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BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

The United States Exerts Limited Influence On The International Crude Oil Spot Market

In 1979, volume grew on the crude oil spot market, where oil is exchanged on a day-to-day basis rather than under long-term contract. While world prices for crude oil sold under contract more than doubled, spot market prices rose even higher.

Conditions underlying the 1979 volatility of the international crude oil spot market remain--they underscore the need for understanding the effects of Government programs and actions on that market.

The United States and six other oil-importing countries pledged at the Tokyo summit in June 1979 to try to moderate spot market activity, but the United States has no program to influence directly U.S. oil company involvement in the spot market. Some Department of Energy programs primarily designed for domestic goals have an influence by, for example, affecting companies' crude oil acquisition costs. However, some encourage and some discourage spot market purchases. These diverse effects make it difficult for the United States to pursue a coherent policy.

113160

UNITED STATES GENERAL ACCOUNTING OFFICE

01844

EMD-80-98
AUGUST 21, 1980

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

B-199165

To the President of the Senate and the
Speaker of the House of Representatives

This report describes the international crude oil spot market, its role in the larger crude oil market, its importance relative to total U.S. imports of crude oil, and how U.S. Government actions and programs affect it. We made this review because of the importance of the spot market during 1979 and because our Government, other Nations, and oil company officials have expressed concern about its growing size and effects on crude oil prices.

We are sending copies of this report to the Director, Office of Management and Budget, and to the Secretaries of Energy and State.

Elmer B. Staats
Comptroller General
of the United States

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

THE UNITED STATES EXERTS LIMITED INFLUENCE ON THE INTERNATIONAL CRUDE OIL SPOT MARKET

D I G E S T

The potential effect of the international crude oil spot market on world oil prices underscores the need for the United States to understand how its programs influence that market. Some Government programs and actions simultaneously encourage and discourage U.S. oil companies from participating in the spot market, where cargoes of crude oil are exchanged on a day-to-day basis rather than under long-term contract.

Both oil-exporting and importing countries pointed to the spot market as an important factor in the dramatic increase in prices for oil under contract in 1979. World prices for crude oil under contract more than doubled from less than $15 a barrel in late 1978 to about $30 by the end of 1979. Spot market prices rose even higher, and spot market activity appeared to increase to unprecedented volumes.

Although previously published estimates suggested that the spot market may have accounted for over 25 percent of world crude oil trade in 1979, U.S. imports from that market averaged about 9 percent of all U.S. crude oil imports between April 1979 and February 1980. Reports by trade journals of massive spot crude purchases by major U.S. oil companies were exaggerated. One of the 10 largest U.S. companies reported spot-priced imports as almost half of its total imports. The other nine reported spot-priced imports of 10 percent or less. Another large U.S. refiner depended on the spot market for nearly one-half of its foreign crude oil supplies during this period. The two large spot-priced importers, though, had also depended on the spot market for a substantial portion of

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their imported crude oil when spot prices were lower than contract prices. In 1979 spot-priced crude originated in 23 of 27 OPEC and non-OPEC countries from which the the U.S. imported crude oil. However, only only one country sold that oil directly to U.S. importers. The rest of the oil was sold by U.S. and foreign oil companies and traders.

The significance to the United States of the crude oil spot market, however, extends beyond its size and price trends to its relationship with the far larger contract market. When world oil prices remained stable and spot prices were somewhat below contract prices, the spot market may have helped to keep down oil prices. However, insecurity of supplies permitted oil prices to increase sharply in 1979 even though overall world crude oil production expanded and consumption within the member countries of the International Energy Agency remained stable. Under these circumstances, GAO believes, the spot market functioned as a catalyst, facilitating and perhaps accelerating price increases and changes in the structure of the international crude oil market. (See pp. 3 to 4.)

In June 1979 in Tokyo, concern about the wider effects of the spot market on oil prices in general led the United States and six other major oil-importing countries to pledge, among other things, to encourage oil companies to moderate their involvement in the spot market, and refrain from buying oil for Government stockpiles when this would place undue pressure on oil prices. 1/ (See pp. 1 and 20.)

1/The countries also pledged to improve monitoring of the international petroleum market. GAO is issuing a companion report to the Secretary of Energy, "DOE Could Make Better Use of Data To Monitor Crude Oil Spot Market," EMD-80-95, August 21, 1980.

DEPARTMENT OF ENERGY ACTIONS AND PROGRAMS HAVE DIFFUSE IMPLICATIONS

No U.S. policy or program has been designed to influence directly the spot market. Nonetheless, some programs designed for other purposes have indirect, and sometimes marginal, implications for that market or for U.S. oil company activity in it. Occasionally, the Department of Energy (DOE) has taken actions which also affected the spot market.

The effects of these actions and programs on the spot market at times have worked in different directions. For example, DOE's actions, such as sales of U.S. Government oil at spot prices and changing informal guidance to oil companies, have been confusing:

--The United States suspended purchases for its Strategic Petroleum Reserve in April 1979, citing the possible effects of crude oil acquisition on the volatile international spot market. (See pp. 19 to 20.)

--In early 1979, DOE also privately advised U.S. oil companies to restrain their crude oil spot purchases. However, fearing that imports had been sharply reduced, DOE in May of that year advised companies that spot purchases might be necessary. (See pp. 20 to 21.)

--In late 1979, DOE sold oil from the Elk Hills Naval Petroleum Reserve, accepting bids approaching the highest international spot prices. Some countries then raised their oil and gas prices citing the DOE sale as justification. (See p. 21.)

Additionally, DOE programs can simultaneously encourage and discourage companies from participating in the spot market by, for example, the way in which they affect their crude oil acquisition costs or supplies. Furthermore, the same program can affect a company's acquisition costs variously at different times.

The Crude Oil Entitlements Program, designed to minimize disparities in crude oil acquisition costs among refiners, provided modest financial incentives to companies which relied on the spot market before 1979 when spot prices were less than average contract prices. When, however, spot prices rose dramatically in 1979, it penalized companies for relying on the spot market since it did not recognize the high prices paid for spot crude oil in calculating the value of entitlement benefits. On the other hand, a different provision of the Program financially rewarded companies with access to relatively cheaper Alaskan crude oil. These benefits may have actually allowed some companies to import more spot-priced crude oil than they otherwise would have. (See pp. 22 to 23.)

DOE took actions in 1979 to increase U.S. imports and inventories of distillate oil. Although these measures were cited as contributing to increased demand and upward price pressures in the spot market, neither decision appears to have stimulated an abnormal growth in U.S. imports of distillate. (See pp. 23 to 24.)

The Mandatory Crude Oil Allocation ("Buy/Sell") Program is designed to ensure that crude oil is equitably distributed to small, independent refiners. In 1979 the Program was used to provide supplies to small refiners which would otherwise have had to compete on the spot market. (See pp. 24 to 25.)

DOE uses exception relief to allocate crude oil among refiners not otherwise eligible under existing programs. When granting allocations to two such large refiners in late 1979, it expected them to reduce or not increase their spot-priced purchases. One of these companies, in fact, did reduce its spot-priced purchases from December 1979 to February 1980. However, the other company increased its dependence on spot-priced crude oil, suggesting that the lower priced crude oil allocated made it possible to finance increased purchases of spot-priced oil. Seven of the 14 companies who had to supply the allocated oil also increased their dependence on spot-priced purchases during early 1980, sometimes citing their allocation sales as cause. (See p. 25.)

Two other U.S. programs could influence the international crude oil spot market. Oil import ceilings could, if implemented in the form of a quota, reduce demand on the spot market both indirectly through a general reduction in crude oil demand and directly if targeted to exclude imports of spot crude oil. The Standby Mandatory Crude Oil Allocation Program, by allocating crude oil among refiners in the event of an import shortfall, could limit competition for spot crude oil supplies. Neither quotas nor the Standby Program was used in 1979. (See p. 26.)

Crude oil price deregulation, being phased in through September 1981, may have a two-sided effect. As domestic prices rise, they could be a source of upward price pressure on the international spot market. On the other hand, as deregulation reduces U.S. crude oil imports, it could moderate demand and prices on the spot market. If, however, supplier countries reduce production proportionately, demand and price pressures could remain. (See pp. 26 to 27.)

OBSERVATIONS

The actions and programs described above are designed and implemented primarily for domestic purposes. These concerns often and legitimately take priority over other goals such as influencing the spot market. Furthermore, as an international process, the spot market is subject to many foreign government and nongovernment influences. These opposing influences make it difficult for the United States to pursue a coherent unilateral policy toward the spot market, and to effectively implement the Tokyo agreement.

C o n t e n t s

ABBREVIATIONS

DOE	Department of Energy
GAO	General Accounting Office
IEA	International Energy Agency
OECD	Organization for Economic Cooperation and Development
OPEC	Organization of Petroleum Exporting Countries

CHAPTER 1

INTRODUCTION

In 1979 the world oil market was in disarray. Crude oil prices more than doubled. Unified pricing by the Organization of Petroleum Exporting Countries (OPEC) crumbled as many of these countries first placed surcharges on the price of their oil, and then, in a number of cases, imposed whatever prices they believed the market would bear.

At the height of this turmoil, the international crude oil spot market drew the attention of the highest levels of governments in oil-consuming countries. Concern about its increasing size and apparent impact on oil prices in general led President Carter and leaders of six other major oil-importing countries 1/ to agree, in Tokyo in June 1979, to "urge oil companies and oil-exporting countries to moderate spot market transactions."

WHAT IS THE SPOT MARKET?

Most of the crude oil traded internationally moves under long-term contracts between governments and/or oil companies of oil-producing and consuming countries. The agreements establish commitments to buy and sell a number of barrels of oil per day for a specified period of time under stipulated terms of transaction.

While such contracts provide relative stability for the price and supply of crude oil, the world oil market also requires flexibility. Oil companies need a mechanism to "fine tune" their supply systems in response to unexpected changes in demand, tanker availability or other logistical considerations, or in case contracts are not fulfilled. The spot market provides this flexibility.

The crude oil spot market has traditionally been defined as a process by which cargoes of crude oil are exchanged on a day-to-day basis rather than under long-term contract. It is not a formal institution. Buyers and sellers come together through an informal, world-wide network of personal and professional contacts. Certain areas, such as Rotterdam, the New York Harbor, the Caribbean, or other significant refining or storage centers, may be the focus of spot transactions and price quotations. However, spot

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1/Canada, the Federal Republic of Germany, France, Italy, Japan, and the United Kingdom.

market participants can be anywhere in the world, as can be the oil that is traded. Participants may be oil producers, refiners, brokers (who only bring buyer and seller together), or traders (who buy and sell for their own account). Spot market prices are set for each transaction by the parties involved, and deals are almost always made by telephone or telex. The result is a mosaic of sales and swaps in which a single cargo may change hands several times before reaching its destination.

In 1979, however, the term "spot market" came to characterize several additional kinds of transactions not previously common in the world crude oil market. Among these were so-called "entry fee" sales by which companies purchased an expensive single cargo or a number of cargoes of crude oil from a particular country hoping to obtain a term contract. In other cases, a single "spot" purchase was explicitly "tied" to a large volume of crude oil to be sold under contract. In still other cases a portion of crude oil formerly purchased under contract was sold to the same buyer at a higher "spot" price. Under these circumstances, the distinction between "contract" and "spot" was no longer always clear. However, throughout 1979 most observers agree that the common characteristic of spot transactions was a price substantially above official selling prices or above most crude oil sold under contract.

Complexity and secrecy characterize crude oil spot market activity. There is no formal exchange at which prices are publicly determined. Several trade publications, such as Platt's Oilgram Price Report and Petroleum Intelligence Weekly, follow the spot market and are widely read in the industry. But these publications do not report specific transactions or even final prices; they provide only an overview of current activity. A spot market participant typically knows only where the cargo he buys or sells originated and from whom he bought it; he generally does not know who owned it along the way or what prices had been paid for it earlier.

Between 1975 and the end of 1978, crude oil spot prices generally were at or slightly below contract prices. Most spot market sales then were in petroleum products, and estimates placed all spot sales at 3 to 5 percent of the world petroleum market. Crude oil represented only a portion of that small market.

One reason that crude oil spot activity is limited relates to the economics of refinery operations. Refineries are capital intensive; this necessitates consistent plant utilization. Most refiners therefore have a strong interest in assuring a steady supply of crude oil and tend to avoid the spot market even when small discounts are available. They generally favor long-term supply relationships, since in a tight or disrupted market, where crude supplies are scarce or insecure, a refiner without assured supplies is vulnerable to paying very high prices for spot crude or to reducing refinery output below optimal levels.

Volatility of the spot market

Increases in crude oil demand tend to translate directly and immediately into pressure on the spot market. Incremental supply may then appear, generally at significantly increased prices. However, since OPEC gained control of the international crude oil market, the opposite of this has not necessarily been true. Increased supply capacity does not necessarily lower prices. This is because demand has proven to be less easily restrained than supply. During periods of surplus supply, some producers use the spot market as a convenient outlet for disposing of incremental crude. However, as long as key oil producers are willing and able to reduce production, spot oil prices tend to fall only slightly below contract prices.

The small size of the spot market makes it sensitive to even modest increases in overall demand. About 30 million barrels a day of crude oil are traded in the world market. If, for example, 5 percent of that (1.5 million barrels) is traded on the spot market, and if overall world demand were to increase by 2 percent (0.6 million barrels), the marginal increase in demand on the spot market could be 40 percent. This accounts for the susceptibility of the spot market to volatile upward swings in price.

THE SIGNIFICANCE OF THE SPOT MARKET

The significance to the United States of the international crude oil spot market lies not only in its size and price trends, but also in its relationship to the far larger contract market. This relationship is a complex one. From 1975 through 1978, when world oil prices remained stable and spot prices were somewhat below contract prices, the spot market may have helped to keep down oil prices. Demand and supply forces were determined not by the spot market, but by oil producers and consumers.

In 1979, however, many observers maintain that the spot market created an illusion of scarcity, artificially inflating demand and "racheting" contract prices to higher levels than they would have otherwise reached. Oil-producing countries frequently cited high spot prices as justification for increasing contract prices and otherwise modifying contract terms. High spot prices also provided incentives for unusually large purchases based on the expectation of future contract oil price increases. These purchases resulted in record high inventories in late 1979.

We are unable to test the hypothesis that the spot market caused contract prices to increase. However, we do believe that the spot market was, at the least, an important catalyst in 1979, facilitating and perhaps accelerating price increases and changes in the structure of the international crude oil market.

The U.S. pledge in Tokyo to urge oil companies and oil-exporting countries to moderate spot market activity implied U.S. recognition of the importance of the spot market in affecting the world price of crude oil. The Department of Energy (DOE) provided additional recognition by appealing to U.S. oil companies to refrain from spot market purchases in early 1979 because of their effect on prices.

REPORT OBJECTIVES, METHODOLOGY, AND SCOPE

The objectives of our review were to

--obtain a current definition of the international crude oil "spot market,"

--examine the function and significance of the spot market,

--determine the magnitude of U.S. spot crude oil imports in relation to total U.S. crude oil imports in 1979 and early 1980,

--identify the role of U.S. oil companies in the spot market,

--identify the oil-exporting countries from which the spot-priced crude imported into the United States originated, and

--identify any U.S. Government actions or programs which may have influenced the spot market or U.S. company involvement in it, and determine the direction and extent of the effects.

To obtain a current definition of the "spot market" and to examine its function and significance, we interviewed oil company officials who have participated in spot market transactions, officials of the Departments of Energy and State and the Central Intelligence Agency, and the editors and staff of several publications which follow world oil markets.

To determine the magnitude of spot-priced imports and identify the importers and exporting countries, we reviewed and analyzed crude oil import data provided to DOE from April 1979 to February 1980 by the 31 largest U.S. refiners. This data includes about 89 percent of U.S. crude oil imports for this period.

However, companies submitting data to DOE do not always identify spot sales as such. To analyze the DOE data, therefore, we needed to establish criteria to identify spot sales. For most observers, the terms of the transaction have been the critical factors characterizing spot sales. Thus, a spot transaction often was considered a sale of a single cargo or, at most, a limited number of cargoes, at a price set at the time of the sale. This is opposed to a "contract" sale of a certain number of barrels per day for an extended period under specified terms of transaction. Using the terms of the transaction to define spot sales may appear to offer a degree of clarity and may have fit well with oil market conditions prior to 1979. However, in 1979 the distinction between spot and contract sales was no longer always clear. Most observers said that crude oil prices substantially in excess of official prices were the distinguishing feature of most spot market transactions in 1979.

To identify spot market sales for 1979 and 1980, therefore, we posited a threshold price for spot sales as sales made at \$5.00 a barrel or more above the monthly average official price for each particular crude oil type (taking into account country of origin, gravity, and sulfur content). We chose \$5.00 as a threshold after discussing this approach with DOE officials. Moreover, according to spot market data from the May 1980 OPEC Bulletin, an OPEC publication, the differential between official and spot prices from April 1979 to February 1980 exceeded \$5 a barrel for nearly every category of OPEC crude oil. We established the monthly benchmark official price for each crude oil type through reports in the trade press, principally Petroleum Intelligence Weekly, and knowledgeable officials in the petroleum industry and DOE.

Between 1975 and late 1978, crude oil spot prices were very close to, though sometimes below, official prices. This would make a price threshold analysis very difficult if not impossible for the period preceding 1979. As a result, we have no historical base against which to compare our data for April 1979 through February 1980.

To examine the role of U.S. companies and exporting countries, we spoke with the officials noted above and reviewed relevant DOE data. To identify any U.S. Government actions or programs which may have influenced the spot market or U.S. company involvement, and to determine the direction and extent of the effects, we interviewed DOE officials and officials responsible for crude oil supplies for nine U.S. oil companies.

Because these programs and actions are designed and implemented primarily for domestic purposes, we do not recommend a particular course of action or set of options for either the Congress or DOE. Instead, we offer general observations in chapter 5 regarding the prospects of developing and implementing an effective U.S. policy toward the spot market.

We limited this inquiry to crude oil, reflecting the relative importance of U.S. crude oil imports as opposed to product, and the increased attention devoted by Government and oil company officials to this aspect of the spot market in 1979. Our data is limited to purchases of crude oil for U.S. import, since the International Energy Agency and European Economic Community are conducting broader analyses of the international petroleum spot market.

CHAPTER 2

GROWTH IN 1979 SPOT MARKET ACTIVITY AND PRICES

In early 1979 crude oil spot sales were emerging as a significant element in a rapidly changing world oil market. The spot market appeared to grow in volume, and increases in spot prices were followed by increases in contract prices.

GROWTH IN SPOT MARKET ACTIVITY

From 1975 to 1978, total international oil spot sales were estimated at 3 to 5 percent of the world oil market. Crude oil represented only a portion of that small amount.

Similarly, in the United States, according to oil company officials and others familiar with the international oil market, only a very small portion of crude oil imports came through the spot market. However, at least two sizable and several smaller U.S. refiners did acquire a significant portion of their crude oil requirements in that way. In addition to the temptation to save on crude oil costs, other factors appear also to have stimulated these spot purchases. A senior official of one large U.S. oil company which increased spot market purchases to up to 25 percent of its imported crude said his company did so to encourage producing countries to accept more even-handed, long-term supply agreements. In some cases, U.S. regulatory programs, particularly the Entitlements Program, may have also encouraged some U.S. companies to purchase oil on the spot market. (Ch. 4 discusses more fully this effect.)

In 1979, however, the international crude oil spot market appeared to be handling increasing numbers of sales. By November trade journal reports circulated of more than 25 percent of international crude oil purchases being made on the spot market.

In the United States, DOE data from the 31 largest U.S. refiners, accounting for 89 percent of U.S. imports, shows that from April 1979 to February 1980 spot crude purchases averaged 9.4 percent of the foreign crude they imported into the United States, ranging monthly from 2.6 to 14 percent. (See table 1.) This data indicates that, while U.S. spot purchases may also have increased over historical levels,

TABLE 1

Crude Oil Purchased for Import to the United States by the 31 Largest U.S. Refiners--April 1979 to February 1980

(in million barrels--
42 U.S. gallons per barrel)

	Total volume	Purchases $5.00 over official prices		
		Volume	Percent of total volume	Number of companies making purchases
April	164.0	4.3	2.6	2
May	189.0	7.6	4.0	4
June	172.3	21.2	12.3	11
July	178.6	17.5	9.8	9
August	178.1	12.8	7.2	7
September	157.2	15.3	9.8	8
October	181.2	25.4	14.0	10
November	172.3	19.1	11.1	13
December	163.9	19.4	11.8	14
January	152.8	13.4	8.8	12
February	138.2	17.5	12.6	11
Total	1,847.6	173.4	9.4	24

Source: DOE. Data may be subject to revision.
Totals may not add due to rounding.

they nonetheless remained a small portion of total imports. However, U.S. data may not be representative of broader trends among oil-importing countries as a whole.

DOE data also shows that 24 of the 31 refiners, or 77 percent, reported some purchases of spot-priced crude oil. On the other hand, nearly half of the crude purchased at spot prices for import to the United States was bought by just two U.S. refiners. While these are large refiners, the largest U.S.-integrated oil companies did not notably rely on the spot market. One of the 10 largest U.S. oil companies reported spot-priced purchases equal to almost half of its crude oil imports. The others reported spot purchases equaling 10 percent or less of their total imports.

Spot-priced crude originated in most producing countries (23 of 27) from which crude oil was purchased for U.S. import between April 1979 and February 1980. Furthermore, at least 20 percent of crude oil imported from each of nine of these countries was purchased by U.S. companies at spot prices. Nearly 65 percent of the spot-priced crude originated in Iran, Libya, Nigeria, and Saudi Arabia, all leading crude oil producers. However, country of origin figures do not necessarily mean that these countries sold this oil on the spot market. In this regard DOE data must be approached with caution. Not all intermediate parties (oil companies, traders, and brokers) which may have owned or handled the crude oil between the time it left the ground and was purchased for import are identified. Therefore, one cannot determine from DOE data whether or to what extent the country of origin benefited from or was even aware of the spot-priced transaction. The governments of most oil-producing countries have generally avoided direct participation in such sales. While unconfirmed reports of indirect involvement by many of these governments in spot market sales abound, we could not verify these reports.

EXPLOSION OF SPOT AND CONTRACT PRICES

Nineteen seventy-nine was characterized by tremendous increases in official crude oil prices, and even greater rises in spot oil prices. By early 1980 official and spot prices began to merge, but at levels about 100 percent above those of late 1978.

In December 1978 OPEC decided to raise the price of its crude oil by an average of 14.5 percent for 1979, ending a price freeze that had been in effect since mid-1977. Quarterly increases were scheduled to bring the price of Saudi

Arabian "light," the traditional OPEC benchmark crude oil, to $14.54 per barrel by the end of 1979, up from the fourth quarter 1978 official price of $12.70.

From 1975 through 1978 spot prices had remained at or a few cents below official OPEC prices. With the Iranian upheaval beginning in late 1978, spot prices began to rise, reaching a level $6.00 above official prices on the eve of the December 1978 OPEC meeting. By the end of March 1979, spot cargoes of Saudi light were selling for as much as $10.00 per barrel above official prices. Despite substantial OPEC-wide increases in official prices again in April and July 1979 and individual country surcharges announced almost monthly, the gap between contract and spot prices continued to widen, approaching 100 percent at its peak in November. An extreme case was that of Saudi light crude oil. On November 1, the official price was $18.00, 1/ with spot trades ranging up to $45 and many transactions above $40. These high spot prices were reflected in crude oil produced in a wide range of non-OPEC as well as OPEC countries. The growing gap between rising spot and contract prices is further illustrated in appendix I.

Following several additional rounds of official price increases, spot and official prices began in March 1980 to converge within the $26 to $35 range. A few "distressed" spot cargoes were reportedly sold at less than official prices, but on the whole spot prices hovered slightly above official levels.

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The growth in spot market activity and prices can be largely explained by many of the same factors affecting the crude oil market as a whole in 1979. The factors, and the role the spot market played, are discussed in the following chapter.

1/In Dec. 1979, this price was raised to $24.00 retroactive to Nov. 1.

CHAPTER 3

THE ROLE OF THE CRUDE OIL SPOT MARKET IN 1979

The year 1979 was an especially volatile one for the international crude oil market. After several years of secure supplies and stable or declining prices, the market for crude oil and its products began to tighten in 1978 as producer countries and international oil companies began restricting crude oil production and refining. As a result, by late 1978 supplies of crude oil and its products began to fall and prices began to rise. Following this, the Iranian revolution resulted in reduced crude oil exports from that country, unexpected actions of other producing countries disrupted traditional contractual relationships, and OPEC price unity crumbled. The role of international traders and government purchasing authorities increased as the major oil companies lost access to many of their traditional supplies. As a result, the structure of the world oil market changed, becoming more complex and fragmented.

Although 1979 world crude oil production increased and consumption within the International Energy Agency (IEA) countries 1/ remained stable compared with 1978 levels, insecure supplies, the expectation of future price increases, and changes in suppliers and contract terms led oil companies to scramble for crude oil and to build their crude oil inventories to record levels. The spot market reflected each of the above factors and served as an important catalyst for their interaction, facilitating and perhaps accelerating sharp crude oil price increases and changes in the structure of the crude oil market.

FACTORS AFFECTING THE 1979 OIL MARKET

Many factors contributed to the volatility of the world crude oil market in 1979. At least three of these factors, the Iranian revolution, restrictive actions by other oil-producing countries, and the fragmentation of OPEC's pricing structure, reduced the security of crude oil supplies and the stability of crude oil prices, at a time when supplies had already begun to tighten.

1/The members of the IEA are Australia, Austria, Belgium, Canada, Denmark, the Federal Republic of Germany, Greece, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States.

Other occurrences, such as the scramble by oil companies to obtain crude oil supplies and the buildup of record inventories in oil-importing countries, were responses to producing country actions and this atmosphere of insecurity. An additional occurrence, the reduced role of the major oil companies as crude oil traders, was both a consequence of producing country actions and a source of additional insecurity for smaller companies which had historically depended on them for crude oil supplies. These factors are discussed below.

The Iranian revolution

Turmoil in Iran had been building for some time. With the fall of the Shah in January 1979, Iranian oil exports were suspended. The world market, therefore, lost 5 million barrels of oil a day, which was 16 percent of OPEC's 1978 production and about 10 percent of the free world's oil production. In the wake of Iran's political turmoil, oil companies became alarmed over the stability of their crude oil supplies.

Iran resumed crude oil exports in March, but at more than 3 million barrels a day below 1978 levels, and the new government declared Iran would never return to its earlier rates of production. At the same time, Iran canceled some of its supply agreements with international oil companies, including the U.S. major companies, British Petroleum, and Royal Dutch Shell, in favor of spot sales. Over the next 11 months, according to DOE data, more than 21 percent of U.S. crude oil imports from Iran were purchased at spot prices.

The oil companies' apprehension about supplies increased after the November 3 seizure of the U.S. Embassy in Teheran and the U.S. decision to halt purchases of Iranian oil on November 12. This apprehension intensified following the armed occupation of the Grand Mosque in Mecca, Saudi Arabia.

Restrictive actions of producing countries

Despite an overall increase in world oil production in 1979, the security of crude oil supply was further reduced as some producer countries began arbitrarily decreasing production, exports, and/or contract volumes, and abruptly changed the duration, prices and other terms of supply agreements.

In January 1979 Saudi Arabia reduced its output from 10.5 to 9.5 million barrels a day and to 8.5 million barrels from April through June. Although it later increased production to 9.5 million barrels for the last half of 1979, Saudi Arabia took an estimated 500,000 barrels a day previously allocated to the Arabian American Oil Company, Aramco, 1/ and began marketing that oil itself. Libya cited *force majeure* (unexpected or uncontrollable events) in reducing its contract sales by 10 percent for the second quarter of 1979. Mexico reported port problems as cause for delays in some of its contract deliveries during the same period. On August 1, Nigeria nationalized the local interests of British Petroleum and halted crude oil sales to that company, reportedly because of its oil sales to South Africa. Algeria cut back its crude oil contracts by 20 percent during the third and fourth quarters.

Additionally in 1979, Saudi Arabia, Kuwait, Indonesia, Venezuela, Libya, Abu Dhabi, Algeria, Iraq, and the United Kingdom announced planned reductions in production, exports or contract sales for 1980.

In addition to reducing production, some producers made clear their intentions to diversify clients and control the final destinations of their oil. This became apparent as certain countries began marketing directly a portion of their production formerly sold by operating companies and inserting destination clauses into sales contracts. In other cases, producing countries insisted upon exploration, refining and other joint ventures or technical service agreements with oil companies seeking to buy their oil under contract.

Frequently, 6-month and 1-year contracts were shortened to 90 days or less with no assurance of stable price terms. Some producers imposed price increases retroactively. Credit terms were often reduced from 90 to 30 days, and flexible margins on export volumes were curtailed or eliminated.

Fragmentation of OPEC's pricing structure

In December 1978 OPEC official crude oil prices ranged from \$12.03 to \$14.10 a barrel. In April 1980 after the explosion in spot prices, official prices ranged from \$26.00 to \$37.21. To some extent the wide distribution of crude oil prices can be explained by quality and transportation differentials. However, these factors do not fully account for the fragmentation of OPEC's price structure.

1/Aramco includes Saudi Arabia, Exxon, Texaco, Standard Oil Company of California, and Mobil.

Another factor is a difference of opinion within OPEC, largely between those countries with low oil reserves and a substantial need for high revenues and those with large reserves and modest revenue needs, about optimal official price levels. Some OPEC countries first used the spot market to test their beliefs about the value of their crude oil on the international market. The resulting high spot prices were sometimes used to justify departures from OPEC guidelines.

The increase in the range of crude oil prices as it affected the price of U.S. imports for April and November 1979 and February 1980 is illustrated in appendix II.

Reduced role of the major oil companies

Many longstanding supply relationships were disrupted or even terminated during this period of turmoil in the world oil market. The major oil companies, Exxon, Texaco, Standard Oil Company of California, Mobil, British Petroleum, Shell, and Gulf, lost access to an estmated 3 million barrels a day of contract crude. Their combined role in international crude oil trade declined from about 55 percent in 1978 to between 50 and 45 percent by the end of 1979.

British Petroleum, which among multinational oil companies in 1978 had the largest share of third-party sales (sales between unaffiliated companies), was deprived of both its Iranian and Nigerian contracts in 1979. It therefore virtually terminated all its sales to other companies by the end of the year. Exxon, one of British Petroleum's largest customers, began phasing out its own third-party sales. Mobil, Standard Oil Company of California, Shell, Gulf, and Texaco also reduced third-party sales, in varying degrees, in a chain reaction that multiplied its effects throughout the highly interdependent world oil industry. 1/

1/However, this retrenchment did not necessarily work to the short-term disadvantage of major oil companies. While they were sometimes required to buy spot-priced crude in order to meet internal supply commitments, by phasing out third-party sales, major companies could save their cheaper contract crude for their own refineries and cause their customers/competitors to purchase crude oil at much higher spot prices. In the longer term, however, the majors have reduced marketing flexibility and reduced control.

A great number of diverse, smaller oil companies, traders, and government purchasing authorities increasingly filled the share of the market vacated by the major oil companies. The international oil market became more fragmented and complex.

Scramble by refiners for crude oil

Refiners who needed crude oil often found conventional sources closed. The major oil companies, losing some of their supplies, cut sales to refiners. Oil producers, encouraged by strong market demand, frequently refused to do business with companies which had not cultivated a previous supply arrangement with them when the market was loose. Refiners who previously bought on the spot market now found it difficult to obtain access to less expensive contract oil. Reports circulated of refiners, including some large ones, buying crude oil from producing countries at extremely high spot prices just to establish a contractual arrangement.

For example, many companies purchased expensive spot cargoes from producing countries expecting or hoping to obtain a term contract. These deals often transpired without the bid and ask process traditionally associated with spot transactions. In other cases, the high-priced spot purchase was an explicit part of a specific term supply arrangement. In addition, some OPEC countries demanded and obtained spot-priced surcharges for a percentage of their crude oil sold under contract.

Growth in crude oil inventories

Although dramatic price increases in gasoline and other fuels along with generally sluggish economic performance restrained the consumption of oil products, the 1979 world crude oil market remained tight. The problem was not a drop in crude oil output. World crude oil production increased relative to 1978 and 1977. Rather, throughout 1979 the market was tight because oil companies worldwide attempted to rebuild crude oil stocks, eventually reaching record levels for crude oil and it products for the United States and other members of the Organization for Economic Cooperation and Development (OECD). 1/ During the first three quarters of 1979, this activity could be accounted for by

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1/The OECD countries include the members of the IEA plus Finland, France, and Iceland.

the 1978 decline in stocks and the drawdowns made necessary by the Iranian cutoff of early 1979. However, the stock buildup continued through the end of 1979 despite record inventory levels and high prices and storage costs. According to the IEA, by the end of the fourth quarter of 1979, total OECD petroleum stocks (crude oil and oil products) 1/ reached a record level of 442 million metric tons, 9 percent greater than comparable 1978 levels and 7 percent greater than 1977. At the same time, crude oil stocks were at a record 186 million metric tons, 12 and 14 percent above 1978 and 1977 levels, respectively.

Refiners looked to abnormally large stocks as a measure of security against future price increases and supply disruptions. According to a DOE official, the inventory accumulation also resulted from reduced flexibility on contract volumes imposed by producing countries and the perceived need of some refiners to maintain their own, separate inventories after losing traditional supply lines.

THE SPOT MARKET AS A CATALYST FOR CHANGE IN THE LARGER CRUDE OIL MARKET

The crude oil spot market reflected each of the above factors in 1979. In addition, the spot market was a catalyst for the interaction of these factors, facilitating and perhaps accelerating sharp increases in the price of crude oil in 1979 as well as more subtle changes in the structure of the international crude oil market.

The tightening of the world oil market in late 1978 was reflected initially and precipitously in the crude oil spot market where in September 1978 spot prices for light, low-sulfur crude oil began to rise substantially above contract levels for the first time since 1975. This increase occurred 1 month before Iranian production began to decline.

The spot market was a mechanism through which some oil-producing countries diversified their crude oil exports. This contributed to insecurity of supply by disrupting traditional producer-consumer relationships. In the case of Iran, the spot market provided a means to diversify rapidly crude oil exports at the expense of the consortium of U.S.

1/Data for Turkey is not included in 1979 IEA data for OECD stocks.

and European oil companies that had previously controlled the marketing of Iranian oil. Other OPEC countries also diversified their markets by selling an increased proportion of their crude oil to spot market customers or to trading companies which sometimes resold the oil on the spot market. For example, Qatar reportedly sold an important part of its July 1979 crude oil output at spot prices, $13 over the contract price. In August, Dubai announced its intention to sell directly up to one-fourth of its crude oil, presumably on the spot market.

At a June 1979 OPEC conference, member countries agreed to limit their transactions on the spot market. However, some OPEC countries continued to cite the spot market when expressing dissatisfaction with OPEC's pricing structure. Spot prices substantially in excess of OPEC guidelines were used by some OPEC countries to justify raising their official prices to levels above the OPEC guidelines. Some OPEC countries (e.g., Ecuador), as well as non-OPEC countries (e.g., Peru) linked sales contracts to spot prices.

As noted in chapter 2, the largest U.S. oil companies have usually avoided the spot market. The decline in their role as crude oil traders in 1979 was accompanied by an increase in the role of independent trading companies as direct purchasers of crude oil from producing countries. Many of these trading companies had previously sold a substantial portion of their oil supplies on the spot market, but most of their activity had been in oil products, rather than crude. The emergence of these trading companies as crude oil sellers in 1979 may have contributed to the increase in crude oil spot market activity.

The spot market was also the focus of demand pressure by crude oil refiners which were denied access to contract crude by oil-producing countries and major oil companies. For example, some U.S. some companies had relied on the spot market for as much as one quarter of their imported crude oil supplies from 1975 to 1978. In 1979 their dependence on the spot market increased, in some cases to nearly one-half of their foreign crude oil supplies.

The unusually high inventory buildup among oil-importing nations in late 1979 was, in part, a response to the uncertainty of oil companies and governments of oil-importing countries about future access to crude oil supplies, the expectations of still higher prices, reduced flexibility in contracts, and some refiners maintaining separate inventories. This inventory buildup also contributed to the high level of spot market activity in late 1979, a time of year when crude oil stocks are generally reduced.

The persistence of record-high inventories through the first quarter of 1980 may have approached the limits of storage capacity in some countries and local regions. This may partly account for the decline in spot market activity in early 1980 and the relative stability of spot market prices since that time.

CHAPTER 4

DEPARTMENT OF ENERGY PROGRAMS

AND ACTIONS HAVE DIFFUSE

IMPLICATIONS FOR THE SPOT MARKET

In June 1979, when the spot market was particularly active and spot prices rose far above contract levels, the United States and six other major oil-importing countries agreed in Tokyo to make efforts to moderate the spot market. Although no U.S. policy or program has been designed to directly influence the international crude oil spot market, some existing programs designed for other purposes have indirect, although sometimes marginal, implications for the spot market or for U.S. oil company activity in that market. Additionally, DOE has occasionally taken specific actions which have affected the spot market.

We identified several programs and actions having such implications. These are discussed below.

STRATEGIC PETROLEUM RESERVE ACQUISITION

Between June 1977 and October 1979, DOE acquired 92 million barrels of crude oil for the U.S. stockpile, the Strategic Petroleum Reserve. 1/ Approximately 5 percent of this oil was purchased on the spot market; the rest was obtained on a short-term contractual basis. During this period, spot and contract prices were similar.

A DOE-contracted study completed in November 1979 concluded that from July 1977 to July 1978, when the international oil market was stable, no significant impact could be observed on spot prices for the types of crude oil purchased for the Reserve. 2/

1/See our previous reports, "Information on Department of Energy's Management of the Strategic Petroleum Reserve," Mar. 22, 1979, EMD-79-49; and "Purchase Price of Strategic Petroleum Reserve Oil Fair But Payment Timing is Costly," Apr. 3, 1980, PSAD-80-30.

2/Putnam, Hayes & Bartlett, Inc., "SPR Impact Analysis," Nov. 30, 1979.

After the start of the Iranian disruption in late 1978 and an explosion in spot market prices, DOE could not obtain crude oil for the Reserve at prices it was willing to pay. This situation is attributed not only to the tight oil market prevailing at the time, 1/ but also to the tendency of suppliers to ask spot market prices for contracts of short-term duration (less than 6 months).

In June 1979 the United States pledged, along with six other countries, to refrain from buying oil for government stockpiling when this would place undue pressure on world oil prices. In April 1979, DOE had already officially suspended purchases of crude oil for the Strategic Petroleum Reserve. Officials responsible for crude oil acquisition said that the decision to halt purchases was made because of possible effects of crude oil acquisition on the volatile international spot market. 2/

DOE INFORMAL GUIDANCE

According to congressional testimony and other public statements made by DOE officials, DOE privately advised U.S. oil companies to restrain their spot market purchases of crude oil during early 1979. The stated purpose of DOE's guidance was to reduce pressures for permanent world crude oil price increases at a time when both spot and contract prices were rising rapidly.

Our data does not indicate the extent of U.S. oil company involvement in the spot market during the first quarter of 1979. However, DOE estimated that its policy of discouraging U.S. companies from purchasing spot crude during this period had the undesirable effect of reducing U.S. crude oil imports by as much as 200,000 barrels a day, contributing to shortages of gasoline and other petroleum products.

1/The failure of several contractors to meet supply commitments to the Reserve is examined more fully in our report, "U.S. Strategic Petroleum Reserve At a Turning Point--Management of Cost, Oil Supply Problems and Future Site Development," Jan. 2, 1980, EMD-80-19.

2/The decision was likely reinforced by reports that Saudi Arabia had criticized consumer Government stockpiling and had warned that it might reduce its oil production by an equivalent amount.

In May, therefore, DOE changed its policy and reportedly urged U.S. refiners to bid for supplies on the international spot market if needed to increase refinery runs. According to DOE data, the 31 largest U.S. refiners purchased 2.6 percent of their crude oil supplies destined for the U.S. market at spot prices during April 1979. The purchases increased to 4.0 percent in May and rose sharply to 12.3 percent in June. The data also shows that while only 2 large U.S. refiners reported spot purchases for import into the United States in April, 4 large refiners reported such purchases in May and 11 in June. This increase in the volume of spot purchases and number of large U.S. refiners entering the spot market within a short period of time may have been factors in the sharp increases in spot prices reported in June 1979.

DOE SALE OF ELK HILLS OIL

In November 1979 DOE offered for sale 127,465 barrels a day of crude oil from the Elk Hills Naval Petroleum Reserve. A competitive bidding process, not subject to price controls, was mandated through the Naval Petroleum Reserves Production Act of 1976. According to a DOE official, with DOE's pricing formula, the weighted average bids equated to about $35 per barrel. However, the highest bid, for 10,000 barrels a day, equated to just over $41 per barrel (although it was later adjusted to $39.62), a level approaching the highest range of international spot prices. 1/ Some oil-producing countries pointed to DOE's acceptance of the highest bids to justify subsequent increases in the contract prices of oil and gas exported to the United States. Additionally, the symbolic effect of these high prices may have added to price pressures on the then-volatile spot market. According to a DOE official, a survey of prices taken before and after the sale did not indicate any impact on domestic prices.

DOE responded to domestic and foreign criticisms by acknowledging the "disadvantageous" implications of its acceptance of the highest bids. DOE is currently considering alternative means of using Elk Hills oil.

1/The purchasers with the three highest bids later cancelled their purchases prior to the end of the contract.

THE CRUDE OIL ENTITLEMENTS PROGRAM

Until 1973 U.S. oil prices were generally above international prices. After the 1973 Arab oil embargo, however, most domestic oil was priced below imported oil due to U.S. price controls and the increase in OPEC oil prices. One result of this price disparity was to give refiners with greater access to less expensive domestic crude oil a substantial competitive edge over refiners that relied on more expensive imported crude oil. To redress this inequity, the Crude Oil Entitlements Program was established in 1974. Under the Program, refiners must buy and sell entitlements (permits) designed to minimize the disparity in their crude oil acquisition costs. The current method for calculating entitlements, however, treats all imported crude oil as if it were purchased at the weighted average world price. When spot prices diverge from contract prices, the weighted average price of imported crude is closer to the prevailing contract price because of the much larger volume imported under contract.

From 1975 through the first half of 1978, spot prices tended to be slightly below contract prices. A refiner that imported spot crude, therefore, obtained a financial advantage equal to the difference between the spot price and the higher, weighted average price used to calculate the value of each entitlement. This effect provided a small incentive, in addition to actual cost, for some refiners to buy spot crude, rather than import more expensive contractual supplies.

In 1979, however, U.S. refiners relying on the spot market were not uniformly affected by the Crude Oil Entitlements Program. When spot prices rose far above contract levels, refiners that purchased spot crude were penalized both by having to pay extraordinarily high prices and by losing that portion of an entitlements benefit equal to the difference between the spot price and the lower, weighted average cost of imported crude. Moreover, contract crude was not always available to refiners which had relied on spot crude when spot prices were low.

Some refiners faced choices among absorbing higher costs, charging higher prices for their products, or reducing output. One company particularly affected was Union Oil Company. In the fall of 1979 Union appealed to DOE for relief under the Entitlements Program, basing its appeal on the fact that the weighted average price of its crude oil acquired during the first half of 1979 remained, after entitlements, substantially above its competitors' prices. Union depended on the international spot market for about 40 percent of its imported crude oil supplies in 1979. The Entitlements Program, as noted above, does not account for the gap between contract and spot prices in calculating imported crude oil acquisition costs.

On the other hand, Altantic-Richfield Company, while similarly penalized for its reliance on the spot market in 1979, benefited from a different provision of the Entitlements Program. According to company officials, the disadvantage of importing spot crude was offset by access to large quantities of Alaskan crude. Through 1979, the Entitlements Program treated Alaskan crude oil as imported crude although its prices were well below the weighted average price of imported crude oil. This may have enabled Atlantic Richfield to import more high-priced spot market oil than it otherwise could have.

On July 3, 1980, DOE adopted a provision providing for separate treatment of Alaskan North Slope crude oil, effectively reducing its entitlement benefits.

DOE ACTIONS TO INCREASE IMPORTS AND INVENTORIES OF DISTILLATE OIL

In early 1979 DOE officials became concerned about abnormally low U.S. stock levels for distillate oil-refined petroleum products used for home heating oil and diesel fuel. As of April 1979, U.S. distillate stocks stood at 115 million barrels compared to 136 million barrels in April 1978.

DOE took two steps to address the situation. It first set a U.S. distillate inventory target of 240 million barrels for October 1, 1979, (later changed to October 31) and met with refiners to suggest ways of meeting the target levels.

Secondly, on May 24, 1979, DOE, under the Entitlements Program, instituted a $5 benefit for each barrel of imported distillate oil. The benefit was effective from May 1 to October 31. DOE officials stated that they hoped to prevent distillate from Caribbean refineries that normally supplied the U.S. from being diverted to Europe where spot prices were reportedly substantially above U.S. prices.

Both the DOE inventory target levels and the entitlement benefit for distillate imports were criticized as contributing to surplus demand and increased prices on the international spot market.

However, the inventory target level and entitlement benefit do not appear to have stimulated an abnormal growth in U.S. imports of distillate during the period in which they were in effect. From June 1 to October 31, 1979, average daily U.S. distillate imports increased by 17.2 percent, compared to 21.9 percent during the same months in 1978. According to reports in the trade press, the announcement of the distillate entitlement on May 24 did trigger a temporary increase in the spot price of distillate. However, the entitlement may have also temporarily reduced demand pressure on the crude oil spot market by encouraging U.S. refiners to import more distillate than crude.

THE MANDATORY CRUDE OIL ALLOCATION ("BUY/SELL") PROGRAM

The Mandatory Crude Oil Allocation Program, also known as the "Buy/Sell" Program, as presently structured, is designed to ensure that crude oil is equitably allocated to small refiners. There are two components to the program, the regular Buy/Sell Program and the emergency Buy/Sell Program. Under both programs, the 15 major integrated refiners are designated as sellers of crude oil to small refiners that qualify as buyers under the regulations. Neither program distinguishes between spot and contract sources of imported crude oil.

The regular Buy/Sell Program is primarily designed for small landlocked refiners without physical access to imported crude oil and who participated in previous Buy-Sell Programs. Under the regular program, qualified small refiners receive allocations every 6 months.

The emergency Buy/Sell Program is intended to provide allocations to any small refiner which has or expects reduced crude oil supplies of at least 25 percent and which cannot reasonably replace its lost supplies through its own efforts. In determining whether a small refiner can replace supplies, DOE considers the price of available replacements in relation to the range of prices being paid for most crude oil on the world market.

As discussed in chapter 3, many small refiners in 1979 lost access to crude oil formerly obtained under contract with major oil companies. These refiners were forced to turn to the spot market where prices ranged from $5 to $20 a barrel above contract levels. Under the emergency provisions discussed above, DOE increased allocations under the Buy/Sell Program from an average of about 20,000 barrels a day in 1978 to about 300,000 barrels a day in the fourth quarter of 1979. The Buy/Sell Program enabled many small refiners to obtain crude oil that they would have otherwise purchased on the spot market and may have reduced the number of U.S. companies competing for supplies on the spot market in 1979.

However, according to a DOE official, in March 1980 DOE began denying allocations to some refiners in cases where crude oil was available on the spot market at prices up to $41 a barrel. DOE believed that $41 was not significantly above the range of prices for most crude oil purchased on the world market. This decision may increase the number of small U.S. refiners purchasing crude oil on the spot market.

EXCEPTION RELIEF

Section 504 of the DOE Organization Act (42 U.S.C. § 7194 (a)) authorizes DOE to allocate crude oil among refiners that are not eligible to receive such allocations under existing programs. This kind of allocation is called exception relief.

Following the President's decision to halt U.S. purchases of crude oil from Iran on November 12, 1979, DOE received requests for allocations from several large refiners that were not eligible to purchase sufficient crude oil under the Buy/Sell Program. In the two cases in which DOE granted allocations, it based its decision in part on the expectation that the eligible buyers would reduce or not increase their purchases of crude oil on the then-volatile spot market. Large refiners designated as sellers under these decisions objected to these allocations, in some cases contending that their sales obligations required them to purchase additional crude oil on the spot market at prices higher than they would otherwise pay. According to DOE data, 7 of the 14 designated sellers increased their dependence on the spot market during the first 2 months of 1980.

DOE data also indicates that one of the two large refiners who were allocated crude oil from December 1979 through February 1980 did in fact reduce its purchases of spot-priced crude during the first 2 months of 1980. However, the other refiner increased its dependence on spot-priced crude during this period. This suggests that the benefits of lower-priced crude oil allocated to this company may have made it possible to finance increased purchases of spot-priced crude oil.

OTHER PROGRAMS TO INFLUENCE THE SPOT MARKET

DOE officials noted that the Department has at least two other ways of influencing the spot market, although neither was used in 1979. These include oil import quotas and a Standby Crude Oil Allocation Program.

Pursuant to the Tokyo agreement, the President announced on July 16, 1979, an 8.2 million barrel a day ceiling on oil imported into the United States to be implemented if necessary by means of a quota. Regarding the spot market, DOE officials said that oil import quotas could be used indirectly to reduce U.S. imports of all crude oil, thereby reducing demand pressure on the spot market. For a more direct influence, import quotas would need to be targeted to reduce or prohibit imports of spot crude by U.S. companies. In 1979, however, net U.S. oil imports fell short of the 8.2 million barrels a day ceiling; the quota, therefore, did not require implementation.

Recognizing the limitations of the existing regular and emergency Buy/Sell Programs to deal with a generalized crude oil supply shortage, DOE adopted in January 1979 a Standby Mandatory Crude Oil Allocation Program. In the event of such a supply disruption, the Administrator of DOE's Economic Regulatory Administration may activate any one of three options which in his discretion is most appropriate in the particular circumstances. The options are designed to increase the number of refiners eligible to buy and sell crude oil under the Buy/Sell Program. Depending on the nature and extent of a shortfall, the Standby Program could reduce the need for U.S. refiners to purchase crude oil on the spot market. In addition, the pricing provisions of the program have been specifically designed to reduce pressure on spot market prices by providing incentives for refiners, designated as sellers under the program, to seek the lowest possible price for incremental supplies of crude oil.

CRUDE OIL PRICE DEREGULATION

Domestic crude oil price controls have kept domestic oil prices substantially below world levels. This has resulted in higher domestic oil consumption and imports. Between 1972 and 1978, U.S. oil imports increased from 29 to 43 percent of U.S. oil consumption. This increase contributed to the sustained demand pressure that was manifested on the international spot market throughout 1979.

The Energy Policy and Conservation Act of 1975 gave the President discretion over domestic crude oil prices between

June 1, 1979, and the scheduled expiration of controls on October 1, 1981. The President decided to deregulate domestic crude oil prices gradually, leading to complete decontrol as of October 1, 1981. In a previous report we estimated, on the basis of price information and projections available in July 1979, that the administration's crude oil price deregulation plan would reduce U.S. oil imports by 1 million barrels a day by 1985. 1/ To the extent that this anticipated effect will reduce worldwide demand for crude oil relative to supply, it could have a moderating effect on demand and prices on the spot market during the next few years. On the other hand, if supplier countries reduce production proportionately, as might be expected, demand and price pressures on the spot market could remain.

In any case, the prices of newly decontrolled domestic crude oil have sometimes approached spot market levels. These prices may be a source of upward price pressure on the spot market.

1/U.S. General Accounting Office, "The Economic and Energy Effects of Alternative Oil Import Policies," EMD-79-78, July 24, 1979, p. 39.

CHAPTER 5

OBSERVATIONS

By conventional definition the terms of the transaction have been the critical factors defining spot sales in the international crude oil market. However, in 1979 this definition lost much of its usefulness for describing and analyzing the crude oil market since the distinction between spot and contract sales was no longer clear. During 1979, crude oil prices substantially in excess of official prices were the distinguishing feature of most spot market transactions.

When the world oil market was relatively stable, the spot market may have helped to keep down prices. In 1979, however, insecurity of supplies permitted oil prices to increase sharply even though overall world crude oil production increased and IEA consumption remained stable. Under these circumstances the spot market functioned as a catalyst, facilitating and perhaps accelerating price increases and changes in the structure of the international crude oil market. Since March 1980 prices on the spot market appear to be moderating, but some of the conditions underlying its volatility remain.

Although previously published estimates suggested that the spot market may have accounted for over 25 percent of world crude oil trade in 1979, our review indicated that U.S. imports from that market averaged less than 10 percent of all U.S. crude oil imports between April 1979 and February 1980. Reports by trade journals of massive spot crude purchases by major U.S. oil companies were exaggerated. One of the 10 largest U.S. companies reported spot-priced imports as almost half of its total imports. The other nine reported spot-priced imports of 10 percent or less. Another large U.S. refiner depended on the spot market for nearly one-half of its foreign crude oil supplies during this period. The two large spot-priced importers, though, had also depended on the spot market for a substantial portion of their imported crude oil when spot prices were lower than contract prices. In 1979 spot-priced crude originated in 23 of 27 OPEC and non-OPEC countries from which the United States imported crude oil. However, only one country sold that oil directly to U.S. importers. The rest of the oil was sold by U.S. and foreign oil companies and traders.

Our review indicates that U.S. actions and programs have diffuse implications for the spot market. Nonetheless, we believe that DOE needs to be aware of these implications, including the influence on U.S. oil company behavior in the spot market. Under volatile market conditions such as existed in 1979, U.S. actions and programs can have conflicting influences on the spot market itself and on U.S. oil companies. DOE's own actions have been confusing; for example, it reversed its informal guidance to oil companies and it accepted company bids for U.S. Government oil at prices approaching the highest range of international spot prices. Additionally, some programs encourage and some discourage companies from participating in the spot market by affecting their crude oil acquisition costs and supplies. Furthermore, the same program can affect a company's costs differently under different circumstances.

We recognize that the Department of Energy, in designing a comprehensive energy policy, must take into account competing goals and can, at best, hope to make appropriate trade-offs among them. The actions and programs we have identified as having implications for the international crude oil spot market are designed and implemented primarily for domestic purposes. These domestic concerns often and legitimately take priority over other goals such as efforts to influence the spot market. Furthermore, the spot market, as an international process, is subject to many foreign government and non-government influences. These opposing influences make it difficult for the United States to develop and implement a coherent unilateral policy toward the spot market, or to implement effectively the Tokyo agreement of June 1979. 1/

1/ The United States also pledged, along with six other countries, to improve monitoring of the international petroleum market. We are issuing a companion report to the Secretary of Energy, "DOE Could Make Better Use of Data To Monitor Crude Oil Spot Market," EMD-80-95, August 21, 1980.

COMPARISON OF SPOT AND OFFICIAL CRUDE OIL PRICES

1976 - First Quarter 1980

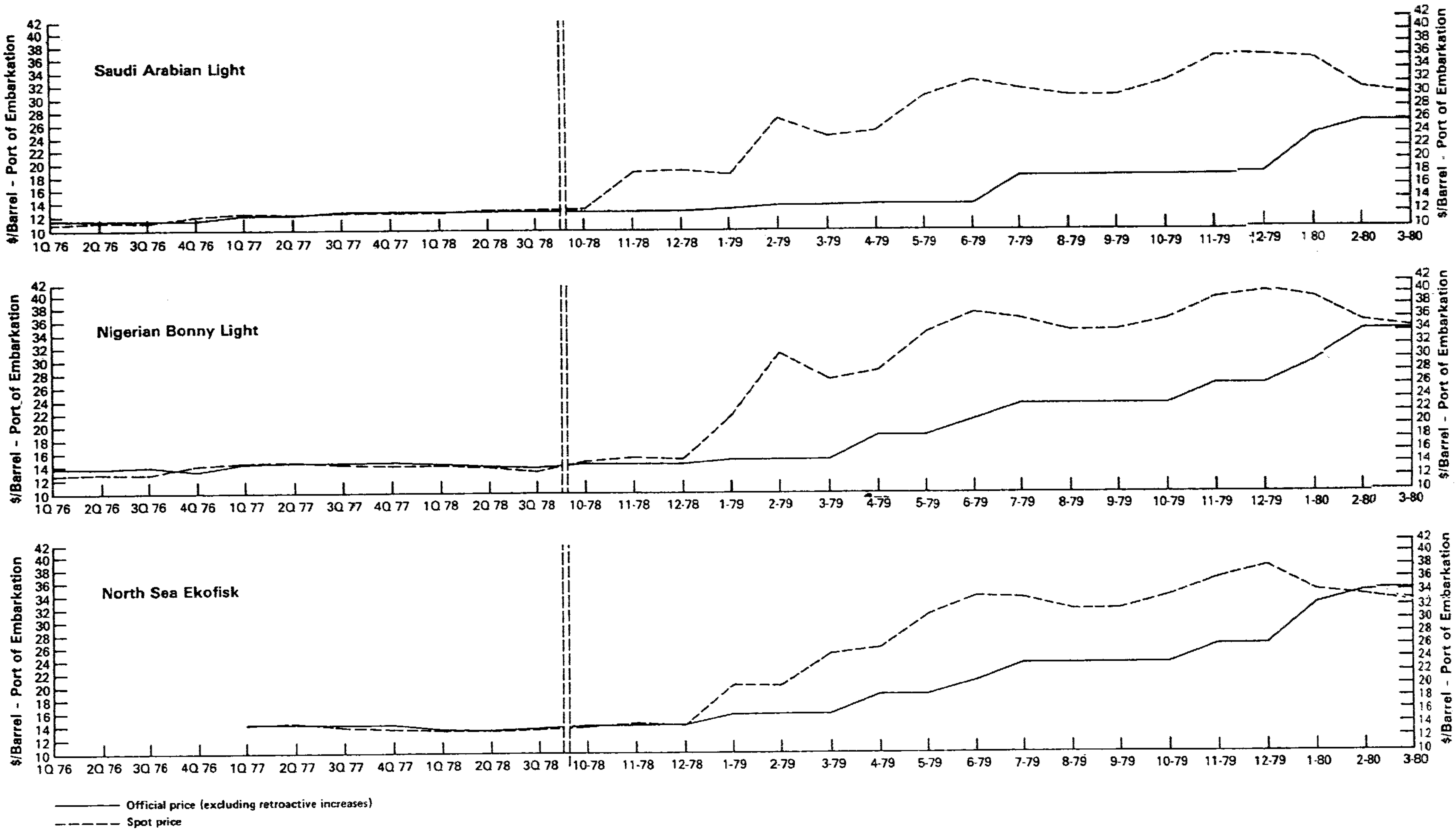
The following graphs illustrate the relationship between spot and contract crude oil prices for three crude oil types, Saudi Arabian "Light," Nigerian "Bonny Light," and North Sea "Ekofisk." All three crude oil types are heavily traded in the international oil market both under contract and on a spot basis. Saudi Arabian "Light" is the conventional OPEC "benchmark crude" against which other OPEC crude oil types have been priced. It is the largest single category of crude oil traded on the world market and imported by the United States. Nigerian "Bonny Light" is a second major category of U.S. imported crude oil. North Sea "Ekofisk", exported by Norway, is a non-OPEC crude oil type. "Ekofisk" exports did not reach significant levels until January 1977.

The source for the following data is Petroleum Intelligence Weekly, an independent trade journal. We have checked the accuracy of official prices with DOE and oil industry officials. However, the data on spot prices may not be representative of spot prices in general. DOE data for 1979 and 1980 indicates that most spot crude oil purchased for U.S. import was traded at prices lower than the spot prices reported in Petroleum Intelligence Weekly. In addition, the crude oil types represented in the following graphs are of relatively high quality and tend to be traded at higher spot and official prices than lower grades of crude oil. Nonetheless, the graphs illustrate the trends in differentials between spot and official prices since 1976.

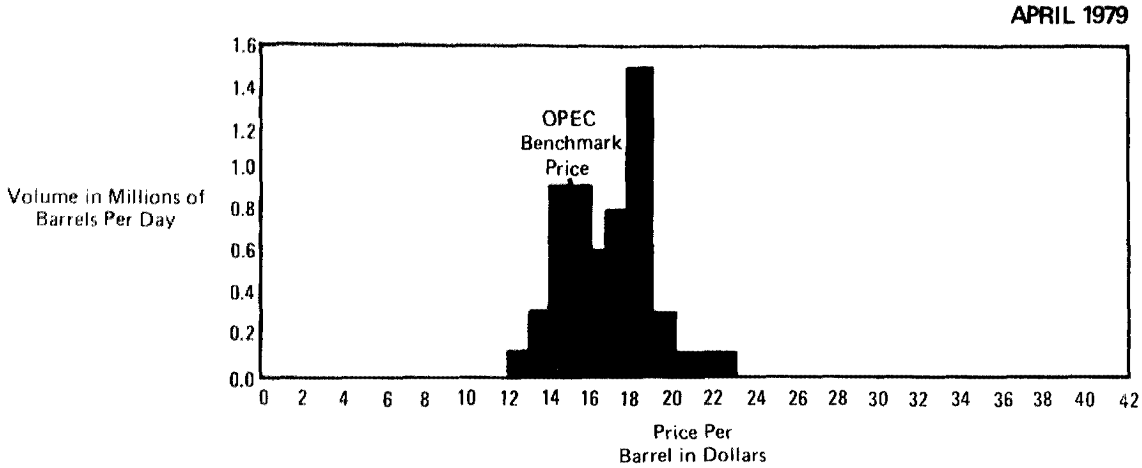
APPENDIX I

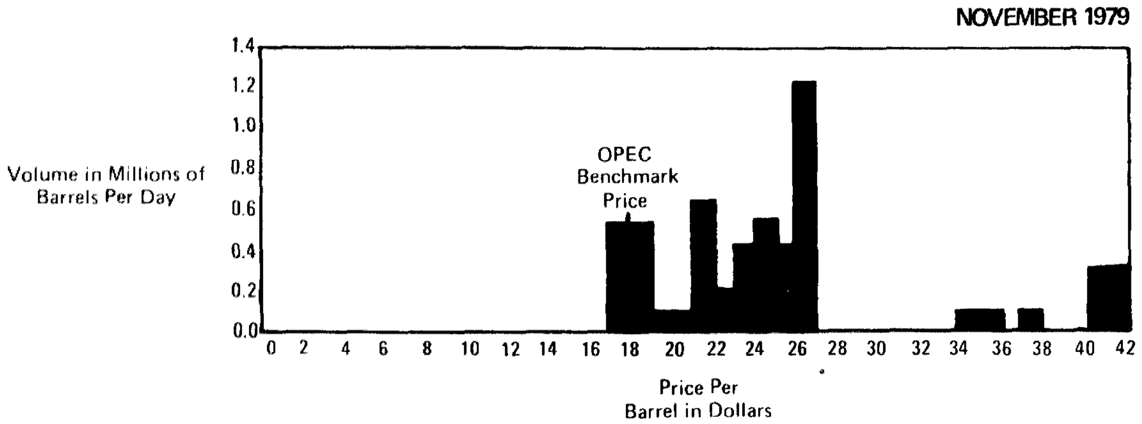
COMPARISON OF SPOT AND OFFICIAL CRUDE OIL

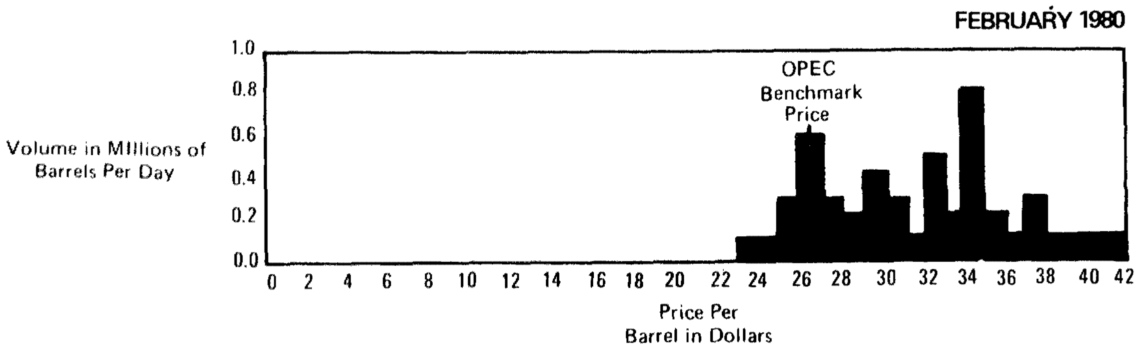
PRICES, 1976 - FIRST QUARTER 1980



DISTRIBUTION OF CRUDE OIL PURCHASES DESTINED FOR US IMPORT BY VOLUME AND PRICE







Source: DOE

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