contract terms and conditions would be eligible to bid.

GAO's evaluation of DOE's plan addressed (1) its potential effects on world oil prices, (2) issues affecting who would get SPR oil under this plan, and (3) how the plan compares with alternative sales mechanisms.

GAO found that the plan's market approach would, as intended, probably limit oil price increases in a severe supply disruption and would allow broad participation in the sale. Nevertheless, GAO identified some potential problems relating to buyer participation under the plan.



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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON D.C. 20548

B-217834

The Honorable Philip R. Sharp
Chairman, Subcommittee on Fossil and
Synthetic Fuels
Committee on Energy and Commerce
House of Representatives

Dear Mr. Chairman:

In your letter of January 14, 1984, you asked that we evaluate the Department of Energy's plan for selling oil from the Strategic Petroleum Reserve. This report responds to your request and analyzes the plan's potential effects on world oil prices, issues affecting who would get SPR oil under this plan, and how the plan compares with alternative sales mechanisms.

We found that the plan's market approach would, as intended, probably limit oil price increases in a severe supply disruption and allow broad participation in the sale. Nevertheless, we identified some potential problems relating to buyer participation under the plan.

As arranged with your office, we plan to restrict further distribution of this report for 7 days after issuance, unless its contents are released by your office before that time.

Sincerely yours,

A handwritten signature in cursive script that reads "Charles A. Bowsher".

Charles A. Bowsher
Comptroller General
of the United States



COMPTROLLER GENERAL'S REPORT
TO THE CHAIRMAN, SUBCOMMITTEE
ON FOSSIL AND SYNTHETIC FUELS
COMMITTEE ON ENERGY AND COMMERCE
HOUSE OF REPRESENTATIVES

EVALUATION OF THE DEPARTMENT
OF ENERGY'S PLAN TO SELL OIL
FROM THE STRATEGIC PETROLEUM
RESERVE

D I G E S T

Oil supply disruptions in the 1970's dramatically increased oil prices and damaged the economies of the United States and other oil-consuming nations. Oil prices tripled during the Arab oil embargo of 1973-74 and rose another 150 percent following the Iranian oil cutoff of 1979. In the United States, these price "shocks" were responsible for loss of economic output, inflation, unemployment, and balance of payment problems that persisted after the supply disruptions ended.

To reduce U.S. vulnerability to another oil shortage, the Congress in 1975 required the development of a Strategic Petroleum Reserve (SPR) to store large quantities of oil in case of future supply disruptions. The government had purchased and stored 450 million barrels of oil for the SPR by the end of 1984.

The SPR can reduce the impact of a future oil crisis, however, only if the oil can be sold quickly and efficiently to oil market participants. Taking a market approach to the distribution, the Department of Energy (DOE) plans to award SPR sales contracts to the highest bidders at periodic auctions. All interested parties who agree to DOE's contract terms and conditions would be considered eligible buyers.

The DOE plan has generated controversy. Supporters have asserted that the market can most efficiently distribute scarce oil supplies to consumers in greatest need and would most effectively alleviate economic damage caused by an oil shortage. Opponents have disagreed on the grounds that (1) a competitive sale could exacerbate, rather than moderate, world oil price increases, (2) it would be unwise to open the sale to all interested buyers, and (3) the sales plan favors major oil companies over independent refiners.

WHY GAO REVIEWED DOE'S SPR SALES PLAN

GAO evaluated the sales plan at the request of the Chairman, Subcommittee on Fossil and Synthetic

Fuels, House Committee on Energy and Commerce. The review addressed

- the potential oil price effects of a competitive SPR sale,
- issues affecting who would get SPR oil under the DOE plan, and
- how DOE's sales plan compares with alternative sales mechanisms.

The lack of experience with an SPR drawdown makes it difficult to identify with precision the SPR sales plan's effects during a drawdown. For some issues, this lack of historical precedent or comparable government sale has led GAO to rely heavily on the views of oil security analysts and oil market participants, economic theory, and other analytical tools that can, at best, indicate the likelihood of alternative outcomes.

WHAT GAO FOUND

Generally, GAO found that the plan's market approach would, as intended, probably limit oil price increases in a severe supply disruption and would allow broad participation in the sale. GAO nevertheless identified some potential problems, particularly with how oil would be distributed under the plan. These include, for example, that any foreign buyer (including a hostile foreign country) could buy SPR oil, and that the plan does not limit the amount that a single buyer could purchase at a given sale. The following highlights GAO's key findings and conclusions.

Oil price effects of DOE's SPR sales plan

Adding large quantities of oil to a disrupted oil market by selling SPR oil competitively would probably reduce the escalation in world oil prices, according to both economic theory and government and academic studies. However, experiences with oil cutoffs in the 1970's, the consensus of oil industry analysts, and current oil market behavior all suggest that the extent to which DOE's plan could achieve this goal depends heavily on how well it reduces market participants' expectations about supply shortages and, therefore, higher oil prices in the future. Key factors involved in easing market participants' expectations are:

- Does the plan allow for or encourage use of the SPR early in a supply disruption? DOE has improved the prospect for a timely decision to use the SPR with its revised policy promoting the sale of oil soon after an oil disruption begins, rather than waiting to use the SPR only as a last resort. However, the decision to sell SPR oil may still be difficult to achieve quickly under this sales plan. (See pp. 10 to 12.)
- Would the plan allow the sale and distribution of SPR oil to proceed smoothly after the decision to use the SPR is made? DOE has made progress in eliminating potential problems that could slow the sale of SPR oil, particularly by improving its contract terms for potential buyers. For example, DOE eased its scheduling requirements for transporting SPR oil. A key unresolved issue, currently under study by DOE, is whether the legislative requirement to use U.S.-flag tankers to transport that portion of SPR oil which is shipped between U.S. ports could lead to an oil tanker shortage. Such a shortage may impede the oil's distribution. (See pp. 12 to 15).
- After the sale, would the oil be refined and used to meet consumer demand, or be retained in private inventories? The experiences of past disruptions and GAO's interviews with oil security analysts suggest that some portion of SPR oil, like any oil, would probably be retained in private inventories, rather than refined promptly and used to alleviate product shortages. This type of inventory behavior would diminish (but would not eliminate) the SPR's potential price benefits. However, attempts to legislatively or administratively prevent retention of SPR oil in inventories would probably have little effect. (See pp. 15 to 16.)

While economic theory suggests that selling SPR oil would dampen the rise in oil prices in a shortage, concern remains that a competitive sale could cause SPR oil to sell at above-market prices, and that this, in turn, could lead world oil prices higher than they would otherwise go. However, GAO's analysis suggests that any such "price leadership" effect would be limited and temporary and therefore unlikely to override the price-dampening effect achieved by adding oil supplies to a tight world market. (See pp. 16 to 21.)

proposal. These include the length of time during which options could be exercised and who should be eligible to buy the options.

Among the other limitations of the options approach cited by both critics and proponents is that by allowing the oil market to make the decision on when and how much SPR oil should be drawn down, the President's discretion would be sharply reduced. This problem could be alleviated, however, if only a limited portion of SPR oil were sold this way. (See pp. 40 to 41.)

Government allocation at administered prices

Perhaps more so than with both the DOE plan and the options proposal, an uncompetitive allocation of SPR oil entails administrative difficulties that may undermine its intended benefits. Based on its assessment of how an allocation scheme might be developed and on the government's experience in implementing fuel allocation plans during previous oil disruptions, GAO has concluded that:

- Allocating large quantities of SPR oil early in a disruption would dampen world oil price increases. However, the price-dampening effect may be somewhat less than under a competitive sales method. (See pp. 44 to 45.)
- It would be difficult to develop criteria for allocating SPR oil that adequately address concerns about fair distribution. (See p. 45.)
- Problems associated with data collection and verification may delay or distort the distribution of SPR oil. (See pp. 45 to 46.)
- Federal revenue would likely be less than under a competitive sales plan because buyers would pay below-market prices for SPR oil. Without oil price controls, it is uncertain if, or how much of, this federal subsidy to these buyers would be passed on to consumers. (See p. 46.)
- A "two-pool" method of sale could be developed to assure independent refiners access to some SPR oil without participating in a competitive sale. (See pp. 46 to 47.)

this plan, the SPR would probably not offer independent refiners much relief from their potential competitive problems. (See pp. 31 to 33.)

--Under DOE's plan, some SPR oil would be available for distribution at the Secretary of Energy's discretion--up to 10 percent of any month's sale--to deal with domestic hardship situations and America's international oil-sharing obligations. The market price of the oil, however, may be too high to alleviate domestic hardship, and the volume of the oil may be insufficient to meet the nation's oil-sharing obligations. (See pp. 34 to 36.)

How DOE's plan compares with alternative sales mechanisms

GAO examined the potential price and distributional effects of two alternative sales methods that have been of interest to the Congress: (1) the continuous sale of options to buy SPR oil in advance of an oil emergency and (2) allocation of SPR oil at prices set by the government.

The sale of options to buy SPR oil

Under this alternative, the government would sell options, by competitive bidding, to buy SPR oil at an administratively set price during a limited, predetermined future time period. This alternative is intended to reassure the oil market that the decision to use the SPR would not be held up by a difficult governmental decision process but would instead be made by the oil market itself.

The options approach could offer advantages over the DOE plan. Most oil security analysts GAO interviewed endorsed the concept, noting that it could more effectively dampen oil price increases than the present plan. Some also noted that buyers can insure themselves against enormous oil price increases by purchasing relatively inexpensive SPR options. Such self-insurance could help alleviate independent refiners' potential competitive problems in an oil crisis. (See pp. 39 to 40.)

On the other hand, most of the industry representatives GAO interviewed opposed a sale of SPR options, as did a majority of respondents to a DOE Notice of Inquiry on the subject. In particular, they questioned the concept's feasibility and cited key elements that would have to be defined in a detailed

Issues affecting who
would get SPR oil

The question of who the likely recipients of SPR oil would be is fundamental to the sales plan's success. If the SPR sale is perceived to result in an unfair distribution of the oil, public confidence in the SPR program and in the government's overall emergency response could be undermined. The experiences of past disruptions suggest that such an outcome could lead to pressure on the government to formulate a new approach during an oil crisis that could be less efficient. GAO found that:

--Allowing all interested parties access to the SPR, as planned, may pose some risks that outweigh the potential benefits cited by DOE. Under the DOE plan, for example, a hostile foreign power could buy the oil; an occurrence that could undermine the SPR's public support. A related issue--whether to allow brokers and traders access to SPR oil--is more ambiguous. Allowing them access may present problems with public acceptability, particularly since they are not directly involved in the oil refining business. However, their participation could add flexibility to the SPR distribution system and facilitate oil transactions during a disruption. (See pp. 23 to 27.)

--While DOE has improved its 1983 draft sales contract provisions by making them conform more closely to standard industry practices, several issues remain that could affect distribution of the oil. One issue is that the requirement to use U.S.-flag vessels when shipping SPR oil between U.S. ports could favor buyers with assured access to these vessels while discouraging others from bidding. Another issue is that the contract provisions do not set an upper limit on the amount of SPR oil that a bidder could purchase at a given sale; thus, a few buyers could get all or most of the oil. Such an occurrence could impair the SPR's public support. (See pp. 27 to 30.)

--Some independent oil companies may find it difficult to remain competitive in an oil disruption since their costs for acquiring crude oil may be considerably higher--due to their heavier reliance upon the world "spot" oil markets--than for the major oil companies. The DOE plan would treat major and independent companies equally in competing for SPR oil. However, because SPR oil is likely to sell at approximately spot prices under

RECOMMENDATION TO THE SECRETARY OF ENERGY

DOE is currently studying the possible use of an options program and the question of availability of U.S.-flag tankers. In addition, GAO recommends that the Secretary of Energy reexamine his position on several issues related to buyer participation in the sale of SPR oil and transmit a report to the Congress on them. These issues include (1) whether any restrictions should be placed on the eligibility of foreign buyers or brokers and traders to buy SPR oil, (2) whether there should be a limit on the amount of oil that a buyer can purchase at a given sale, and (3) whether a "two-pool" method of selling SPR oil should be used to assist independent refiners. If the results of his reexamination warrant it, the Secretary of Energy should also transmit to the Congress appropriate amendments to the SPR drawdown plan.

AGENCY COMMENTS

DOE's comments on a draft of this report are included as appendix II. DOE said that the report was "balanced" and that it "discussed the complexities of most issues." DOE, however, did not address GAO's recommendation to reexamine the above issues, transmit a report to the Congress, and, if appropriate, transmit to the Congress amendments to the SPR drawdown plan. Rather, DOE cited "several areas of disagreement," which GAO addresses in chapter 5. These areas deal with how the drawdown decision is made, whether certain foreign entities should be excluded from buying SPR oil, the feasibility of using options to sell SPR oil, how changing petroleum marketing practices may affect the ability of selected segments of the petroleum industry to get SPR oil, and the desirability of an SPR test sale. (See pp. 54 to 56.)

RECOMMENDATION TO THE CONGRESS

In light of DOE's response to GAO's recommendation, GAO recommends that the cognizant committees of the Congress pursue with DOE, through hearings or in other ways that they may deem appropriate, several matters related to buyer participation in the sale of SPR oil. Specifically, the following issues should be pursued:

- Restricting certain foreign purchases of SPR oil.

- Restricting the purchase of SPR oil by brokers and traders.
- Placing an upper limit on the amount of oil that a buyer can purchase at a given sale.
- Using a "two-pool" method of selling SPR oil to assist independent refiners.

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ABBREVIATIONS

EPCA	Energy Policy and Conservation Act
DOD	Department of Defense
DOE	Department of Energy
GAO	General Accounting Office
IEA	International Energy Agency
IEP	International Energy Program
NPC	National Petroleum Council
NPR	Naval Petroleum Reserve
OPEC	Organization of Petroleum Exporting Countries
SPR	Strategic Petroleum Reserve
SSPs	Standard Sales Provisions

CHAPTER 1

INTRODUCTION

BACKGROUND

Oil supply disruptions in the 1970s dramatically increased oil prices and damaged the economies of the United States and other oil-consuming nations. Oil prices tripled during the Arab oil embargo of 1973-74 and rose another 150 percent following the Iranian oil cutoff of 1979. These price "shocks" were responsible for loss of economic output, inflation, unemployment, and balance of payments problems that persisted long after the supply disruptions ended.

Reacting to these impacts, the government adopted numerous energy programs and policies to reduce the nation's vulnerability to another oil shortage. One of these programs was the Strategic Petroleum Reserve (SPR), required by the Energy Policy and Conservation Act of 1975 (EPCA), to store large quantities of oil purchased by the government to offset the impact of future supply disruptions.

The SPR has taken on added importance over the past few years, during which time its size has been increased substantially. By the end of 1984, over \$15 billion had been spent to store 450 million barrels of oil. Many feel that the SPR now stands as a viable "first line of defense"--and perhaps our only viable defense--against another major oil crisis.

The SPR, however, can accomplish its objective in an emergency only if the oil can be released ("drawn down") quickly when needed, and then introduced effectively into the market to replace lost supplies. Under EPCA, the Congress required the administration to develop a plan to drawdown and distribute SPR oil and to submit the plan for congressional review. The plan could only take effect if neither House of Congress disapproved it.¹

The Congress accepted one plan that DOE submitted in 1979. Under this plan, the agency would choose among the following three approaches to sell SPR oil to U.S. refiners: (1) allocate SPR oil to selected refiners based on various criteria, including ability to move the oil, (2) apportion "buy rights" whereby all eligible refiners would receive a share of SPR oil at a price fixed by DOE, or (3) sell the oil competitively to the highest bidders who could take delivery of the oil on acceptable schedules. The plan asserted that because of the wide range of conditions that may exist during an interruption, it is not desirable to plan only one sales process.

¹This procedure is now subject to the constraints on legislative vetoes stemming from the U.S. Supreme Court decision in Immigration and Naturalization Service v. Chadha, 103 S.Ct. 2764 (1983).

The present sales method
price-competitive sales

In the Energy Emergency Preparedness Act of 1982, the Congress directed the administration to submit a revised SPR drawdown plan because the previous plan was widely perceived as too general. The act stipulated that the new plan would not be subject to congressional review, would become effective upon transmission to the Congress, and was to be transmitted on or before December 1, 1982. Under the 1982 DOE plan, SPR oil is to be distributed by price-competitive sale. The new procedures are designed to conform "with the normal workings of the marketplace," and to result in "reduced economic costs and enhanced economic benefits over the previous [1979] SPR Distribution Plan." Oil would be sold at periodic auctions with sales contracts awarded to the highest bidders. Eligible buyers would be all interested parties who agree to DOE's contract terms and conditions,² including U.S. refiners, federal and other public agencies, industrial users, and brokers and traders. Foreign governments and companies would not be precluded from participating.

The only form of nonmarket allocation in the plan is an option for the Secretary of Energy to direct, as he sees fit, the sale of up to 10 percent of the volume of SPR oil sold in a given month. The price of this oil would be set at the average price SPR oil sold for at the most recent competitive sale. According to the plan, directed-sales oil would be used only "under the most extreme of circumstances."

Questions raised about the sales plan

The new sales plan has generated controversy between supporters and opponents of the administration's market-based energy policy. Supporters have asserted that the market can most efficiently distribute scarce oil supplies to consumers in greatest need and would most effectively alleviate economic damage caused by an oil shortage. Opponents have disagreed. Some have argued that under a competitive sale, SPR oil could sell for above-market prices and that this in turn could exacerbate, rather than dampen, the increase in world oil prices. Observers have also questioned the wisdom of selling SPR oil to "all interested buyers," noting that some successful bidders, such as oil traders or hostile foreign governments, may be unlikely to refine and market the oil expeditiously. Critics have also alleged that a competitive sale

²These terms and conditions, called "Standard Sales Provisions" (SSPs), were published in a January 20, 1984, Federal Register notice. Among key provisions, the SSPs allow bidders to specify the quantity of the oil they are willing to buy and the price they are willing to pay for it. The SSPs are discussed in chapters 2 and 3.

gives an advantage to major, integrated oil companies over independent oil refiners.³

In a January 14, 1984, letter, Representative Philip R. Sharp, Chairman of the Subcommittee on Fossil and Synthetic Fuels, House Committee on Energy and Commerce, asked us to assess the potential impacts of the SPR sales plan. Specifically, he requested that we examine how the sales plan would affect oil prices, how effectively it would allow SPR oil to enter the market, who likely recipients of the oil would be under the plan, and whether hoarding or the sale of SPR oil to brokers could be a problem (see app. I). We were also asked to compare this sales plan to alternative SPR sales methods.

OBJECTIVE, SCOPE, AND METHODOLOGY

Objective

Our objective was to examine the potential impacts of the sales plan, focusing on the questions posed by Chairman Sharp. This report addresses each of these issues, although we have organized them in such a way as to convey more clearly our findings and conclusions. All of the questions are addressed within the context of (1) the oil price effects of the sales plan, (2) issues affecting potential recipients of SPR oil under the plan, and (3) alternative sales methods. We discussed and agreed upon this revised approach with the Chairman's office.

Scope

Given the theoretical nature of this issue (to date, SPR oil has never been sold), we did not expect to come up with definitive answers to all the questions in the request letter. The lack of experience with an SPR drawdown makes it difficult to identify with precision the SPR sales plan's effects during a drawdown. For some issues, this lack of historical precedent or comparable government sale has led us to rely heavily on the views of oil security analysts and oil market participants, economic theory, and other analytical tools that can, at best, indicate the likelihood of alternative outcomes.

Since our work focused on DOE's plan for selling SPR oil, we did not examine questions related to the SPR's physical drawdown and distribution capabilities, although these issues can have an important impact on the SPR's effectiveness in an oil disruption.

³Classification of an oil refiner as an "integrated" or "independent" company generally refers to the degree to which the refiner controls the source and distribution of its oil supplies. Integrated refiners tend to have substantially higher volumes of crude oil under their control than do independents. This issue is discussed in chapter 3.

We have reported on such questions in the past, including the reliability of SPR equipment and availability of spare parts for the equipment. In addition, we are currently examining changes to the physical SPR oil distribution system recently proposed by DOE.

Methodology

To devise a methodology for this analysis, we had to take into account both the diversity of the questions posed in the request letter and the lack of historical data on the effects of an SPR sale. We concluded that a combination of analytical tools and information sources, rather than a single methodological approach, would be most appropriate. These methods and how they were used to respond to the issues raised in this report are discussed below.

Historical evidence

Examination of oil market behavior and government responses during previous oil supply disruptions offered insights into the causes of the economic damage that ensued. To the extent that past behavior indicates likely future oil market responses in a disruption, our review of studies by GAO and other organizations provided perspective on the potential impact of an SPR sale.

We also examined analyses of how the world oil market has changed over the past several years. We found that some significant structural changes have occurred, both in world oil trade and the domestic oil market. These changes were considered in our analysis to better understand how closely past experience might signal future oil market behavior.

Results of emergency preparedness tests

During July and August of 1983, DOE conducted a test of its procedures for drawing down and selling SPR oil. The exercise, called DIREX-B, was evaluated in a 1984 report by an assessment team composed of DOE and other federal officials and selected representatives of the private sector. Despite the limitations of such a test in simulating circumstances that might arise in an actual oil emergency, it surfaced a number of problems in the SPR sales process. After reviewing the assessment report, we discussed the problems cited, and DOE's corrective actions, with agency officials and other potential sales participants.

Other emergency preparedness tests, notably the International Energy Agency's (IEA's) test of its emergency oil-sharing system in May and June of 1983, also helped to surface issues that could arise in an SPR drawdown.

Interviews and literature review

Interviews with federal officials, oil security analysts, and oil industry officials were important because of the lack of data on the impacts of distributing SPR oil by competitive sale. The following outlines our principal contacts and how they were used.

--Government officials. Staff from DOE's Office of Energy Emergencies and Strategic Petroleum Reserve Office provided details on administration policy on selling SPR oil and on technical aspects of the SPR Program. Both DOE and the Department of Transportation's Maritime Administration provided information on possible implementation problems that could impair the sale's effectiveness during a major disruption.

--Oil security analysts. We interviewed nationally recognized oil security analysts to elicit their views on some of the more theoretical issues in our study. They included consultants to DOE on emergency preparedness and SPR use issues, former government officials who dealt with past oil disruptions, and oil security analysts who have testified before the Congress on these matters. The analysts provided insights on numerous subjects including the potential price impacts of a drawdown, the question of hoarding SPR oil, and alternative approaches to selling the oil. We also analyzed emergency preparedness studies authored by oil security analysts in the business and academic communities.

--Oil industry representatives. We talked with officials of major and independent oil companies and industry trade associations. Officials contacted included those who had submitted written comments to DOE on SPR sales issues, or those responsible for crude oil supply and/or transportation at their companies. Key issues discussed with this group included bidding strategy, the compatibility of the Standard Sales Provisions with commercial practices, the industry impacts of a competitive sale, and alternatives to the plan. In many instances, we were able to corroborate the views that potential bidders expressed in our interviews with their written statements to DOE. (Since 1982, DOE has solicited comments on preferred approaches to selling SPR oil, on DOE's draft SSPs, and on "precrisis forward-sales" proposals.)

World oil model

We used an econometric model of the world oil market to help estimate the oil price effects of an SPR drawdown during a major supply disruption. The model, which had been developed for a

previous GAO report,⁴ is based on the statistical and behavioral relationships between various energy variables over the last decade. Although our model does not account for the unique features of the DOE sales plan, it does satisfy our limited objective to provide an order-of-magnitude estimate of the oil price effect of releasing a large volume of SPR oil.

Analysis of legal issues

Several important legal issues concerning the SPR sales plan were raised during our work. Among them are questions about the circumstances under which the government has authority to begin an SPR drawdown, to modify its sales plan, to ease or enforce certain sales provisions during the drawdown, and to use SPR oil to satisfy international oil-sharing obligations. We examined pertinent statutes, legislative histories, regulations, and DOE's SPR sales procedures to clarify these issues.

We conducted our review in accordance with generally accepted government auditing standards.

⁴Oil Supply Disruptions: Their Price and Economic Effects (GAO/RCED-83-135, May 20, 1983). The GAO model is based on principles of another model, developed by Philip K. Verleger.

CHAPTER 2

OIL PRICE EFFECTS OF DOE'S SPR SALES PLAN

The key to the SPR's success in reducing the economic damage caused by an oil supply disruption lies in its ability to reduce the sharp oil price increases that have characterized such disruptions in the past. Economic theory and several studies demonstrate that adding large quantities of SPR oil to the world market has the potential to mitigate significantly these price effects. As we show below, however, an SPR oil sale must do more than enhance oil supplies to accomplish this goal. It must also be able to address the psychological factors that, in past disruptions, have led oil inventory holders to accumulate oil stocks and thereby worsen supply shortages and price increases.

In this chapter, we first provide order-of-magnitude estimates from several economic studies that illustrate the effect that a drawdown of SPR oil would be expected to have on world oil prices. We then show that the SPR sales plan's ability to achieve these results depends on how well it deals with the following key questions:

--Would the plan effectively reduce oil price increases through its effect on oil industry behavior?

--Could the plan have a "price leadership" effect that would instead promote higher rather than lower world oil prices following a drawdown?

WHAT EFFECT WOULD AN SPR SALE BE EXPECTED TO HAVE ON WORLD OIL PRICES?

The potential effect of an SPR oil release on world oil prices is to keep price increases lower than they would otherwise be. Over the past several years, a number of studies have been conducted which quantify the price benefits of using the SPR to add to world oil supplies. Their estimates of the value of the SPR vary somewhat due to differences in disruption scenarios and economic assumptions. It is difficult, therefore, to compare results across studies. However, a consensus exists that a substantial part of the oil price shock can be avoided by the effective use of the SPR.

To illustrate the potential price effect of an SPR drawdown, we examined the results of three recent econometric analyses.¹ These studies were selected because, while not identical in their assumptions, they correspond closely in terms of the magnitude of the hypothetical disruption and the size of the SPR drawdown. In general, they assume the oil supply disruption causes a worldwide net loss of 5 to 6 million barrels a day for a 6- to 12-month period. The amount of SPR oil released ranges from 270 to 380 million barrels.

These scenarios describe a major oil disruption, far more serious than any previous world oil shortage. (Interruptions since 1973 have averaged less than 2 million barrels per day for 4 to 6 months.) However, they could reflect the outcome of a Persian Gulf supply cutoff and current SPR capabilities. With no SPR drawdown, these three studies estimate that world oil prices could increase by roughly 90 to 100 percent above predisruption prices. Use of the SPR, however, could limit the resulting price rise to about 75 percent.

Importantly, none of these models characterizes the method of sale used to drawdown and distribute the SPR oil. They assume that the release takes place in a timely and efficient manner and is not marred by market or institutional problems. As discussed below, however, experience from past oil crises suggests strongly that the ability of the DOE sales plan to capture these potential benefits depends largely on how effectively it reduces the tendency of oil market participants to accumulate oil stocks at the onset of a disruption.

The importance of discouraging oil inventory accumulation

Among the lessons learned from the oil supply disruptions of the 1970's is that the actual loss of oil supplies on the world market did not, by itself, account for the enormous oil price increases that followed. Moderate and even small disruptions caused serious economic impacts. For example, the International Energy Agency estimated that, at its peak, the world oil shortfall during the Iranian oil supply interruption represented less than 5 percent of 1978 average daily free world consumption of about 46

¹Oil Supply Disruptions: Their Price and Economic Effects (GAO/RCED-83-135, May 20, 1983). The model's equations were re-estimated in 1984 to account for more recent oil market data.

R. Glenn Hubbard and Robert Weiner, Oil Inventory Behavior: An Empirical Analysis of Public-Private Interaction, Harvard Energy Security Program, H-83-02, Mar. 1983.

Report to the President and Congress on the Size of the Strategic Petroleum Reserve (DOE/EP-0036, May 1982).

million barrels. Yet, between September 1978 and September 1980, crude oil prices increased from \$13 to \$32 per barrel, a 150 percent increase. Research since then has attributed much of this increase to a tendency by oil inventory holders to accumulate oil stocks at a very rapid rate. Indeed, between mid-1979 and mid-1980, commercial oil inventories increased by about 750 million barrels above normal operating levels.²

Inventory accumulation during a disruption is motivated by an expectation of rising prices and uncertainty over whether the disruption may worsen. According to energy analyst Philip Verleger of Charles River Associates, individual oil companies are acting in a rational economic manner when they accumulate stocks because buying oil today can be profitable when the price is expected to be higher tomorrow.³ Research by Harvard University indicates that oil companies are apt to stock up when: (1) prices are expected to increase by more than the cost of holding stocks, (2) stocks are low relative to sales, and (3) consumption is unexpectedly low.⁴

Oil consumers also build inventories during disruptions by topping gasoline tanks and filling storage tanks. Expectations of shortage and rising prices cause consumers and distributors to "panic buy" or stock up on supplies.

Thus, in future disruptions, the expectation of continuing oil shortages and rising oil prices by a nervous oil market could well play a greater role in oil inventory behavior and escalating oil prices than the size of the actual shortage. Therefore, policies for using the SPR, and the method used to sell and distribute the oil, should take this factor into account if the most damaging aspects of disruptions are to be alleviated.

DOE's revised SPR use policy is
intended to mitigate stock building

In February 1984 the Secretary of Energy took an important step in recognizing the need to calm the oil market at the onset of a disruption by announcing that DOE policy would favor early release of SPR oil. Testifying before the Subcommittee on Fossil and Synthetic Fuels, House Committee on Energy and Commerce, the Secretary stated that

²Daniel B. Badger, Jr., "The Anatomy of a 'Minor Disruption': Missed Opportunities," Oil Shock: Policy Responses and Implementation (Cambridge, Mass.: Ballinger, 1984), p. 39.

³Philip K. Verleger, Oil Markets in Turmoil (Cambridge, Mass.: Ballinger, 1982), p. 93.

⁴R. Glenn Hubbard and Robert Weiner, The "Sub-Trigger" Crisis: An Economic Analysis of Flexible Stock Policies, Harvard Energy Security Program, H-82-07, June 1982, p. 14.

"the early sale of SPR oil in large volumes ordinarily is the best policy for SPR use . . . The marketplace needs to know in advance that this is our general policy so that unnecessary panic behavior can be avoided."

He reaffirmed this position in subsequent testimony before the Subcommittee on Environment, Energy and Natural Resources, House Committee on Government Operations, stating that

"the Administration's policy of early and rapid drawdown of the SPR during a major oil supply disruption will provide, by far, greater and more immediate protection against possible price impacts than any other single action the federal government can take."

These statements represent a shift from the previous DOE policy of using the SPR as a last resort in a severe oil shortage. This policy shift has come in the wake of substantial research and a growing consensus of oil security analysts that early use of the SPR can reduce the price shock caused by an oil supply cutoff much more effectively than using the reserve as a last resort.

WOULD DOE'S SPR SALES PLAN EFFECTIVELY
REDUCE OIL PRICE INCREASES THROUGH ITS
EFFECT ON OIL INVENTORY BEHAVIOR?

Given this widely accepted view that an early and substantial release of SPR oil into the world oil market can significantly dampen world oil price increases, we examined issues that would most affect the sales plan's ability to get oil into the market quickly and efficiently. These issues deal with whether the sales plan would (1) allow for or encourage a decision to use the SPR early, (2) allow the sale and distribution of oil to be accomplished efficiently once the drawdown decision is made, and (3) assure that the oil is then processed and marketed rather than retained in the buyers' inventories.

The likelihood of early SPR use under
the DOE sales plan is questionable

Despite the Secretary of Energy's stated preference for early SPR use, there are reasons why this policy may be difficult to implement in an actual emergency under the current plan. Most of the oil security analysts we contacted cited several factors that would complicate a decision to sell SPR oil immediately after an oil supply cutoff. Among them is the fact that the Energy Policy and Conservation Act (EPCA) and the sales plan require that a drawdown could occur only after the President declared that a "severe energy supply interruption" exists or that drawdown was necessary to fulfill U.S. obligations under the International Energy Program (IEP). Oil security analysts have noted that a presidential declaration of an energy emergency could heighten public anxiety about the shortage. Knowing this, they argued, would inhibit him from making the decision until much of the

damage is done. This potential problem led oil security analysts from the Massachusetts Institute of Technology (MIT) to cite this decision process as "perhaps the weakest link in making the SPR an effective deterrent to panic or a useable crisis tool."⁵

Another potential barrier to an early drawdown decision is a possible conflict between military and civilian demands for the oil. Although the Department of Defense's (DOD's) peacetime petroleum requirements are about 500,000 barrels per day, its fuel needs during an oil emergency could increase to about 2 to 2.5 million barrels per day if sustained military activity ensued. While the sales plan allows DOD to bid for SPR oil like any other "interested buyer," some analysts have argued that military concerns over a possible worsening of an oil disruption could lead to pressure not to use the SPR early, at least until possible military oil requirements from the SPR are clarified. The MIT report cited above warned that "conflicting pressures from many civilian constituencies and the military could lead to deferral of the decision to use the SPR" Conflicting military and civilian claims to the SPR were also suggested in a report by the Congressional Research Service. The report asserted that

"it is not a remote possibility that an outbreak of war in the Middle East accompanied by a drastic reduction of oil supplies to the West could lead to demands for relief from the SPR by civilian non-defense industries in this country and the U.S. defense establishment, either simultaneously or in closely ordered sequence."⁶

DOE officials also acknowledged possible military pressures to delay SPR use, following the DIREX-B test of the SPR sales process. Although DOE assumed, for test purposes, that DOD would agree to a full drawdown of the SPR for a limited period, the DIREX-B assessment team reported that "not one person interviewed by the assessors believed that DOD would, in fact, support this position under all circumstances, but would instead insist on the maintenance of as large a reserve as possible."⁷

⁵Thomas L. Neff, et al., Energy and Security: An Analysis for the State of California, Massachusetts Institute of Technology International Energy Studies Program, MIT-EL-83-018WP, July 1983, p. 9.

⁶David E. Lockwood, Strategic Petroleum Reserve: Implications for U.S. Foreign and Defense Policy, Congressional Research Service, Report No. 82-54F, June 15, 1982, pp. 33-34.

⁷Strategic Petroleum Reserve Distribution Readiness Exercise (DIREX-B): Assessment Report, U.S. Department of Energy, DOE/IE-0002, Feb. 1984, p. VI-11.

The DIREX-B test also revealed another potential problem that could delay a drawdown decision--the difficulty government agencies may have in providing decisionmakers with the necessary information to make a timely and informed decision. The DIREX-B assessment team (composed of individuals inside and outside of government) pointed out that, particularly in the early stages of a disruption, it is essential that the Secretary of Energy be provided with good information, including the key judgments, assumptions, and uncertainties underlying the information presented to him. However, the team was generally critical of the information DOE officials were able to make available to the Secretary during the test, noting, for example, that there was unnecessary confusion over the expected duration of the disruption, that more information and analysis was needed about the disruption's future impacts, and that information on the domestic petroleum situation needed to be broken down to the regional or state level.

Alvin Alm and Edward Krapels, two well-known energy security analysts, also acknowledged the difficulties in accumulating and interpreting necessary information soon after an oil cutoff, and they expressed pessimism about its implications for early SPR use. According to these analysts, "during an interruption, data will be confusing and contradictory, recommendations will be diffused, and decision-makers, exercising bureaucratic caution, will wish to keep options open as long as possible."⁸

Thus, while it would be difficult to predict how soon after an oil cutoff a President would sell SPR oil, the decision would clearly be difficult and complicated. Oil security analysts' skepticism about this issue has led many to recommend modifying the sales plan and its authorizing legislation, so that SPR oil can be released automatically when some chosen oil market indicator, such as world oil price, shows an oil disruption to be serious. This concept (along with other modifications to the sales plan) is discussed in chapter 4.

DOE improvements to the sales plan have increased the chances for an efficient drawdown, but some problems still remain

Once the drawdown decision is made, the next issue affecting the sales plan's ability to dampen oil price increases is whether it allows the distribution of oil to be accomplished smoothly. Inefficient sales procedures could lessen the oil price benefits of an SPR sale by reducing the amount of SPR oil entering a disrupted market and by reducing the calming effect of the drawdown on oil inventory holders.

⁸Alvin L. Alm and Edward N. Krapels, "Building Buffer Stocks in a Bear Market: Policy Choices for Emergency Oil Reserves," Energy Modelling IV: Planning for Energy Disruptions, Institute of Gas Technology, Sept. 1982, p. 150.

Some potential problems that could affect the drawdown's impact are unrelated to the SPR sales plan. We and other organizations have reported in the past on questions concerning the reliability of SPR equipment during a drawdown and the availability of spare parts for the equipment. The 1984 sale of two privately owned oil pipelines, through which DOE had planned to distribute much of the oil, also raised questions about DOE's ability to get the oil to buyers quickly. DOE has proposed measures to respond to these problems, and we are currently examining the Department's progress. This report, however, focuses on the sales plan's effects on the drawdown and how the plan could be improved in this respect.

One major sales plan-related problem that has been substantially resolved by DOE dealt with its contract requirements, the "standard sales provisions" (SSPs), governing the sale of the SPR oil. The SSPs, proposed by DOE in June 1983, were heavily criticized by oil companies and other potential buyers as too burdensome and out of line with standard industry practices for buying oil. Echoing the views of many oil companies, the American Petroleum Institute noted its concerns to DOE over the rigid transportation requirements, performance and payment guarantees, and other matters. It warned in September 1983 comments to DOE that SPR drawdown procedures would have to be simplified to ensure the timely distribution of SPR oil.

DOE modified the SSPs in January 1984 to conform more closely to standard industry practices, allowing buyers more flexibility in deciding how much oil they wish to buy and when to move it. Both our industry interviews and companies' written comments to DOE revealed a nearly unanimous view that, while further improvements could be made, DOE's revisions were a substantial improvement over the draft SSPs and go a long way toward improving the prospects for a successful sale. Among the key remaining issues that could impede the effectiveness of an SPR sale, however, is the requirement to use U.S.-flag tankers when shipping SPR oil between U.S. ports during an oil emergency.

The requirement to use U.S.-flag tankers
is a potential barrier to an efficient sale

The requirement to use U.S.-flag tankers is not unique to DOE's sales plan; it would apply under any sales method. The Jones Act (Section 27 of the Merchant Marine Act of 1920) bars foreign-built, -owned, or -registered vessels from engaging in U.S. coastal trade. In accordance with this act and DOE's SSPs, only U.S.-flag vessels would be permitted for marine transportation of SPR oil from SPR terminals to other U.S. ports. (A portion of SPR oil would also be expected to move through oil pipelines.) This requirement could impede a drawdown if an SPR oil sale increases the demand for coastwise shipping, possibly causing a shortage of U.S.-flag tankers.

In theory, the act could be waived by the Department of the Treasury (in consultation with the Departments of Transportation, Defense, and Energy) during an oil shortage so that foreign-flag vessels could be used temporarily to meet the tanker shortage. However, two problems would have to be resolved. First, any Jones Act waiver must be accompanied by a finding that the waiver was deemed necessary in the interest of national defense. A finding of a "severe energy supply interruption" or a triggering of the International Energy Agency's emergency oil-sharing system (the two circumstances in which an SPR drawdown is authorized) need not necessarily be defense related. If such a defense link did not exist in an energy emergency, the Jones Act under current law could not be waived.

Second, the potential need for a Jones Act waiver in a future energy emergency is thus far unclear. DOE officials and most oil company representatives we interviewed have argued that an advance blanket waiver of the Jones Act may be needed to deal with a potential shortage of U.S.-flag tankers. Such a shortage, they contend, might not be addressed adequately through the Treasury Department's present case-by-case waiver procedure. The maritime industry, however, supported by the U.S. Maritime Administration, has argued that such a blanket waiver would be unnecessary because sufficient U.S.-flag tanker capacity exists to accommodate an SPR drawdown.

A recent National Petroleum Council (NPC) report⁹ was also inconclusive about a potential U.S.-flag tanker shortage. The study found that "the supply of U.S.-flag tankers and barges in 1990 [projected to be about 8.3 million deadweight tons] appears sufficient to meet the waterborne crude oil transportation requirements of an emergency drawdown of the SPR." Although the NPC estimated in a hypothetical oil shortage that the U.S.-flag fleet would fall short by about 1 million deadweight tons, the report concluded that such a shortage could probably be met by the existing case-by-case waiver procedure. However, the study also projected "declines in U.S.-flag product tankers that could result in a substantial shortage of U.S.-flag tonnage for the distribution of residual fuel oil during a supply disruption."

Without more conclusive information regarding the need to waive the Jones Act in an oil emergency, it is difficult to say what should be done to assure that a U.S.-flag tanker shortage would not impede the sale and distribution of SPR oil. Acknowledging the risk that such a shortage could pose to an effective SPR sale, however, the NPC report recommended that the Maritime Administration (1) develop a contingency plan to expedite Jones Act waivers, (2) allocate additional staff to evaluate waivers if case-by-case waiver requests cannot be handled quickly,

⁹The Strategic Petroleum Reserve: A Report on the Capability to Distribute SPR Oil, National Petroleum Council, Dec. 1984.

(3) develop a standby blanket waiver procedure for foreign-flag vessels, and (4) establish an industry advisory group to assist the agency before and during an emergency. According to the Director of Systems of DOE's Strategic Petroleum Reserve Office, DOE plans to examine the NPC results in greater depth and to issue a report on the subject during the summer of 1985.

Thus, while DOE has made substantial progress in developing more workable sales guidelines, questions about the need and authority to waive the Jones Act still need to be resolved to assure a smooth and efficient sale. This issue, and others raised by industry, has led many of the potential bidders we interviewed (including those supportive of DOE's SSP revisions) to suggest that a test of an SPR drawdown and sale would help instill confidence in the sales plan's feasibility.

Would buyers "hoard" SPR oil?

Once the SPR use decision is made and the oil is distributed to successful bidders, the next question in determining the SPR sales plan's oil price effect is whether the oil gets to end-users quickly to reduce the shortage, or is retained in private inventories.

We noted earlier in this chapter that oil inventory accumulation in past disruptions contributed to enormous oil price increases despite the small size of the actual shortages. How much inventory accumulation occurs depends on inventory holders' expectations of future oil availability and price.

This is key to understanding what would happen to SPR oil after it is sold. Once SPR oil is purchased, owners would treat it like any other oil supplies. Its use would depend on whether oil inventory holders were motivated to build their oil stocks or draw them down. To the extent that adding SPR oil to a tight market succeeds in reducing expectations of shortages and price increases, the SPR sale itself can reduce (but not eliminate) the amount of SPR oil, and other oil, that would otherwise be retained in inventories.

Thus, established oil market behavior confirms the nearly unanimous view of the oil security experts we interviewed that some SPR oil would be retained in inventories, or "hoarded." The proportion of SPR oil treated this way would depend heavily on expectations about future oil prices and supply. The real question for the government is whether anything can and should be done to stop this behavior and ensure that the oil is used to alleviate the shortage.

Can "hoarding" of SPR oil be prevented or discouraged?

If the oil security experts we interviewed were nearly unanimous in their opinion that hoarding of SPR oil would occur, they were equally united in their pessimistic view that little can be done to prevent it. Based on their views and on established oil market behavior, it appears that attempts to legislatively or administratively prevent retention of SPR oil in inventories would have little effect.

Because SPR oil is physically indistinguishable from other crude oils, any rule requiring SPR oil to be refined and marketed after its purchase could be easily circumvented. Even if DOE could trace the oil from its SPR caverns to a purchaser's storage facility, it would be extremely difficult to prevent a buyer from refining the SPR oil while not refining the same volume of other oil within its supply system (the result being no net increase in product supply). The intent of such a rule could also be undermined if the SPR buyer was importing oil at the same time. Such a buyer could take his foreign oil, initially destined for the United States, and simply store it overseas or on tankers at sea. The volume of SPR oil purchased and refined in this instance would then be offset by an equal volume of oil that was initially to be marketed here but was kept in inventories abroad.

Thus, a law or regulation prohibiting hoarding would probably do little to discourage inventory accumulation. Rather, the hoarding of SPR oil can best be discouraged by reducing the incentive to retain this oil in inventory through effective use of the SPR to reduce price expectations and supply uncertainty. This means assuring the oil market that the SPR would be used early and that the sale and distribution would work efficiently.

COULD A "PRICE-LEADERSHIP" EFFECT UNDERMINE THE OIL PRICE BENEFITS OF A COMPETITIVE SPR SALE?

Some opponents of the current plan have asserted that a so-called "price-leadership" effect caused by a competitive SPR sale could undermine the price-dampening effect of adding SPR oil to the market, and even lead to a larger world oil price increase than would occur without use of the SPR. The panic of a sudden oil shortage could generate bids on SPR oil at well above market prices, it is argued, and this, in turn, could cause oil traders on the spot market and oil exporting countries to see the SPR sale as a signal to accelerate their own price increases. A 1979 competitive sale of government-owned oil from the U.S. Naval Petroleum Reserve (NPR) is frequently cited as evidence for a price-leadership effect.

Our analysis suggests that a price-leadership effect would probably not override the benefits of adding to world oil supply

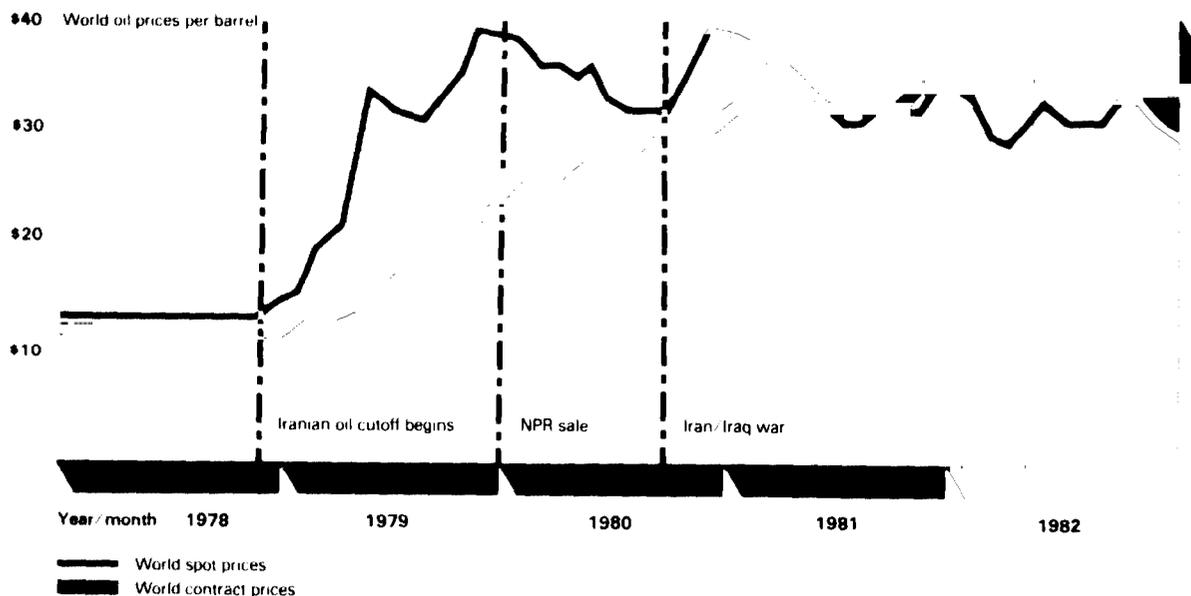
in an emergency, although a limited price-leadership effect on some oil sold under term contract is at least possible. To address this issue, we first examined oil price data before and after the NPR sale to see if, as alleged, they demonstrated a price-leadership effect. We then examined other questions to determine the likelihood of the SPR being a price leader.

The NPR sale did not lead world oil prices

DOE was criticized after its December 1979 NPR auction for receiving \$41 per barrel for its oil during an oil emergency while at the same time urging Saudi Arabia to hold its prices at \$26 per barrel. The actual volume of NPR oil DOE sold to the Phillips Petroleum Company was miniscule--10,000 barrels a day compared to about 48 million barrels a day of free world production at the time. Nevertheless, the sale was cited in the media and in congressional hearings as a cause of subsequent price increases that exacerbated the Iranian oil crisis. A front-page February 25, 1980, New York Times article documented anger and protests from oil refiners, consumer activists, U.S. allies, and some oil producers. The story cited allegations that Saudi Arabian officials, including those urging moderation in price increases, were particularly angered that the U.S. government was getting top dollar for its oil while asking them to exercise restraint in raising prices.

Despite the controversy surrounding the sale, however, oil price data before and after the sale do not show a detectable and lasting effect on world prices. As figure 1 illustrates, spot market oil prices actually declined well below the \$41-per-barrel price offered by Phillips in the months afterward.

Figure 1
Spot And Contract Oil Prices Before And After The December 1979 NPR Oil Sale



While contract prices continued to rise after the sale, their behavior can be explained much more convincingly by trends in oil market trade than by the NPR sale. Figure 1 shows that spot market prices were still well above contract prices after the NPR sale. Research has shown that contract prices tend to rise toward spot levels when such a spread exists. Indeed, figure 1 shows that when spot prices fell below contract prices in 1981, a stabilization of contract prices followed in 1982. Thus, historical oil price data appear to refute the contention that the NPR auction sale demonstrated a significant price-leadership effect.

Nevertheless, while the NPR sale did not prove that a competitive oil sale leads world oil prices, important differences between the NPR and the SPR make it difficult to fully apply the experience of one to the other. For example, an SPR sale of 2 million barrels per day or more would dwarf the NPR sale and attract much wider participation than the small, regional NPR auction. We must therefore go further in our analysis before drawing conclusions about the probability of a price-leadership effect resulting from a competitive SPR sale.

How likely is a price-leadership effect of a competitive SPR sale?

While a price-leadership effect following an SPR sale is possible, the extent of such an effect would, at most, probably be limited and temporary. To arrive at this conclusion, we first examined the potential for a competitive SPR sale to lead world spot prices and then examined its potential to lead contract prices.

A competitive SPR sale would probably not lead world spot market prices

Two conditions would have to be met for a competitive SPR sale to lead world spot market prices. SPR bid prices would have to (1) exceed world spot prices and then (2) send signals to spot markets around the world to raise prices higher than they would otherwise go. Neither of these conditions, though, is likely to be met.

Regarding the first of these conditions, economic theory suggests that bids for SPR oil would closely approximate bids for other oil sold on the open market. Bidders vying for SPR oil would likely avoid bidding below spot levels, expecting that many of their competitors would be willing to pay market-clearing prices.¹⁰ They would probably also avoid bidding well above spot

¹⁰Bids for SPR oil, as for other supplies on the open market, would normally take into account differentials for the quality of the oil and for transportation costs.

levels, since they would be paying more than the price for which they could get oil elsewhere. A Harvard University study cites some historical precedent for spot market bids, noting that "when world oil supplies were tight in 1979, prices for decontrolled domestic crude oil approximated the delivered cost of foreign crude purchased at spot prices."¹¹

Given this limited precedent and the compelling theoretical argument for a fairly narrow range of bids converging on spot levels, we asked oil security analysts and oil industry representatives for their prognoses of SPR bidding behavior to help determine whether any factors, unaccounted for by this theory, could lead to bids significantly higher than prevailing market-clearing levels. Most of the analysts supported the view that bids would generally approximate spot levels, although a few offered reasons why bids may exceed or fall below them.

Industry representatives also agreed that their SPR bids would reflect the price for the same type of oil on the open market. Some noted, however, that while the spot price would be the key to their bidding, knowledge of spot price movements in the confusion of an oil shortage may be imperfect. This could suggest a somewhat wider range of bids than would occur if knowledge of spot prices were better.

Nonetheless, our interviews generally supported the theoretical conclusion that bidding would approximate spot prices. While there could be a small number of outlying bids above and below these levels, it appears improbable that the thrust of the bidding could be so high above market-clearing levels that SPR prices would stand alone among the numerous spot markets around the world.

Regardless of the likely bid prices for SPR oil, the second condition would also have to be met for a competitive sale to lead spot markets--the bid prices would have to send signals to spot markets around the world to raise their prices higher than they would otherwise go. This too, however, appears improbable. Past experience shows that spot market prices are determined by the supply of and demand for the oil on the world market. This historical evidence supports a well-accepted economic theory suggesting that adding oil supplies to the market would put downward pressure on oil prices. The modeling studies cited earlier in this chapter illustrated this theory, showing that an SPR drawdown could avert up to 25 percent of the world oil price increase caused by a major oil supply disruption.

¹¹Thomas Dreves, "Legal Constraints on the Allocation of Oil During Supply Disruptions," Crude Oil Access in Disruptions in the 1980s: Analysis of Public Policy Implications, Harvard Energy Security Program, H-83-03, May 1983, p. 141.

We are not aware of any empirical evidence suggesting that SPR oil bid prices would send signals to world spot markets that would outweigh the beneficial effect on these markets of adding significant quantities of oil from the SPR. Moreover, economic theory would strongly suggest that, even if a brief spot increase were to occur as a result of price signals from a competitive SPR sale, long-term spot price movements would more likely be affected by market forces.

In summary, two conditions would have to exist for SPR bidding to lead spot market prices higher than they would otherwise go. Our analysis leads us to conclude that both conditions are unlikely to be met.

A short-term price-leadership effect on contract oil is possible

A potential price-leadership effect on oil sold under long-term contract is more plausible because the first of the two conditions discussed above would exist--SPR bid prices would exceed contract oil prices, possibly by a substantial amount. This is simply because spot oil prices would rise as a result of the disruption, and SPR bid offers would probably approximate spot prices. Long-term contract prices, however, would not rise until they were administratively reset by the Organization of Petroleum Exporting Countries (OPEC) and other oil-producing nations.

Whether and when OPEC producers agree to raise their contract, prices would depend on political as well as economic issues. Governments of oil-exporting countries, seeing that companies are willing to pay high spot market prices for U.S. government oil, could be under considerable internal pressure to raise contract prices rather than continue to accept below-market prices in response to American pressure. In past disruptions, many foreign producers broke contracts and diverted oil to the spot market to maximize the return on their oil, pending the realignment of official prices. This type of behavior could be encouraged if a large volume of SPR oil is sold at market prices.

Nevertheless, while a competitive SPR sale could conceivably lead contract prices upward more quickly than they would otherwise go, it would probably only hasten a contract price increase that would occur anyway. Recent oil price trends, as figure 1 illustrates, showed contract prices rising toward spot levels, as producing countries sought to get more for their oil. The price signals sent by bidders at an SPR sale to the contract oil market, then, could probably have only a limited effect; they could affect the timing, but not the eventual outcome, of contract price movements.

Thus, one cannot determine conclusively whether a competitive sale would cause a price-leadership effect because it would depend

on factors, such as bidding behavior and political decisions, that are difficult to predict. Nevertheless, our examination of the issue suggests that a price-leadership effect is unlikely to override the price-dampening effect of adding SPR oil to a disrupted market. This is particularly true for the spot market supplies, which have grown in recent years from less than 5 percent to as much as half of world oil trade. A price-leadership effect on contract oil supplies is conceivable, but the extent of this potential problem is limited because regardless of how SPR oil is priced, it would likely be only a matter of time before the contract prices rose to reflect market values.

SUMMARY AND CONCLUSIONS ABOUT THE SALES PLAN'S POTENTIAL OIL PRICE EFFECTS

Studies have shown that the release of substantial amounts of SPR oil during a major oil supply disruption can have a significant price-dampening effect on the world oil market. The experience of past disruptions, the consensus of oil security analysts, and current oil market behavior all suggest that the ability of DOE's sales plan (or any sales plan) to achieve this goal depends primarily on how well it reduces market participants' expectations of supply shortages and higher oil prices in the future. The extent of the sales plan's success in this area, in turn, depends on whether (1) the plan would allow for or encourage an early SPR drawdown decision, (2) the plan would allow for an efficient sale and distribution of SPR oil to take place after the decision is made, and (3) the oil would then be refined and used to meet consumer demand or retained in private inventories. Based on these criteria, we conclude the following about the sales plan's oil price effects:

- DOE has improved the prospects for timely SPR use with its revised policy promoting an early SPR drawdown. There is reason, however, to believe that an early drawdown decision would still be difficult to make under this sales plan.
- DOE has made progress in eliminating barriers to an efficient sale, particularly by improving its contract terms. A key unresolved issue is whether the Jones Act requirement, that SPR oil moving between U.S. ports be shipped on U.S.-flag tankers, would impede the distribution of supplies.
- Some portion of SPR oil, like any oil, would probably be retained in private inventories, rather than refined promptly and used to alleviate product shortages. This type of inventory behavior would diminish the SPR's potential price benefits. However, oil inventory accumulation can best be discouraged, not by law or administrative fiat, but by using the SPR to dampen expectations about rising oil prices. This means assuring the market that the SPR

would be used early and that the drawdown and sale could be accomplished quickly and efficiently.

While economic theory predicts a favorable oil price effect from a competitive sale of SPR oil, concern remains that such a sale may instead lead spot and contract oil prices higher than they would otherwise go. However, our analysis has determined that such a price-leadership effect is unlikely to override the price-dampening effect of an SPR sale, although a limited price-leadership effect on contract oil supplies is possible.

CHAPTER 3

ISSUES AFFECTING WHO WOULD GET SPR OIL

Several important issues affect who the likely recipients of SPR oil would be. In particular, we address whether (1) all interested parties should be allowed access to SPR oil, (2) DOE's Standard Sales Provisions (SSPs) are too burdensome to attract industry participation, (3) the price of SPR oil would be too high for some refiners, and (4) "directed sales" oil is adequate to alleviate domestic hardship or meet U.S. oil-sharing obligations.

Our work convinced us that issues concerning who would get SPR oil are fundamental to the sales plan's success. If the SPR sale is perceived to result in an unfair distribution of the oil, it may create pressure on the Congress to formulate a new approach during an oil crisis that might be less efficient.

SHOULD ACCESS TO SPR OIL BE RESTRICTED?

A controversial element of DOE's sales plan is that access to SPR oil is virtually unrestricted. The plan states that,

"In order to achieve efficient distribution of the SPR oil, the universe of eligible buyers will not be restricted, except insofar as necessary to assure performance and payment. Thus, all interested buyers will be eligible to bid for and purchase SPR oil"

Among the potential buyers of SPR oil, then, are U.S. refiners and oil product marketers, federal and other public agencies, industrial users, brokers and traders, and foreign governments and companies. Administration officials have argued that this is the most economically efficient way to sell the oil and that it allows all parties equal access to it.

Many have stated, however, that access to SPR oil should be restricted to U.S. refiners only, or at least that particular groups should be barred. Among the potential buyers that have been the focus of this debate are

- foreign governments and companies and
- brokers and traders.

Should foreign entities be allowed to buy SPR oil?

An unrestricted universe of buyers means that any foreign entities could buy SPR oil as long as they comply with the terms of the purchase agreement. DOE has cited several advantages of such a policy. As shown below, however, these advantages should be weighed against potentially serious risks.

Reasons cited in past DOE testimony for allowing foreign bidding on SPR oil are that it would (1) improve the efficiency and competitiveness of the sale by increasing the number of potential bidders, (2) allow non-U.S. Caribbean refiners serving the U.S. east coast access to the oil, and (3) allow the United States to use the SPR to meet oil-sharing obligations under the International Energy Program (IEP). While these are valid issues, they do not provide compelling reasons to allow all foreign entities access to the SPR:

- Efficiency gains would likely be small because, even if foreign buyers were excluded, the open universe of bidders would still allow many others to participate, including hundreds of U.S. refiners, marketers, and other public and private organizations.
- Access to the SPR by non-U.S. Caribbean refiners could be useful because they account for a substantial portion of U.S. product imports. Their access could be accommodated, however, by specifying their eligibility in the sales plan, rather than opening the universe of buyers to all foreign parties.
- Similarly, the SPR could be used to satisfy U.S. oil-sharing obligations with our allies without a blanket invitation to all foreign bidders. Indeed, EPCA, Section 161(d) already specifies that the President may use the SPR to meet U.S. obligations under the IEP.

Thus, the first advantage cited by DOE would be a marginal benefit, and the other two could be retained without allowing SPR access to all foreign entities. Moreover, our analysis suggests that these limited advantages may be outweighed by potentially serious consequences of such a policy.

One problem is that under an open universe of buyers, a hostile foreign bidder could, for political reasons, attempt to undermine the objectives of the SPR sale by purchasing the oil and keeping it off the market until prices have risen substantially. DOE stated that laws and regulations governing oil exports provide sufficient authority to prevent the drawdown from being subverted by undesired export of SPR oil. These authorities, however, are not adequate for at least two reasons:

- SPR oil could be indirectly exported and stored overseas. A hostile foreign purchaser could exchange SPR oil with a U.S. company for an equal volume of oil scheduled to be imported by that company. The U.S. company would get the SPR oil, but the same volume of oil that was to be imported could be rerouted to the foreign buyer. The net result of such a transaction would be identical to an export of SPR oil.

--A hostile foreign buyer could simply lease storage space and stockpile the SPR oil in the United States to accomplish the same end. Under the sales plan and the SSPs, DOE would not have authority to reject a winning bid by any party, including adversaries of the United States, as long as they are able to meet the contractual obligations specified in the SSPs. The issue was raised in the DIREX-B test when DOE, in fact, rejected a bid from a hypothetical hostile foreign power and the DIREX-B assessment team correctly noted that DOE could find itself obligated to sell the oil. DOE's only recourse would be to cancel the SPR sale, an action which may be politically unacceptable.

Another reason to place at least some restrictions on the foreign purchase of SPR oil is that this practice could undermine public confidence in the SPR Program and, more generally, in the government's handling of the crisis. The consequences of this type of problem occurring at an SPR sale were raised at a February 1983 hearing when the Chairman of the Subcommittee on Fossil and Synthetic Fuels, House Committee on Energy and Commerce, urged a DOE official

"to make sure that we don't have a quantity of oil sitting out there that somehow is being withheld from the market or somehow is being swapped for foreign crude that could have come into the system . . . because that kind of scandal will just undermine very quickly any effort of any administration to deal with the public and the Congress on an emergency basis, and will certainly lead to activities on Capitol Hill to try to do the exact things that you people advocate we should not do, which is a whole series of restrictions and directives as to how every drop of oil will be allocated in this country."

Thus, there appears to be little to gain but potentially a good deal to lose, particularly in public support for the SPR and the government's emergency response, by allowing all foreign entities to buy SPR oil. As alternatives to address this potential problem, DOE could amend the sales plan to either:

--Exclude foreign entities from buying SPR oil except for (1) non-U.S. Caribbean refiners serving the United States and (2) cases relating to U.S. oil-sharing obligations under the International Energy Agreement or other treaties.

--Authorize the Secretary of Energy discretion to reject undesirable foreign purchases.

Regarding the latter alternative, DOE noted in its technical comments on a draft of this report that the SSPs already give the Secretary the discretion to reject such purchases. SSP No. B.20(f) provides that DOE could reject a bidder as nonresponsible

based on evidence of a lack of integrity which diminishes confidence in the bidder's prospective contract performance. However, there is no necessary relationship between (1) being a hostile foreign power and (2) lack of integrity and nonresponsibility. The hostile foreign power may have every intention and capability to perform its contract to obtain SPR oil. In addition, the SSPs must be consistent with the SPR Drawdown Plan that they implement. It is not clear that DOE's discretionary standard is consistent with an SPR Drawdown Plan that provides in part that "the universe of eligible bidders will not be restricted, except insofar as necessary to assure performance and payment."

We should acknowledge that such changes to DOE's plan could not guarantee that all SPR oil would be used in the United States. The common practice of exchanging oil supplies in the world crude oil market and the operations of multinational oil companies make it difficult to track the final destination of crude oil purchases. However, some form of restriction could make it more difficult for undesirable foreign buyers to acquire SPR oil, and could avert the damaging public image of the U.S. government knowingly selling SPR oil contrary to the nation's interests.

Should brokers and traders
be allowed to buy SPR oil?

Whether to allow oil brokers and traders to participate in a competitive sale of SPR oil is a more ambiguous issue than that of foreign buyers. Our examination of this question shows that including them among the universe of eligible buyers presents both advantages and potential problems.

Brokers and traders play an integral role in today's world oil market. Both act as intermediaries between crude oil sellers and buyers. Although their roles are not always clearly distinguishable from each other, traders generally take title to the oil before reselling it for profit. Brokers do not take title to the oil but match buyers with sellers for a brokerage fee. Because refiners typically use these third parties in crude oil exchanges to balance supply, reduce raw material costs, or hedge risk, brokers and traders often act to enhance the efficiency and logistics of the oil distribution system. They have demonstrated a capability to arrange for oil deliveries to refiners relatively quickly and cheaply.

Similarly, brokers and traders could add flexibility to the SPR distribution system and facilitate transactions at a time when efficient distribution is most needed to reduce oil price increases. Particularly, they could assist potential buyers in making competitive bids and in dealing with administrative matters involved in complying with DOE's contractual obligations. Allowing brokers and traders to buy SPR oil could also enable parties to get SPR oil that might be ineligible to bid for it directly. For example, a broker or trader could resell SPR oil to small

companies which, if they attempted to bid for SPR oil themselves, could not meet minimum quantity purchase requirements.

At the same time, allowing brokers and traders access to SPR oil poses some risk. Brokers and traders could be engaged by anyone, including hostile foreign governments and companies, to buy the oil. If it were decided that it was contrary to U.S. interests to allow unrestricted foreign access to the SPR, then allowing brokers and traders to bid could present a problem.

Another disadvantage often cited about broker/trader participation is the potential that they may speculate on the oil, particularly since they are not in the oil refining business. A trader, for example, could purchase the oil, store it until crisis-driven world oil prices increased substantially, and then resell it for a large profit. This is certainly plausible; there is no guarantee that a trader would immediately resell the oil to a refiner. However, no guarantee exists that oil refiners would have the oil processed immediately either. Indeed, oil companies were responsible for much of the crude oil inventory accumulation that led to the price shock of 1979-80. Moreover, oil companies that maintain oil storage capacity have the best opportunity to hold on to SPR oil for speculative purposes, if they so desire. Thus, while brokers and traders could slow entry of SPR oil into the market if they chose to do so, they are not unique in this respect.

Perhaps the greatest disadvantage in allowing brokers and traders access to SPR oil is one of public perception. The government may risk losing public confidence if it were suspected that SPR oil sold to such non-refiners had been used for private speculative gain. Here too, however, the potential for adverse publicity lies with SPR oil sold to oil companies as well, as illustrated during the Iranian oil crisis. While the media cited stories of oil traders "making a killing," it gave at least as much coverage to alleged oil company overcharges and soaring profits.

Thus, the expertise and experience of brokers and traders could facilitate an SPR sale. At the same time, their participation poses some risks. The Secretary of Energy should reconsider the advantages and disadvantages of brokers' and traders' participation in deciding whether they should be allowed to buy SPR oil.

DO THE STANDARD SALES PROVISIONS
HELP OR HURT THE PROSPECTS OF ANY
PARTICULAR GROUPS TO GET SPR OIL?

The sales plan is intended to allow all eligible bidders an equal opportunity to bid for SPR oil, with the oil awarded to those willing to pay the most for it. However, concerns were raised after DOE issued its draft SSPs in June 1983 that cumbersome or biased sales provisions could hurt the buying prospects of

some groups or help others. We noted in chapter 2 that DOE's revised SSPs corrected many problems that could have interfered with the SPR sale's efficiency, although further improvements could be made.

This section discusses whether these SSPs help or hurt the prospects of any particular groups in competing for the oil. Our examination of the revised SSPs, industry comments to DOE on the SSPs, and our interviews with a cross-section of potential bidders suggest that, while most of the sales provisions put potential bidders on an equal competitive footing, several potential problems exist.

The Jones Act could discourage bids from parties without access to U.S.-flag ships

We concluded in chapter 2 that in a severe oil emergency, a shortage of U.S.-flag tankers, which are required under the Jones Act for shipping SPR oil to U.S. ports, could impair the efficiency of the sale and distribution of SPR oil. Further examination of the issue suggests that if such a shortage were apparent, it could also discourage some parties from participating in the sale.

Among potential bidders that would rely on marine transportation to move SPR oil, some own or have assured access to U.S.-flag vessels while others do not. The National Petroleum Council (NPC) report cited earlier notes that most of the U.S.-flag tankers suitable for domestic crude trades are under the control of major oil companies. Of 84 large U.S.-flag tankers (over 40,000 dead-weight tons) employed in domestic crude oil trade in the first half of 1984, 50 ships were owned by major oil companies and 23 were under long-term leases to them. Only 11 ships, or 13 percent, were available in the tanker spot market. These figures suggest that some small/independent oil companies or other potential bidders relying on marine transportation might not have access to U.S.-flag tankers during an oil disruption.

These firms would have a disincentive to bid for SPR oil because of the severe penalties the SSPs impose for failure to pick up purchased oil within the time specified in the sales contract. These include financial penalties and possible exclusion from future SPR sales. While these bidders could apply for a Jones Act waiver, they may still be reluctant to bid, fearing delays caused by a lengthy case-by-case waiver review process or by outright denial of their application. DOE acknowledged this potential bias in its revised SSPs, noting that a blanket Jones Act waiver could be needed "so that the bidding for SPR oil which is to be moved by ocean carrier will not be limited to the bidders having advance assurance of the use of U.S.-flag ships." The DIREX-B assessment team reached the same conclusion, stating that

"the sale of a large volume of SPR oil over-the-docks would seem to favor the companies who either own U.S.-flag ships or have U.S.-flag ships on long-term lease . . . an offeror who must charter vessels could not be expected to risk his bid bond without knowing what vessel he would use to take the crude."

Minimum purchase volume--
an unresolved issue

The perception of equitable access also depends on whether potential small volume bidders could participate in the sale. The SSPs do not set minimum purchase volumes. Rather, at the time a drawdown is initiated, the Notice of Sale will establish minimum purchase volumes for various modes of delivery, including tankers, barges, and pipelines.

This issue involves a tradeoff between (1) allowing bidders an opportunity to buy small amounts of SPR oil and (2) maintaining the SPR's maximum drawdown rate (currently 2.3 million barrels per day). A high minimum-purchase volume for some transportation modes could limit the pool of eligible bidders to only those capable of taking very large volumes in a given month. On the other hand, allowing many smaller purchases may impair DOE's maximum drawdown capabilities since it would be easier, for logistical reasons, to accommodate fewer large purchases per day than many small ones. Moreover, handling many small purchases increases the burden on staff responsible for reviewing payment and performance guarantees, evaluating bids, and other administrative matters.

This issue may be particularly important for potential buyers located near the intercoastal waters of the Gulf of Mexico and along the Mississippi River who currently rely on barges for moving domestic and foreign crude oil. Barges may be the only way for some of these companies to move SPR oil to their refineries. However, the use of many small barges to deliver SPR oil could affect the SPR's maximum drawdown rate because they have a slower loading rate and smaller load capacity than tankers. Furthermore, if the minimum lot size for barges is too low (allowing more barges to pick up SPR oil than would be the case with a high minimum lot size), barge traffic could overwhelm the capacity of SPR terminals to handle them. The NPC report noted that "at the present time, the SPR system has very limited capacity to load barges," and warned that "significant bottlenecks could occur" if a substantial amount of crude oil were distributed by barge.

The DIREX-B assessment team recommended that DOE "conduct a study of the policy with respect to minimum lot sizes, including estimates of likely demand for small lots, the requirements for processing small lots, and costs of meeting such requirements." As part of its analysis of the adequacy of the existing SPR transportation system, DOE is currently estimating potential barge loading requirements. If that study confirms the NPC conclusion,

DOE may be faced with the choice of (1) upgrading its facilities to accommodate many barges or (2) setting a minimum lot size for barges that is high enough to discourage those relying on small barge loads from bidding.

A maximum purchase volume should be considered

The SSPs do not place any upper limit on the amount of SPR oil that a bidder can purchase at a given sale. The plan allows bidders to specify the amount of SPR oil that they wish to buy along with their bid price. As mentioned earlier, short of cancelling the sale, DOE would be required to sell, in accordance with the SSPs, the amount specified by a winning bidder regardless of who the bidder was or how much oil that bidder sought to purchase.

Several oil companies commenting on the draft SSPs recommended that a maximum purchase quantity be established to preclude the possibility of a single bidder, or a small number of bidders, purchasing all the SPR oil in that month's offering. DOE rejected this advice in the January 20, 1984, Federal Register notice "because it would be contrary to the philosophy of [the Plan] that price competition should be the sole determinant of how the petroleum is to be distributed."

While it is impossible to predict the likelihood that a few buyers would attempt to acquire all of the SPR oil at a particular sale, such an event is possible under the current sales plan. Economic theory suggests that such an outcome would merely reflect the efficient distribution of SPR oil in that the oil would go to its most highly valued use. Nevertheless, there may be cause for concern if the public perceives the concentration of SPR oil in the hands of a few buyers as unfair. In past disruptions, concerns over fairness in the distribution of privately owned oil led to confusion and public protests that undermined the government's efforts to deal with the crisis. If these experiences serve as any indication, the media and general public may react negatively if one or a few bidders purchase an inordinately large share of government-owned oil.

Therefore, it may be prudent to set a limit on an individual bidder's purchase volume to avoid this outcome. The limit need not be so low as to materially affect the distribution of oil under the competitive bid system, but just low enough to act as a safeguard against exceptionally large and potentially harmful sales. Indeed, these criteria are used by domestic commodities exchanges which, in conjunction with the U.S. Commodity Futures Trading Commission, set volume limits on all commodities traded, including crude oil. Factors considered in setting these ceilings include volume sizes customarily bought and sold by speculative traders for a commodity and the amount of the commodity available on the market. Similarly, a ceiling on SPR purchases could also be based on market criteria.

COULD INDEPENDENT REFINERS
COMPETE SUCCESSFULLY FOR SPR OIL?

Independent refiners are, in general, more vulnerable to oil supply disruptions because of their relatively high dependence on the world spot market as a source of their crude oil supplies. In today's market, this practice gives them a cost advantage on foreign supplies, since spot prices are currently slightly lower than prices available under term contracts. However, as spot market prices are driven up by an oil supply shortfall, these independent refiners would face very high crude oil acquisition costs. This would put them at a cost disadvantage relative to firms that can obtain cheaper crude oil from their own domestic sources.

Independent refiners, concerned that this differential in average crude oil acquisition costs could put them out of business in the next disruption, are looking to the SPR for relief. Our analysis shows that while an SPR sale under the current plan would provide an overall price-reducing benefit, it may not alleviate the independent companies' competitive problems. By charging market-determined prices, the SPR sale may not be offering oil to independent companies at prices they can afford to pay. Whether or not the plan should be redesigned to ensure the viability of all firms in the market remains a political question. The nature of the problem facing independents and the effect of a competitive SPR sale on this group are discussed below.

Unequal oil acquisition costs
could put independent refiners
at a competitive disadvantage

The classification of an oil refiner as an independent or an integrated company refers to the degree to which the firm controls the source and distribution of its oil supplies. In general, integrated refiners control a substantial volume of crude oil from their own production wells. While there is no precise definition in use today, the 1973 Emergency Petroleum Allocation Act defined an independent refiner, in part, as one who obtained more than 70 percent of his refinery input from producers not under common control with it. According to the American Independent Refiners Association (AIRA) independents "must purchase the majority of their crude oil needs for refining in arms-length transactions from domestic producers, foreign governments or international trading companies." AIRA estimated that there were about 60 to 70 independent refiners operating in the U.S. in 1983.

Because of this unequal access to crude oil, a severe oil supply disruption may have a different impact on independent and integrated refiners. Integrated refiners may have to pay spot prices to replace some of their supplies, but they would also have access to cheaper, company-owned production to keep their average crude oil acquisition costs down. In contrast, some independent refiners might have to rely on expensive spot-market-priced oil

for all of their supplies, making their acquisition costs higher than their competitors' costs.

Whether these higher oil acquisition costs would result in a competitive disadvantage for independent refiners depends on how integrated oil companies behave in the next disruption. In an ideal competitive market, integrated oil refiners, while having access to lower cost crude supplies, would price their refined products based on the spot market price of crude oil in order to maximize their profits. Independent refiners, to stay in business, would also base their prices for refined products on the cost of spot market supplies. All firms would remain competitive, although the integrated firms would make larger profits.

Analysts have suggested, however, that the oil market may not perform in accordance with classical free market theory during an oil supply disruption. A May 1983 Harvard University study, citing historical behavior, has suggested that companies with substantial domestic crude production may choose to charge less than spot market prices for their refined products. The potential reasons for pricing below market-clearing levels might include (1) attempts to gain a larger market share for later advantage, (2) yielding to government pressure (the threat of reregulation), and (3) the propensity of large firms to allocate supplies administratively rather than relying only on short-term profit maximizing considerations. According to this report:

"History suggests that oil companies with access to lower-priced crude will not necessarily price their products at marginal costs. One does not have to embrace theories of anti-competitive behavior to subscribe to this view, and the lower prices would benefit consumers. There is no escaping the fact, however, that such behavior by firms with access to lower-priced crude create problems for firms that must purchase higher-priced crude."¹

The impact of this behavior on independent refiners would depend on the degree of refiner competition in wholesale and retail markets. In regional markets where independent refiners compete with integrated refiners charging less than spot market costs for refined products, the independent may have to cut prices and absorb short-term financial losses, or go out of business. Only those independent refiners operating in regional markets where they provide a major share of refined products would be able to pass their higher crude oil costs on to their customers.

¹Edward N. Krapels, et al., "Summary," Crude Oil Access in Disruptions in the 1980s: Analysis of Public Policy Implications, Harvard Energy Security Program, H-83-03, May 1983, p. 17.

Does the SPR plan address
this potential problem?

Independent refiners, faced with potential product-marketing problems created by an oil disruption, would find little relief under the current SPR sales plan. Most SPR oil would be distributed by competitive sale. As has been shown, some independent refiners may find that a successful bid price would not be a price at which they could compete in markets for refined products.

In light of this, some independent refiners and consumer interest groups have argued that the government should sell SPR oil in a way that compensates for potential marketing problems. One approach would be to allocate sufficient SPR oil to independent refiners at below-market prices. (This type of proposal is discussed further in chapter 4.) By bringing their crude oil acquisition costs closer to the industry average, independent refiners would stand a much better chance of maintaining their competitive position in the refining industry.

On the other hand, while acknowledging the likely unequal distribution of disruption impacts, most of the oil security analysts and major oil company representatives we interviewed told us that the government should not try to prevent these potential competitive problems by subsidizing independent refiners through the sale of SPR oil. Among the reasons given was that independent refiners, buying on the spot market during slack market conditions, gain an advantage over integrated companies paying higher contract prices for foreign oil. These gains, they say, help balance out the hardships incurred during a disruption. In addition, it was asserted that an SPR subsidy to independent refiners would discourage them from building contingency crude oil stocks and diversifying their supply sources in normal times.

In summary, a drawdown of SPR oil would benefit all refiners by dampening the rise in world oil prices. However, market-priced SPR oil may cost too much to help independent refiners compete against integrated refiners that price products below market-clearing levels. The magnitude of this potential marketing problem would depend on (1) the size of the differential in crude oil acquisition costs, (2) the amount of competition between independent and integrated refiners in regional markets, and (3) the pricing policies of the integrated oil companies.

It is important to understand that DOE's method of selling SPR oil is market-based and therefore would act like any other source of spot oil supplies on the world market. Whether the SPR should be distributed in a way which would help independent refiners compete is a policy matter. There is no "right answer" that flows from this analysis; it depends on one's view of the government's role in an oil emergency. This is an issue on which much public pressure can be brought to bear on the Congress and the administration during an oil supply disruption.

COULD DIRECTED SALES OF SPR
OIL SATISFY CRITICAL NEEDS?

DOE's sales plan states that

"under the most extreme of circumstances the Secretary [of Energy] may direct in any calendar month the distribution of up to 10 percent of the volume of SPR oil sold in that calendar month, in such a manner as he determines at his discretion."

Importantly, this oil would be sold at the average price of SPR oil sold at the most recent competitive sale.

A directed-sales provision is not without drawbacks. Since the market would not be used to determine the oil's recipients, directed sales could detract somewhat from the economic efficiency of the SPR distribution. Perhaps more important is the political difficulty the administration may encounter in assessing the relative need of the various applicants for this oil. On balance, though, reserving a small portion of the SPR for the Secretary's discretion could be useful in providing flexibility, without causing large market distortions, to a plan that otherwise exercises almost no control over who gets the oil. Discretionary oil could be essential to satisfy U.S. oil-sharing obligations under the IEP, for alleviating hardship, or for meeting a variety of unforeseen circumstances arising in an oil emergency.

Directed-sales oil could be
insufficient to meet U.S. inter-
national oil-sharing obligations

In a severe energy emergency, the Secretary of Energy has said that the United States may have to rely on the SPR to compensate U.S. oil companies that make successful "voluntary offers" of oil to meet U.S. oil-sharing obligations under the IEP. Many companies have argued that the mere right to compete for SPR oil would be insufficient assurance that they could replace oil supplies lost due to sales resulting from these "voluntary offers." As a result, DOE has stated that it would consider using all or part of the directed-sales portion of the SPR to make the voluntary oil-sharing system work.

However, the directed-sales provision, as described in the DOE plan, could not be relied upon for this purpose in a major disruption because the quantity of oil available would likely be insufficient. For example, the Secretary of Energy has estimated that a cutoff of Persian Gulf oil supplies would likely result in a net world oil shortfall of roughly 5 million barrels per day. According to our calculations, the IEP oil-sharing formula would obligate the United States to share almost 1 million barrels per

day in such a disruption.² At the present maximum SPR drawdown rate of about 2 million barrels per day, the maximum available directed-sales volume would be 10 percent of this amount, or about 200,000 barrels per day. Although the quantity of directed-sales oil would increase somewhat if the SPR's drawdown capability increases in coming years, it would still probably fall below the U.S. sharing obligation. This is particularly true since it cannot be assumed that all directed-sales oil could be used for this purpose. As discussed below, the government would likely come under considerable pressure to use directed-sales oil for domestic purposes.

Directed-sales oil may be inadequate to alleviate domestic hardship

Directed-sales oil could be sold to those who are unable to obtain SPR oil in the competitive bidding process, but who demonstrate a critical need for supplies. Oil could be made available for transportation and other public services, maintenance of agricultural operations, and a variety of other purposes.

However, the quantity of directed-sales oil may be insufficient to satisfy these domestic hardship requirements. While the level of demand for this purpose can only be surmised before an actual emergency, our interviews with independent oil company representatives suggest that the number of applicants may be high. Most said that their companies would likely apply for directed-sales oil, if they were unsuccessful bidders in the competitive sale.

States' participation in the 1983 IEA sharing test suggests that they too may apply for directed-sales oil. Most of the 10 participating states asserted during the test that economic hardship, exacerbated by oil product shortages, necessitated federal intervention. One could reasonably conclude that states in this position could apply for directed-sales oil to help alleviate local shortages.

Beyond these general indications of demand for directed-sales oil, whether the supply of directed-sales oil would be able to meet demand is speculative. Additional uncertainty over the issue arises from the fact that the sales plan's provision for "up to" 10 percent means that the directed-sales volume can be as much as 200,000 barrels per day (10 percent of the current maximum drawdown rate) or as little as zero. Indeed, a July 1984 DOE report to the Chairman of the Subcommittee on Environment, Energy and

²An SPR drawdown might reduce this obligation somewhat if the added SPR supplies reduced U.S. imports, because the IEP formula counts such imports as part of each country's available supply. Under the formula, a smaller available supply would lead to a smaller sharing obligation.

Natural Resources, House Committee on Government Operations, suggested that none of the oil would be used for this purpose, noting that "the Administration's policy envisions all SPR sales to be competitive, i.e., sold to the highest bidder"

Regardless of the amount of available directed-sales oil, however, the competitive price of the oil would diminish its ability to alleviate hardship. Soaring oil prices are the primary cause of economic hardship in a disruption, and market-priced directed-sales oil may be no less costly than oil that could be obtained elsewhere on the open market. Herein lies a "catch-22" on the ability of directed-sales oil to alleviate hardship: hardship applicants could get directed-sales oil only if they could afford to buy it; but if they could afford the oil, they could probably meet their needs by going to the open market.

Thus, whether directed-sales oil is adequate depends on what it is intended to accomplish. It could give the government modest flexibility to deal with critical circumstances. This flexibility may be useful in a plan that otherwise lets the market determine who would get SPR oil. It is probably inadequate, however, if it is supposed to deal with either oil price-related economic hardship or U.S. international oil-sharing obligations.

SUMMARY AND CONCLUSIONS ABOUT THE DISTRIBUTION OF SPR OIL

We examined four key issues affecting who would get SPR oil: (1) whether foreigners, brokers, and traders should be permitted to buy the oil, (2) whether DOE's sales contract terms, the standard sales provisions (SSPs), would help or hurt the prospects of any particular groups to get the oil, (3) whether independent refiners would be able to compete successfully for SPR oil, and (4) how well the directed-sales portion of an SPR sale could alleviate domestic hardship and satisfy U.S. international oil-sharing obligations. The following are our conclusions about these issues:

- There is reason to believe that the risks associated with unrestricted foreign access to SPR oil may outweigh the potential benefits cited by DOE. Whether to allow brokers and traders access to SPR oil is a more ambiguous issue because, while including this group presents some problems, there may be important advantages to their participation.
- The SSPs have been substantially improved since DOE's 1983 draft SSPs, according to industry comments to DOE and our interviews with potential bidders. However, several issues remain:
 - The Jones Act requirement, that SPR oil moving between U.S. ports be shipped on U.S.-flag tankers, could give an advantage to buyers with assured access to these vessels while discouraging others from bidding.

- A high minimum purchase volume for an individual bid, particularly in the case of SPR oil transported by barge, could preclude small volume buyers from qualifying to bid. Allowing many small purchases, however, would likely impair the SPR's maximum drawdown rate.
- The SSPs do not set an upper limit on the amount of SPR oil that a bidder can purchase at a given sale, opening the possibility that one or a few buyers could get all or most of the oil. Such an occurrence could hurt the SPR's public support.
- Independent oil companies' greater reliance on the world spot market may cause them to have higher crude oil acquisition costs in an oil shortage than the integrated oil companies, making it difficult for some to remain competitive. Because the sales plan is market-based, making the SPR act like any other source of spot oil supplies, it would probably not offer independent refiners much relief from their potential marketing problems.
- The directed sales portion of an SPR sale may be useful if it is intended only to give the government modest flexibility in a plan that otherwise lets the market determine who would get the oil. It is probably inadequate, however, if it is supposed to deal with either oil price-related economic hardship or U.S. international oil-sharing obligations.

CHAPTER 4

COMPARING DOE'S SALES PLAN WITH ALTERNATIVE SALES METHODS

The letter requesting this report asked us to compare the current SPR sales plan to alternative approaches to selling SPR oil. Our examination focused on sales methods that have been of interest to oil security analysts, potential SPR buyers, and the Congress. These include:

- The continuous sale of options to buy SPR oil in advance of a supply disruption. This alternative is being studied by DOE, and it was the subject of legislation proposed in the Senate last year.
- Government allocation of SPR oil at administered prices. This method was among the sales alternatives authorized in the 1979 SPR distribution plan, and it is favored by many small and independent refiners.

Generally, our review did not lead us to conclude that DOE's sales plan should be replaced by a completely different sales method. However, as discussed below, we believe that certain elements of the alternatives examined may suggest modifications to the current plan.

THE SALE OF OPTIONS TO BUY SPR OIL

Although this idea has been cast in various forms, the basic concept is that the government would sell options, by competitive bidding, to buy SPR oil 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 which, in the government's view, is high enough to warrant the release of SPR oil. Proposals for periods during which SPR options could be exercised have ranged from a few weeks to a year. Bidders for SPR options would be those parties that believe that an oil disruption might, during the term of the option, push oil prices above the strike price, thereby allowing them to obtain supplies from the SPR. The universe of buyers could be wide open, as is the case under the current plan, or it could be restricted, say, to U.S. refiners.

As an illustration of how the sale could work, DOE could sell options today to buy SPR oil at \$40 per barrel, specifying that the options could be exercised at any time within 1 year. The price of the options would be determined by competitive bidding, reflecting the market's assessment of the likelihood of a disruption occurring during the 1-year term. Options, under these assumptions, could sell for about 15 cents per barrel, according to an estimate by Harvard University. If the world oil price did not rise above \$40 per barrel during the term, the options would probably not be exercised (and the cost of the options accrued to the government), since options holders could get oil supplies more

cheaply on the open market than from the SPR. If, however, an oil crisis drove prices up to, say, \$50 per barrel during the year, the buyer could exercise the option and purchase oil at \$40 per barrel, saving \$10 per barrel off the prevailing market price.

Advantages of the options concept

Most of the oil security analysts we interviewed endorse the options concept, noting particularly that it could dampen oil price increases in a disruption more effectively than the DOE plan. Some also noted that an options sale can offer an opportunity to self-insure against sudden oil price increases through the purchase of the relatively inexpensive options. We will discuss these advantages below and then examine some of the concerns that have been raised about implementing this sales method.

An options sale could have a better oil price effect than the current sales plan

The enthusiasm among oil security analysts for the options approach is due primarily to its intended effect on oil inventory behavior at the onset of an oil cutoff. We noted in chapter 2 the generally accepted view that oil inventory accumulation, fueled by supply uncertainty and expectations of rising prices, is the main threat to oil price stability when an oil shortage occurs. While the oil market would be discouraged from such "panic" behavior if a prompt SPR drawdown were guaranteed, there is reason to believe that the decision to use the SPR might be delayed.

The options proposal is designed to calm a nervous oil market by assuring it that the SPR use decision would not be held up by a difficult government decision process but rather would be made automatically by the oil market itself. According to George Horwich of Purdue University, a key advantage of the options system is that it enables the private sector to anticipate SPR releases. Horwich points out that "this lowers not only the expected future price of oil, but also the current spot market price by reducing the demand for speculative stocks . . . this results in a lower world price during the disruption."¹

Recipients would be able to purchase SPR oil at below-market prices in a disruption

We noted in chapter 2 that, under the DOE sales plan, buyers of SPR oil would likely pay prices approximating the spot market value of crude oil during the disruption. We then noted in chapter 3 that some independent oil refiners may need access to

¹George Horwich and David Weiner, "Oil Supply Disruptions, the Free Market, and Public Policies," American Enterprise Institute for Public Policy Research, Jan. 1984, p. 39.

below-spot-priced oil if they are to remain competitive with integrated oil companies during an oil crisis. With the sale of SPR options, however, the government would allow these companies guaranteed access to below market-priced oil as long as they are willing to pay and risk the price of the option. In the illustration above, an outlay of 15 cents per barrel could save a buyer \$10 per barrel or more on replacement oil supplies during an oil emergency.

In testimony before the Subcommittee on Fossil and Synthetic Fuels, House Committee on Energy and Commerce, Steven J. Kelman of Harvard University likened SPR options to an insurance policy:

"By purchasing options to buy a certain number of barrels of SPR oil if the price goes up to a certain amount, one is buying insurance against an oil emergency. No matter how high the price goes up, an option holder would be guaranteed the oil for which he has purchased options at whatever price is specified in the option contract."

Alluding to the potential marketing problems that independent refiners may experience in an oil shortage, Kelman concluded that "options provide a way to help independents through a marketplace mechanism without requiring allocations of SPR oil."

Obstacles to implementing an options sale

Despite these theoretical advantages, we have found little enthusiasm at DOE and among potential SPR buyers for an options sale. While DOE awarded a contract last summer to perform a detailed study of the SPR options concept (as well as other "forward-sales" mechanisms), it opposed legislation last year that would authorize the President to proceed with an options plan. Our conversations with industry representatives, and industry comments to a DOE Notice of Inquiry on the subject, also demonstrated their opposition to such a program.

An options sale could constrain the President's discretion on when to draw down the SPR

One argument made against selling all SPR oil by the options method is that it would put the government's primary emergency response mechanism under the control of the oil market (by allowing world oil prices to determine SPR use) and take it out of the President's control. At least some presidential control may be warranted, though, to deal with unforeseen circumstances in an emergency, and by the political fact that the SPR is a publicly funded resource.

The need for presidential discretion is a legitimate matter of concern, according to many oil security analysts, including those who favor an options sale. One could deal with this issue by requiring presidential approval before options could be exercised, but this would negate the advantage of assuring the oil market that SPR use would not be delayed by a slow or timid government decisionmaking process. A better way to deal with this concern would be to set a limit on the volume of SPR oil that could be sold by the options method; the balance of the SPR would be sold at the President's discretion. The determination of the proportion of the SPR sold each way should consider two key criteria. The quantity to be sold by options should be large enough to have its desired oil inventory effect at the start of an oil shortage. At the same time, however, the amount reserved for presidential discretion should be adequate to deal with unforeseen circumstances, including a potential worsening or protraction of the crisis.

Setting the precise limit would be a matter of judgment, but the substantial size of the SPR suggests that both criteria can be met. Indeed, Kelman stated in his testimony that, at most, one-fifth of the SPR should be sold by the options method.

Industry is skeptical
about an options sale

An impediment to implementing an SPR options plan in the near future is skepticism about such a sale among oil companies and other potential SPR oil buyers. These parties would have to support the concept of an options sale to assure the broad participation necessary for a successful sale. However, almost all of the industry representatives we interviewed opposed a sale of SPR options, as did the large majority of respondents to an April 8, 1983, DOE Notice of Inquiry on the subject. Most comments ranged from opposition to the SPR options concept to a need to understand the specifics of an options proposal.

Some small and independent oil companies challenged the notion that an options sale gives them a chance to ensure themselves against high oil prices, noting instead that large oil companies could better afford the risk of buying options and would therefore get most of the oil. Ironically, however, major oil companies strongly opposed the idea as well. Many of them questioned the concept's feasibility or cited key elements that would have to be defined in a detailed proposal. For example, the American Petroleum Institute raised questions about the public acceptability of the concept, its consistency with DOE policy, and other issues including:

"Who should be eligible as purchasers? . . . How long would the purchase rights last? Are they transferrable? Would the sales price be specified or bid on? Should such a program be adopted immediately, only

after the SPR has attained a certain level, or only as a standby measure? Moreover, what portion of the SPR should be dedicated to such sales?"

The options concept needs further study

Thus, considerable work would have to be done to demonstrate this method's feasibility before industry's confidence would be improved. This effort is necessary because, as proponents of the concept concede, many legitimate issues need to be addressed before going ahead with an options sale. Among them are:

- the appropriate strike price at which the oil would be sold;
- the term of the options, during which an option could be exercised;
- whether options should be resalable, and whether the universe of buyers should be restricted;
- how much of the SPR should be sold this way; and
- rules concerning buyer eligibility, performance criteria, and other terms of sale.

Assuming these matters are addressed, several issues would still need to be resolved, or at least considered in determining whether an options sale would improve the current sales plan:

- Control over the drawdown rate. DOE would probably have less day-to-day control over the SPR drawdown rate because option holders could choose when to buy the oil. Some may want to keep the oil in the SPR for the full term of their option at the government's expense while the value of the oil continues to rise. Conversely, a sudden rush to exercise options could cause claims on the oil to exceed the SPR's maximum drawdown capacity. Limiting the volume offered and setting a relatively short term during which options could be exercised may help to alleviate this potential problem.
- Public acceptability. An options sale may have political liabilities similar to, and possibly more serious than, the current plan, in that brokers and traders (who are normally associated with such transactions) and others could profit greatly from "paper" transactions with the options. DOE would have to consider this potential problem in deciding whether options should be resalable.
- Administrative costs. The administrative costs and staffing requirements to hold periodic SPR options sales should be assessed. Predisruption administrative costs would

likely be higher than with the current sales plan, particularly if frequent sales of short-term options are deemed necessary.

--Federal revenues. The government would make money on the sale of options before an oil crisis but would have to sell oil at below-market prices when the options are exercised. A loss of federal revenue would result if the oil were then replaced at higher, post-disruption prices.

In summary, the options concept has considerable merit because it is designed to assure oil inventory holders that SPR oil would enter the market early in an oil disruption. This would reduce the incentive to accumulate oil supplies before the onset of a disruption in anticipation of rapidly rising prices. In addition, an options sale could allow buyers access to crude oil at below-market prices during a disruption. To preserve at least some presidential discretion in an emergency, however, no more than a limited amount of SPR oil should be sold this way, while the balance should be used only after the President determines that a further drawdown is necessary. Moreover, before proceeding with even a limited SPR options program, a detailed proposal by DOE should address issues and implementation questions raised above. DOE is currently analyzing the benefits and drawbacks of this and other alternative SPR sales methods and then plans to develop implementation procedures for potentially useful alternatives.

SELLING SPR OIL BY ALLOCATION AT ADMINISTERED PRICES

The DOE plan for selling SPR oil is designed to simulate the operation of the marketplace as closely as possible. By distributing the oil to the highest bidders in periodic competitive sales, the market approach should ensure that the SPR oil would be put to its most valued uses as reflected in private economic decisions. While the market may appear to be the most economically efficient allocator of SPR oil, higher product prices and public sensitivity to perceived inequities during a crisis could lead to political pressures for alternatives to the market approach to SPR oil distribution (or even greater government involvement in the form of price and allocation controls).

An alternative method of sale, advocated by some who believe that the impacts of the shortage would not be distributed fairly under the DOE plan, is a government-determined allocation of SPR oil at administratively set prices. This type of sale was among the options included in DOE's 1979 SPR distribution plan. According to that plan, SPR oil could be sold to selected refiners based on their relative need for oil as measured by their losses of imported oil. Alternatively, SPR oil could be allocated on a pro rata basis to all domestic refiners using a system of negotiable "buy rights." Refiners would be issued rights to SPR oil based on

their share of the total volume of crude oil used by the industry, or some other parameter, during a recent base period. Under either method of selecting SPR purchasers, DOE would set the sales price. It could, for instance, be set at the average landed oil import price or the industry average crude oil acquisition cost.

Allocating SPR oil would also dampen world oil price increases

Just as in a competitive sale, the immediate and obvious economic benefit of selling large amounts of SPR oil to refiners would be to reduce their demand for spot market oil and thereby have the effect of dampening world oil price increases. However, while economic theory argues for such a price effect under an allocation method of sale, it also suggests a comparatively smaller price benefit than that achievable with a competitive SPR sale. Assuming consumer demand for oil is somewhat responsive to price in the short-run, selling SPR oil at below-market prices may, in cases where the lower prices are passed through to consumers, elicit greater oil demand. This greater consumption could lead to a higher demand for imported oil and, ultimately, higher crude oil prices.

The price effect of selling SPR oil by allocation also depends on the extent to which the sale could be accomplished promptly and efficiently, key factors in reducing the incentive for private inventory accumulation. As with DOE's competitive sales plan, the timeliness of the SPR drawdown decision would be contingent on a presidential finding that this action was required due to a "severe energy supply interruption" or by U.S. obligations to the IEA. This EPCA stipulation is designed, in part, to provide the government with flexibility and control over when to use the reserve. However, for reasons elaborated earlier, the requirement could make an early drawdown somewhat less likely than if an arbitrary trigger, such as a "strike price," were used.

As to the ease of conducting the sale and distributing the SPR oil, it is difficult to say whether allocating oil to refiners would differ significantly from a competitive sale. In any type of allocation scheme, a mechanism must be in place for collecting necessary data from U.S. refiners before a drawdown can take place. Data would be required to be reported in a consistent and timely manner to enable DOE to determine relative shares for each refiner.

With an allocation system based on a historical distribution parameter (such as share of crude oil inputs or share of capacity), refiners could be notified of their SPR "buy rights" and the established price almost immediately after a drawdown decision is made. By not requiring the solicitation, receipt, and evaluation of bids, DOE could save 11 to 12 days (based on DOE's estimated timetable) off the time it would take to select apparently successful bidders in a competitive sale.

On the other hand, if an allocation system were based on criteria that required data from individual refiners at the time of sale, the collection, processing, and verification of the data could cause significant delays. This type of information could include refiners' disruption operating levels, oil import losses, access to domestic production, and various cost data.

"Fair" distribution of SPR oil
could be difficult to achieve

Allocating SPR oil at administered prices has been proposed by those who believe that the problems created by unequal crude oil access cannot be handled by a competitive sale of SPR oil in a severe oil supply disruption. It is argued that the market-oriented method of sale would result in a distribution of SPR oil based solely on the ability to pay market prices for supplies, not on "user need." The objective of selling SPR oil by allocation, on the other hand, would be to distribute the oil in what may be considered a more equitable, and therefore more politically feasible, manner.

While the objective of a government-determined distribution and price for SPR oil may be to assure equitable access, potentially serious administrative and political problems could undermine this objective. One difficulty with this method of sale is the problem of choosing an acceptable selection criterion or distribution measure. For instance, almost any base period chosen puts some refiners in a poor position due to some unusual and non-recurring operating condition at the time. Refiners would be likely to request that DOE adjust their SPR allotment to correct for their special circumstances. Exceptions to whatever rule of equity is chosen could be expected, as evidenced in past disruptions, and could skew the distribution of SPR oil. In his assessment of allocation as a means of distributing shortages, William Lane reported that,

"In the spring of 1979, government officials failed to anticipate the peak demand for diesel fuel in the Midwest for agriculture use, and then over-reacted by allowing farmers all of their "current requirements." The shift of diesel fuel to farmers (at least some of which went to fill storage tanks for possible future use) contributed to the shortages experienced by truckers."²

In addition, a distribution system which relies on data reported by eligible SPR recipients may be susceptible to abuse. Misestimates of current or historical data by individual refiners

²William C. Lane, "The Mandatory Petroleum Price and Allocation Regulations: A History and Analysis," American Petroleum Institute, 1981, p. 98.

can be corrected only after some time and would require audits and litigation at considerable administrative cost. Under certain criteria, refiners would have an incentive to intentionally underestimate post-disruption crude oil availability in order to obtain a larger SPR apportionment. This may be difficult to prevent even if DOE established stiff penalties. In an evaluation of DOE's administration of the gasoline allocation program during 1979, we reported that "the results of the Office of Enforcement audit activities indicate widespread noncompliance by industry." The violations cited included improper computation of allocation fractions and adjustment of base period volumes.³

Selling SPR oil at noncompetitive prices would generate less federal revenue

Finally, allocating SPR oil at administered prices would likely generate less federal revenue than a competitive sale. By pricing SPR oil at below-market levels, DOE would be providing a subsidy to some or all refiners in what it defines as an equitable distribution. In the absence of price controls on refined oil products, this subsidy could easily turn into a windfall gain to the refiners allotted the relatively cheap oil, since there would be no guarantee that the benefits of the oil price discount would be passed on to consumers. Windfall gains could occur in regions where SPR oil purchasers faced little product market competition. Refiners could sell their refined products at close-to-market value and capture the subsidy.

Selling SPR oil in two pools combines competitive and uncompetitive approaches

If it were found desirable to guarantee independent refiners access to at least some SPR oil, but to still rely primarily on the market to price and distribute most of the oil, the sales plan could combine competitive and uncompetitive methods of sale. Under this alternative, each month's SPR drawdown volume would be divided into two pools, the size of each pool to be determined by DOE. For example, the drawdown could be split in proportion to the amounts of crude oil processed by integrated and independent refiners before the disruption.

The method of sale in the first pool would be competitive bidding among eligible participants as defined by DOE. A second pool would be a set-aside program for independent refiners, with DOE distributing the oil based on a pro rata allocation. In the first pool, the price for each purchaser would be set by its successful bid. In the second pool, refiners would be charged the average of the prices paid by successful bidders in the first pool. Since bids would likely approximate spot market oil prices

³Gasoline Allocation: A Chaotic Program in Need of Overhaul
(GAO/EMD-80-34, Apr. 23, 1980, p. 47).

(for reasons discussed in chapter 2), this price is likely to be very near the world market price of oil. However, if the range of successful first pool bids includes many below-spot market prices, the price paid by independent refiners could fall below world market levels.

This concept resembles the manner in which the Department of the Treasury sells Treasury bills at its weekly auctions. The idea was also incorporated in Senate legislation introduced last year. Among the advantages of this sales method are that:

- The most efficient distribution system would dominate because most of the oil would be sold competitively. At the same time, SPR oil access would be assured for independent oil companies.
- Independent refiners' potential competitive problems could be somewhat reduced. By receiving SPR oil at the average price paid in the competitive sale, the independent has an opportunity (albeit small) to obtain supplies at below-market prices. In addition, the transaction costs normally incurred in the bidding process or in spot market trading would be eliminated for those in the second pool. Whether these "subsidies" would be sufficient to protect independent companies' market share is uncertain.

The disadvantages of a two-pool method of sale center on some implementation problems associated with the allocation plan. However, because the oil in the second pool would be a relatively small portion of the total SPR drawdown, the impact of these difficulties would likely be proportionately smaller. Among these disadvantages:

- The drawdown of SPR oil from the second pool could be delayed. DOE could not proceed with its allocation of buy rights to independent refiners until after awards were made to successful bidders in the first pool and the average price was computed.
- Problems remain regarding data collection and verification, as well as the difficulty of selecting an acceptable distribution criteria for the second oil pool.

SUMMARY AND CONCLUSIONS ABOUT ALTERNATIVE SPR SALES METHODS

We examined the potential price and distributional effects of two alternative sales methods that have been of interest to the Congress and to potential buyers of SPR oil. These alternatives include the continuous sale of options to buy SPR oil in advance of an oil emergency and allocation of SPR oil at administered prices.

The sale of options
to buy SPR oil

Our analysis has shown that an options approach to selling SPR oil could offer advantages over the present sales method but has some conceptual and practical limitations. We found that:

- Most of the oil security analysts we interviewed strongly endorsed the options concept, noting particularly that it could more effectively dampen oil price increases in a disruption than DOE's current plan. Some also noted that an options sale can offer all buyers the opportunity to self-ensure against enormous oil price increases by purchasing the relatively inexpensive options. This could assist independent refiners in alleviating their potential competitive problems in an oil crisis.
- Most of the industry representatives we interviewed opposed a sale of SPR options, as did the majority of respondents to a DOE Notice of Inquiry on the subject. Many of them questioned the concept's feasibility or cited key elements that would have to be defined in a detailed proposal. Confidence in this approach among these potential buyers would have to be improved for this method of sale to attract broad participation.
- An options sale of all SPR oil would sharply reduce the President's control over when and how much SPR oil should be drawn down in an emergency. Control could be preserved if only part of the oil were sold this way.

Government allocation at administered prices

Perhaps more so than with the other plans we examined, the intended benefits of an uncompetitive allocation of SPR oil may be precluded by administrative difficulties. Based on our assessment of how an allocation scheme might be developed and on the government's experience implementing fuel allocation plans during previous oil disruptions, we offer the following conclusions:

- Allocating large quantities of SPR oil early in a disruption would dampen world oil price increases. However, the resulting price effects may be somewhat less than under a competitive sales method.
- It would be difficult to develop distribution criteria for SPR oil that adequately address equity concerns.
- Problems associated with data collection and verification may delay or distort the distribution of SPR oil.
- Federal revenue would likely be less than under a competitive sales plan. In the absence of oil price controls, it

is uncertain if or how much of the federal subsidy to refiners of SPR oil would be passed on to consumers.

--A "two-pool" method of sale could be developed to assure independent refiners access to some SPR oil without participating in a competitive sale.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

A substantial disruption in world oil supply would likely cause a sharp increase in oil prices that could seriously damage the economies of the United States and other oil-consuming nations. With 450 million barrels of oil in storage at the end of 1984, the administration is counting on an early and sustained release of SPR oil to reduce this damage.

DOE's sales plan provides a strategy to accomplish this objective through almost complete reliance on the market to determine how the oil is distributed. We evaluated the plan's ability to reduce oil price increases; examined issues affecting who the likely recipients of the oil would be; and compared this sales plan to alternative sales methods considered by the oil industry, oil security analysts, and the Congress.

We should emphasize that the lack of experience with an SPR drawdown makes it difficult to identify with precision the SPR sales plan's effects during a drawdown. For some issues, this lack of historical precedent or comparable government sale has led us to rely heavily on the views of oil security analysts and oil market participants, economic theory, and other analytical tools that can, at best, indicate the likelihood of alternative outcomes.

Generally, we found that the DOE plan's emphasis on a market distribution of the oil increases the probability that it would limit oil price increases in a severe supply disruption and would allow many groups to participate in the sale. Nevertheless, we have identified some potential problems, particularly with the distributional aspects of the plan. Below are our conclusions and our recommendations to the Secretary of Energy and the Congress.

CONCLUSIONS

Oil price effects of DOE's SPR sales plan

Studies have shown that the release of substantial amounts of SPR oil during a major oil supply disruption can have a significant price-dampening impact on the world oil market. The experience of past disruptions, the consensus of oil security analysts, and current oil market behavior all suggest that the ability of DOE's sales plan (or any sales plan) to achieve this goal depends primarily on how well it reduces market participants' expectations of supply shortages and higher oil prices in the future. The extent of the sales plan's success in this area, in turn, depends on whether (1) the plan would allow for or encourage an early SPR drawdown decision, (2) the plan would allow for an efficient sale and distribution of SPR oil to take place after the decision is

made, and (3) the oil would then be refined and used to meet consumer demand or retained in private inventories. Based on these criteria, we conclude the following about the sales plan's oil price effects:

- DOE has improved the prospects for timely SPR use with its revised policy promoting an early SPR drawdown. There is reason to believe, however, that an early drawdown decision would still be difficult to make under this sales plan. Potential problems inhibiting an early decision are (1) the requirement that the President find that a "severe energy supply interruption" exists, or that the SPR drawdown is necessary to meet U.S. obligations under the IEP, before the SPR could be used, (2) the possibility that the military could object to early use of the SPR, at least until military oil requirements from the SPR are clarified, and (3) the difficulty government agencies may have in providing decisionmakers with the necessary information to make a timely and informed decision. The pre-crisis sale of options to buy SPR oil has been proposed by some oil security analysts to deal with these potential problems.
- DOE has made progress in eliminating barriers to an efficient drawdown, particularly by improving its contract terms for an SPR sale. An unresolved issue is whether the legislative requirement to use U.S.-flag vessels to ship SPR oil between U.S. ports would impede the drawdown.
- Some portion of SPR oil, like any oil, would probably be retained in private inventories, rather than refined promptly and used to alleviate product shortages. This type of inventory behavior would diminish the SPR's potential price benefits. However, oil inventory accumulation can best be discouraged not by law or administrative fiat, but by using the SPR to dampen expectations about rising oil prices. This means assuring the market that the SPR would be used early and that the drawdown and sale could be accomplished quickly and efficiently.

While economic theory predicts a favorable oil price effect from a competitive sale of SPR oil, concern remains that such a sale may instead lead spot and contract oil prices higher than they would otherwise go. However, our analysis has determined that such a "price-leadership" effect is unlikely to override the price-dampening effect of an SPR sale.

Issues affecting who
would get SPR oil

The question of who the likely recipients of SPR oil would be is fundamental to the sales plan's success. If the SPR sale is perceived to result in an unfair distribution of oil, it could undermine public confidence in the SPR Program and the government's overall emergency response.

We examined four key issues dealing with this subject: (1) whether all interested parties, specifically brokers, traders, and foreign bidders, should be allowed access to SPR oil, (2) whether DOE's sales contract terms, the "standard sales provisions" (SSPs), would help or hurt the prospects of any particular groups to get the oil, (3) whether independent refiners would be able to compete successfully for SPR oil, and (4) how well the "directed sales" portion of an SPR sale could alleviate domestic hardship and satisfy U.S. oil-sharing obligations to its allies. The following are our conclusions about these issues:

- There is reason to believe that the risks associated with unrestricted foreign access to SPR oil may outweigh the potential benefits cited by DOE. Whether to allow brokers and traders access to SPR oil is a more ambiguous issue because, while including this group presents some problems, there may be important advantages to their participation.
- The SSPs have been substantially improved, according to industry comments to DOE and our interviews with potential bidders. However, several issues remain, including the following:
 - The Jones Act requirement, that SPR oil moving between U.S. ports be shipped on U.S.-flag tankers, could give an advantage to buyers with assured access to these vessels while discouraging others from bidding.
 - A high minimum purchase volume for an individual bid, particularly in the case of SPR oil transported by barge, could preclude small-volume buyers from qualifying to bid. Allowing many smaller purchases, however, would likely impair the SPR's maximum drawdown rate.
 - The SSPs do not limit the amount of SPR oil that a bidder can purchase at a given sale, opening the possibility that a few buyers could get all or most of the oil. Such an occurrence could mar the SPR's public support.
- Independent oil companies' greater reliance on the world spot oil market may cause them to have higher crude oil acquisition costs in an oil shortage than the integrated companies, making it difficult for some to remain competitive. Because the DOE sales plan is market-based, making the SPR act like any other source of spot oil supplies, it would probably not offer independent refiners much relief from their potential competitive problems. The sale of SPR oil by options or by allocation may offer advantages to these refiners over the DOE plan.
- The directed sales portion--up to 10 percent of an SPR sale--may be useful if it is intended only to give the government modest flexibility in a plan that otherwise lets

the market determine who would get the oil. It is probably inadequate, however, if it is supposed to deal with either oil price-related economic hardship or U.S. international oil-sharing obligations.

Alternative sales methods

We examined the potential price and distributional effects of two alternative sales methods that have been of interest to the Congress and to potential buyers of SPR oil. These alternatives include the continuous sale of options to buy SPR oil in advance of an oil emergency and allocation of SPR oil at administered prices.

The sale of options to buy SPR oil

Our analysis has shown that an options approach to selling SPR oil could offer advantages over the present sales method, but has some conceptual and practical limitations. We found that:

--Most of the oil security analysts we interviewed strongly endorsed the options concept, noting particularly that it could more effectively dampen oil price increases in a disruption than the DOE plan. Some also noted that an options sale can offer all buyers the opportunity to self-insure against enormous oil price increases by purchasing the relatively inexpensive options. This could assist independent refiners in alleviating their potential competitive problems in an oil crisis.

--Most of the industry representatives we interviewed opposed a sale of SPR options as did the majority of respondents to a DOE Notice of Inquiry on the subject. Many of them questioned the concept's feasibility or cited key elements that would have to be defined in a detailed proposal. Confidence in this approach among these potential buyers would have to be improved for this method of sale to attract broad participation.

--An options sale of all SPR oil would sharply reduce the President's control over when and how much SPR oil should be drawn down in an emergency. Control could be preserved if only part of the oil were sold this way.

Government allocation at administered prices

Perhaps more so than with the other plans we examined, an uncompetitive allocation of SPR oil has conceptual benefits that may be precluded by administrative difficulties. Based on our assessment of how an allocation scheme might be developed and on the government's experience implementing fuel allocation plans during previous oil disruptions, we offer the following conclusions:

- Allocating large quantities of SPR oil early in a disruption would dampen world oil price increases. However, the resulting price effects may be somewhat less than under a competitive sales method.
- It would be difficult to develop distribution criteria for SPR oil that adequately address equity concerns.
- Problems associated with data collection and verification may delay or distort the distribution of SPR oil.
- Federal revenue would likely be less than under a competitive sales plan because buyers would pay below-market prices for SPR oil. In the absence of oil price controls, it is uncertain if or how much of this federal subsidy to these buyers would be passed on to consumers.
- A "two-pool" method of sale could be developed to assure independent refiners access to some SPR oil without participating in a competitive sale.

In summary, we found that the DOE plan's emphasis on a market distribution of the oil increases the probability that it would limit oil price increases in a severe supply disruption and would allow many groups to participate in the sale. Nevertheless, we have identified some potential problems, particularly with the distributional aspects of the plan.

RECOMMENDATION TO THE SECRETARY OF ENERGY

DOE is currently studying the possible use of an options program and the question of availability of U.S.-flag tankers. In addition, we recommend that the Secretary of Energy reexamine his position on several issues related to buyer participation in the sale of SPR oil, and transmit a report to the Congress on them. These issues include (1) whether any restrictions should be placed on the eligibility of foreign buyers or brokers and traders to buy SPR oil, (2) whether there should be a limit on the amount of oil that a buyer can purchase at a given sale, and (3) whether a "two-pool" method of selling SPR oil should be used to assist independent refiners. If the results of his reexamination warrant it, the Secretary of Energy should also transmit to the Congress appropriate amendments to the SPR drawdown plan.

AGENCY COMMENTS

DOE's comments on a draft of this report are included as appendix II. DOE said that the report was "balanced" and that it "discussed the complexities of most issues." DOE, however, did not address our recommendation to reexamine the above issues, transmit a report to the Congress, and, if appropriate, transmit to the Congress amendments to the SPR drawdown plan. Rather, DOE cited "several areas of disagreement," which are discussed below.

DOE also made technical suggestions which have been incorporated in the report, where appropriate.

In response to our conclusion that an early drawdown decision could be difficult to make under this sales plan, DOE reaffirmed its commitment to early use of the SPR. Although DOE asserted that "there are no barriers to the President executing this decision in a timely manner," the agency did not respond to the specific problems that we cited which could inhibit such a decision during an oil emergency. These include, for example, the possibility that the military could object to early SPR use, at least until military oil requirements from the SPR are clarified.

DOE further said that our recommendation to exclude foreign entities from bidding on SPR oil would be "very difficult to implement and would have untoward consequences." First, we made no such recommendation, although we concluded that the risks associated with unlimited foreign access to SPR oil may outweigh the potential benefits cited by DOE. We recommended only that DOE should reexamine its position on this issue. Second, we acknowledged in our report that a restriction on foreign access to SPR oil could not guarantee that all SPR oil would be used in the United States, pointing out that the operations of multinational oil companies make it difficult to track the final destination of crude oil purchases. However, we still believe that some restriction could make it more difficult for undesirable foreign buyers (such as a hostile foreign buyer) to acquire SPR oil, and could avert the damaging public image of the U.S. government knowingly selling SPR oil contrary to the nation's interests. Furthermore, we suggested in our report that, as an alternative to curbing unlimited foreign access to the SPR, DOE could amend the SPR sales plan to authorize the Secretary of Energy discretion to reject undesirable foreign purchases.

DOE said that our discussion of using options to sell SPR oil is theoretical and ignores important considerations about this method's feasibility. These considerations include, for example, the need to determine the appropriate "strike price" at which the oil would be sold and to preserve the President's flexibility in deciding when and how to use the SPR. However, all of DOE's matters for considerations are discussed in chapter 4 of the report. (See pp. 40 to 43.) We acknowledged that these issues would need to be addressed before even a limited SPR options program could be implemented. It was not within the scope of our analysis to perform an in-depth study of each of these issues. DOE, however, has contracted with a consulting firm to evaluate the options method, including an analysis of specific implementation procedures.

DOE also suggested that recent changes in petroleum marketing practices, such as the growing importance of spot market transactions in world oil trade, should be taken into account before asserting competitive advantages or disadvantages for selected segments of the petroleum industry. Our evaluation, however, took

these matters into consideration, as we noted in chapter 1 of this report. (See p. 4.) Thus, for example, our assessment of the potential competitive disadvantages of independent refiners in an oil supply disruption is based upon our understanding of the current world oil market, including the changes in petroleum marketing cited by DOE.

Finally, DOE said that it did not believe that an actual test sale of SPR oil is desirable or necessary. This responded to our observations that potential bidders have suggested that a test of an SPR drawdown and sale would help instill confidence in the sales plan's feasibility, and that DOE had supported the idea of a test sale. The agency's comment represents a departure from previous statements made by DOE. For example, former Secretary of Energy Hodel, testifying in February 1984 before the Senate Committee on Energy and Natural Resources, said that

"a successful test sale of SPR oil should have a positive effect upon public confidence in the SPR Therefore, I recently directed my staff to develop a comprehensive plan for conducting a test drawdown and sale of two to three million barrels of SPR oil."

As a result of the DOE comment, we deleted language in our draft report that alluded to DOE support for such a test sale.

RECOMMENDATION TO THE CONGRESS

Because DOE's comments did not respond to our recommendation that the Secretary of Energy reexamine his position on several issues and report to the Congress, we believe that the cognizant committees of the Congress should pursue these issues with DOE through hearings or in other ways that they may deem appropriate. Specifically, the following issues should be pursued:

- Restricting certain foreign purchases of SPR oil.
- Restricting the purchase of SPR oil by brokers and traders.
- Placing an upper limit on the amount of oil that a buyer can purchase at a given sale.
- Authorizing a "two-pool" method of selling SPR oil to assist independent refiners.

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U.S. HOUSE OF REPRESENTATIVES
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 SYNTHETIC FUELS
 COMMITTEE ON ENERGY AND COMMERCE
 WASHINGTON, D.C. 20515

January 14, 1984

The Honorable Charles A. Bowsher
 Comptroller General
 U.S. General Accounting Office
 441 G Street, N.W.
 Washington, D.C. 20548

Dear Mr. Bowsher:

As Chairman of the House Subcommittee on Fossil and Synthetic Fuels, I am concerned about our Nation's ability to deal effectively with another major oil supply disruption. Such disruptions in the past have led to dramatic price increases for crude oil which, in turn, have severely damaged the economies of the United States and its allies.

The cornerstone of our energy emergency preparedness program today is the Strategic Petroleum Reserve (SPR). The SPR Drawdown Plan, as amended in December 1982, indicates that the Administration intends to distribute SPR oil by competitive auction in conformance with its free market-oriented energy policy.

To date, a good deal of analytical work has been done concerning how quickly the Reserve should be filled and what its ultimate size should be. Little work, however, has focused on how SPR oil can best be distributed and, specifically, on how well the proposed auction would serve this purpose. I have several concerns with this proposed sales method. Among them, it is possible that a competitive auction during a disruption could push oil market prices higher than they would otherwise go and thereby adversely affect the economy. I am also concerned that the Administration may be giving up too much control as to who can buy the oil and how it will be used.

I would therefore like GAO to undertake an objective assessment of the impacts of the SPR sales plan, focusing on the following questions:

The Honorable Charles A. Bowsher -2- January 16, 1984

- How would the auction method affect oil prices? What could DOE do to avoid a situation in which SPR oil sells at premium prices and thus adversely affects the market price of oil?
- How effectively would the auction allow SPR oil to enter the market? Would advance SPR sales help get the oil into the market more quickly?
- Who are likely recipients of SPR oil under the auction plan? Please examine whether (1) the "Standard Sales Provisions" are flexible enough to attract industry participation, (2) high prices could preclude small refiners or other users from bidding successfully, and (3) the maximum 10 percent directed sales is adequate to alleviate hardship cases.
- Would the sale of SPR oil to brokers be useful or cause problems? Could hoarding of SPR oil become a problem?

I would also like GAO to compare the auction to alternative SPR oil sale mechanisms and, if appropriate, to recommend any modifications that could improve the current SPR sales plan.

If you should have any questions about this study, I would ask that your staff contact Roger P. Staiger of the Subcommittee's staff at 226-2500.

Sincerely,



Philip B. Sharp
Chairman

PRS:rs



Department of Energy
Washington, D.C. 20585

APR 9 1985

Mr. J. Dexter Peach
Director, Resources, Community and Economic
Development Division
U.S. General Accounting Office
Washington, D. C. 20548

Dear Mr. Peach:

The Department of Energy (DOE) appreciates the opportunity to review and comment on the General Accounting Office (GAO) draft report entitled "Evaluation of the Department of Energy's Plan to Sell Oil from the Strategic Petroleum Reserve".

DOE believes that, in general, this is a well written and balanced report which discusses the complexities of most issues.

Several areas of disagreement with the report are discussed below. Additional technical comments are being forwarded separately.

The Report expresses some concerns regarding the potential for delays in drawing down the Strategic Petroleum Reserve (SPR) in the event of a disruption. The Administration is clear in its commitment that the early release of SPR oil in amounts sufficient to help mitigate the impact of a major supply disruption is in general the best policy. There are no barriers to the President executing this decision in a timely manner.

While the general policy for SPR drawdown is clear, the exact manner and timing of implementing that policy will depend upon factors that will be known only at the time of a major disruption. Because of the wide range of unpredictable conditions likely to accompany a major disruption it is neither feasible nor appropriate to establish rigid formulae that would automatically trigger an SPR drawdown, or the rates of such drawdowns. The theoretical benefits of detailed criteria or specific triggers that would automatically release SPR oil to the market must be weighed against the operational and strategic considerations inherent in the flexibility and discretion that are currently granted the President in executing a SPR drawdown decision.

The Report recommends excluding foreign entities from bidding on SPR oil, with certain exceptions for non-U.S. Caribbean refiners serving the U.S. and U.S. treaty obligations. But such restrictions would be very difficult to implement and would have untoward consequences. For example, if DOE were to preclude any foreign entity, or any foreign entity not doing business in the U.S., from bidding for SPR oil, the foreign entity could easily defeat the restriction merely by establishing a U.S. shell corporation to act on its behalf, or by otherwise acting through a domestic enterprise. And it would be undesirable to prohibit all firms that have any level of foreign ownership from buying SPR oil, as that would exclude a great many firms in the domestic energy market. Nor would it be feasible to apply a test based on percentage of foreign ownership or effective foreign control; that would require complex case-by-case judgments on the part of DOE. Moreover, it would be counterproductive to exclude foreign entities, whether or not they are located in the U.S., that service domestic energy markets. The GAO Report does not address these serious, highly complex problems.

The Report's discussion of option sales is entirely theoretical and appears to accept as fact that some form of SPR option would have greater price benefits than the current plan and would move oil into the marketplace faster. This assumption ignores a number of important considerations. In the first place, analysis by the Department indicates that the only form of option likely to be of interest to the market is one that involves a "strike" or "trigger" price that, if reached, would automatically result in some SPR oil being sold. It would be very difficult to decide the level to set for the strike price. Second, while the market is the best appraiser of the economic value of the SPR, it cannot substitute for the President's judgment as to strategic and foreign-policy considerations in deciding when to draw the SPR and at what rate. An options scheme would remove the President's control over the drawdown of at least some portion of the SPR, which would reduce the flexibility that currently exists. Third, since most option sales would involve a low probability that the oil will actually change hands, options would tend to invite buyers whose main interest is the potential for profit should the strike price be reached and exceeded. While such activity plays an important role in private markets, it may not be accepted by the public in connection with SPR sales. This could undermine the effectiveness of SPR options. These problems, as well as the operational problems discussed in the Department's technical comments, must be addressed in assessing the feasibility and effectiveness of SPR option sales.

GAO observes correctly in this Report that the use of the SPR sales mechanism to provide preferential treatment or subsidize a selected portion of the market is clearly a policy decision. The Administration has unambiguously taken the position that the free market, absent any preferential treatment or subsidy, is the most equitable and efficient method of both distributing SPR oil and responding to the impacts of an energy supply emergency. This Report should note that there is apparently less oil being committed to long-term supply contracts than was previously the practice in the international petroleum market. Additionally, it is becoming more apparent that much of the oil being delivered under contract is being priced to reflect movements of the spot market price. These significant changes in petroleum marketing practices need to be examined carefully before assertions can be made regarding competitive advantages or disadvantages for selected segments of the petroleum industry.

The DOE does not believe that an actual test sale of SPR oil is desirable or necessary. On March 27, 1985, Deputy Secretary Danny Boggs testified before the Subcommittee on Fossil and Synthetic Fuels of the Committee on Energy and Commerce. Deputy Secretary Boggs stated:

"The recent National Petroleum Council study on SPR distribution concluded that no physical sale of SPR oil need be made in order to have an effective draw-down exercise. The Department generally agrees with that conclusion. Further, we estimate that an actual sale of SPR oil in the amount of 1.1 million barrels could result in unrecovered costs to the Government of between \$1.6 million and \$3.2 million, due to operating costs, bid discounts, and costs incidental to a refill. Therefore, for reasons of economy and to avoid unnecessary effects on the crude oil market, in future SPR tests the sales process should only be simulated. Tests of the physical drawdown system can continue with title to the oil remaining with the Government."

DOE hopes that these comments will be helpful to GAO in their preparation of the final report.

Sincerely,



Martha Hesse Dolan
Assistant Secretary
Management and Administration

(001748)

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