REPORT BY THE U.S.

General Accounting Office

Assessment Of Factors Affecting The Availability Of U.S. Oil Supplies From The Caribbean

Despite the unrest in neighboring Central America, the Caribbean is considered to be a more secure source of oil than the Middle East. It has substantial oil reserves and the United States represents a natural market for Caribbean oil. However, availability of future Caribbean oil supplies depends largely on the individual Caribbean countries' perceptions of their economic and political self-interests. Their decisions may or may not coincide with U.S. needs for assured supplies of oil. Thus, the ability and willingness of individual Caribbean countries to sustain or increase oil supplies to the United States should not be taken for granted.

GAO/NSIAD-85-127
SEPTEMBER 13, 1985

UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

NATIONAL SECURITY AND
INTERNATIONAL AFFAIRS DIVISION

B-219507

The Honorable James A. McClure, Chairman
Committee on Energy and Natural Resources
United States Senate

The Honorable John D. Dingell, Chairman
Committee on Energy and Commerce
House of Representatives

The Caribbean region, including Mexico and Venezuela, currently represents the largest source of U.S. petroleum imports. This report identifies and discusses the various factors which may influence the continued or increased supply of crude oil and refined products from the different Caribbean countries.

Copies of this report are being sent to the Secretaries of Energy, State, and Defense as well as to other cognizant congressional committees and interested parties.

Frank C Conahan

Frank C. Conahan
Director

REPORT BY THE
GENERAL ACCOUNTING OFFICE

ASSESSMENT OF FACTORS AFFECTING THE AVAILABILITY OF U.S. OIL SUPPLIES FROM THE CARIBBEAN

D I G E S T

The United States depends on petroleum for 42 percent of its energy needs and imports 30 percent of that oil. As continuing political and military instability in the Persian Gulf region exposes oil consuming nations to supply disruptions, the United States has diversified its sources of oil and now relies more heavily on imports from other sources, such as the Caribbean. The objective of GAO's review was to assess the factors affecting the availability of oil supplies from the Caribbean.

The major Caribbean crude oil producing countries --Mexico, Venezuela, and Trinidad and Tobago--are currently supplying 31 percent of U.S. net crude oil imports. (See p. 6.) The major Caribbean suppliers of refined petroleum products--Venezuela, the Netherlands Antilles, the Bahamas, Mexico, and Trinidad and Tobago provided about 40 percent of U.S. net refined petroleum product imports in 1984. (See p. 18.)

Increased U.S. reliance on Caribbean oil and the unrest in neighboring Central American countries provided the impetus for GAO's review of U.S. oil interests in the Caribbean. GAO found that the ability and willingness of the individual Caribbean oil producers and refiners to continue or to increase production and exports to the United States depend on complex and interrelated political, economic, financial, technical, and foreign policy considerations.

FACTORS AFFECTING AVAILABILITY OF CRUDE OIL SUPPLY

Mexico and Venezuela, now the number one and number three oil suppliers to the United States, possess substantial reserves. However, both countries have nationalized their oil industries and restricted foreign investment in the petroleum sector.

Each country also restricts export levels--Mexico by government policy and Venezuela by complying with production quotas imposed by the Organization of Petroleum Exporting Countries (OPEC). Mexico has limited crude oil exports to 1.5 million barrels per day (bpd) through 1988. Mexico further limits exports to any one country to 50 percent of Mexico's total crude oil exports and to 20 percent of a single country's total imports. (See p. 8.) Venezuela's production, and therefore potential exports, is limited by OPEC quotas announced in November 1984 to 1.555 million bpd. (See p. 13.)

Mexico and Venezuela have curtailed or delayed routine maintenance of existing oil facilities and the development of new oil fields and facilities. One explanation is these cutbacks are in response to reduced funding resulting from the financial difficulties both countries are experiencing. However, Venezuelan oil company representatives state their actions are more in response to the current weak oil market rather than to the country's economic dilemma. (See pp. 9, 10, and 14.)

Trinidad and Tobago is rapidly depleting its known crude oil reserves, and oil exploration experts believe little oil remains to be discovered. (See p. 15.)

FACTORS AFFECTING AVAILABILITY OF REFINED PRODUCTS

Venezuela is the largest Caribbean supplier of refined petroleum products to the United States, but its future exports to the United States may be limited because the national oil company has postponed the upgrading of two domestic refineries. (See pp. 18 and 19.)

Mexico does not plan to be a refined product exporter. The volume currently exported to the United States is limited to the excess of production over that consumed domestically. (See pp. 22 and 23.)

Several Caribbean refineries are closing down operations because of the worldwide excess of petroleum refining capacity and locally imposed operating restrictions, including taxes and

employment requirements, which have made them uneconomical. In the Netherlands Antilles, refineries are no longer guaranteed an oil supply from nearby Venezuela at concessionary prices and are currently operating at a loss. (See pp. 20 to 21.) One refinery has closed down its operations. In Trinidad and Tobago, companies are considering terminating or have decided to terminate their two unprofitable operations. The U.S. oil company which operated one of the refineries has sold the operations to the government of Trinidad and Tobago. (See pp. 23 and 24.)

The potential exists for increased refinery production in the Bahamas, but it relies in large measure on Middle East sources for its crude oil. (See pp. 21 and 22.)

The prospects for an increased volume of Caribbean refined products or exports to the United States in the near term are minimal. The significance of these limited prospects may vary, depending on available refining capacity in the United States at any particular time.

PERCEIVED THREATS TO OIL FACILITIES AND TRANSPORTATION SYSTEMS APPEAR MINIMAL

The security of Caribbean oil facilities and transportation systems is vital to the United States. The administration pointed out in statements on the U.S. military operation in Grenada and the request for increased military aid for Central America that the Caribbean region is strategically important because, among other things, the majority of U.S. oil imports originates in or traverses the Caribbean en route to U.S. markets.

The oil fields, pipelines, and other facilities are considered highly visible and vulnerable, but are geographically dispersed and oil tankers can use a number of shipping routes. U.S. and Caribbean officials perceive little immediate threat from internal political instability or external intervention despite the current unrest in Central America. (See pp. 28 and 29.)

OTHER FACTORS AFFECTING U.S. ACCESS

The United States has developed and/or participated in a number of international assistance programs designed to deal with energy supply problems. GAO's has reviewed various energy development programs under the World Bank, Inter-American Development Bank, the U.S. Agency for International Development, and the Central American Energy Resource Project. Such programs promote the development of alternative as well as conventional energy resources, including hydroelectric and coal projects, rather than petroleum to decrease the countries' dependency on imported oil. In the Caribbean, the programs are also designed to assist the smaller oil-consuming, less-developed countries rather than the major oil-producing and refining countries. (See pp. 30 and 32.)

AGENCY COMMENTS

GAO requested comments on a draft of this report from the Departments of Defense, Energy, and State and the Agency for International Development. All four agencies submitted formal responses (see apps. I to IV) suggesting a number of clarifications regarding issues under their responsibility. GAO has considered the suggested changes and incorporated them into the report where appropriate.

C O N T E N T S

ILLUSTRATIONS

ABBREVIATIONS

bpd	barrels per day
GAO	General Accounting Office
OPEC	Organization of Petroleum Exporting Countries
PDVSA	Petroleos de Venezuela, S.A.
PEMEX	Petroleos Mexicanos
SPR	Strategic Petroleum Reserve

CHAPTER 1

INTRODUCTION

The United States depends on oil for 42 percent of its energy consumption and on imports for about 30 percent of its oil to meet those needs. To diversify its sources of supply away from less secure supply sources, the United States has shifted toward the Caribbean for its crude and refined oil imports. The Caribbean now provides approximately 38 percent of U.S. net oil imports by volume. Mexico and Venezuela are the number one and three U.S. suppliers, respectively, which represents a major shift since 1979.

Figure I

The Caribbean Basin

Whereas Saudi Arabia was the number one oil supplier to the United States in 1979, Mexico became the number one supplier in 1982 and has maintained that position since then. Actual amounts of net petroleum imports from all sources, including the Caribbean and the Middle East, decreased from 7,984 thousand barrels per day (bpd) during 1979 to 4,715 thousand bpd during 1984. However, the percentage of total net petroleum imported from the Caribbean increased from 24 to 38 percent while that from the Middle East dropped from 27 to 11 percent. The relative ranking of U.S. suppliers of petroleum imports in 1979 and 1984 is shown in table 1.

Table 1

Top 15 U.S. Net Crude And Refined Petroleum Import Sources

1979			1984		
	Total net imports			Total net imports	
Country	Caribbean sources	Top 15 sources	Country	Caribbean sources	Top 15 sources
	(percent)			(percent)	
Saudi Arabia		17	Mexico	15	15
Nigeria		14	Canada		12
Venezuela	9	9	Venezuela	12	12
Libya		8	United Kingdom		8
Algeria		8	Saudi Arabia		7
Canada		5	Indonesia		7
Indonesia		5	Algeria		7
Mexico	5	5	Nigeria		5
Iran		4	Virgin Islands	4	4
United Arab Emirates		4	Netherlands Antilles	3	3
Virgin Islands and Puerto Rico	3	3	Norway		2
Netherlands Antilles	3	3	United Arab Emirates		2
United Kingdom		2	Angola		2
Trinidad and Tobago	2	2	Trinidad and Tobago	2	2
Bahamas	2	2	Bahamas	2	2
Subtotal from Caribbean sources	24		Subtotal from Caribbean sources	38	
Total		91	Total		90

Source: Department of Energy, Energy Information Administration

Whether or not future petroleum imports come increasingly from the Caribbean or from other less secure sources, such as the Middle East, remains to be seen. However, the purpose of this report is to identify the factors influencing the ability and willingness of individual Caribbean oil producing and refining countries to continue or to increase production and exports to the United States.

OBJECTIVES, SCOPE, AND METHODOLOGY

As continuing political and military instability in the Persian Gulf region exposes oil consuming nations to oil supply disruptions, the United States has diversified its sources of oil and now relies more heavily than it did during the 1970's oil crises on imports from other sources, such as the Caribbean. Our review was initiated to assess the political, economic, and security factors affecting the availability of U.S. oil supplies from the Caribbean.

Our review was performed in accordance with generally accepted government auditing standards. Most of the fieldwork for the review was done between December 1983 and November 1984. The information presented is based on discussions with officials in the Departments of Energy, Defense, State, Commerce, and Treasury; Office of the U.S. Trade Representative; Interagency Country Exposure Review Committee;[1] and Central Intelligence Agency. We also analyzed records provided by those officials and met with or collected data from Washington, D.C., representatives of the International Monetary Fund, World Bank, Inter-American Development Bank, Organization of American States, Caribbean country embassies, and U.S. oil trade organizations.

We met with various officials of the U.S. Atlantic Command in Norfolk, Virginia, to discuss and analyze documentation supporting their perspectives on current and prospective U.S.-Caribbean energy relations and security. We also met with representatives of several major U.S. banks in New York City to discuss the Caribbean debt situation and impact of related financial and budgetary constraints on the countries' ability and willingness to continue oil production and exports.

During visits to Mexico, Venezuela, the Bahamas, and the Netherlands Antilles, we met with U.S. embassy officials, government and national oil company officials, and U.S. oil company representatives to determine their views about the ability and willingness of Caribbean countries to continue or increase oil

---

[1]This committee was established in 1979 by the Comptroller of the Currency, the Federal Reserve, and the Federal Deposit Insurance Corporation to evaluate U.S. bank loans to foreign countries and consists of three representatives from each organization.

exports to the United States. This overseas work was limited to information provided by those individuals and we did not directly evaluate oil operations.

It should be noted that some figures used in this report may not always be as current as we would like; however, they represent the most up-to-date data available during our review or provided by agencies commenting on the draft of this report. The Department of Energy commented that updated figures would not materially change the thrust of this report.

AGENCY COMMENTS

We requested comments on a draft of this report from the Departments of Defense, Energy, and State and the Agency for International Development. The four agencies submitted formal responses (see apps. I to IV) suggesting a number of clarifications regarding issues under their responsibility. We have considered their comments and incorporated them into the report where appropriate.

CHAPTER 2

FACTORS AFFECTING THE AVAILABILITY OF CARIBBEAN CRUDE OIL

The two major Caribbean crude oil producers, Mexico and Venezuela, have significant oil reserves, but there are various political, economic and technical factors that influence oil production in these countries and exports to the United States. Prospects for increased oil imports from Trinidad and Tobago are limited.

Mexico and Venezuela have nationalized their oil industries and restricted foreign investment in crude oil exploration and development. Mexico also limits its crude oil export levels, while Venezuela's levels are similarly restricted by a production quota from the Organization of Petroleum Exporting Countries (OPEC)[1].

The financial difficulties that Mexico and Venezuela are experiencing have resulted in cuts being made in the nationalized oil companies' budgets. Both countries have very large and troublesome foreign debts brought about by heavy borrowing compounded by the advent of declining world oil prices, high interest rates, and economic recession. To address their external debt problems, each country has embarked on financial austerity programs and has curtailed or delayed development of new fields and facilities. In March 1985, the government of Mexico and the international banking community agreed on the principles for rescheduling the Mexican public sector debt, extending the repayment period. The President of Venezuela, also in March, stated the government plans to complete negotiations to reschedule its foreign debt. The resulting restructured debt burdens should help the countries' national oil companies to better carry out their investment, development, and operating plans.

Continued U.S. oil supply from Trinidad and Tobago may be influenced by a decline in crude oil reserves. The probability of discovering significant new oil fields is limited.

Collectively, Mexico, Venezuela, and Trinidad and Tobago supplied approximately 31 percent of the U.S. total net crude imports during 1984, as shown in table 2.

---

[1]An organization of the world's largest oil producing and exporting countries formed in 1959 to protect and promote the members' economic and social interests. Since 1959, OPEC has been concerned with oil prices, taxes levied by member countries, and, more recently, with oil production rates.

Table 2

Country	Net crude oil imports (thousands of bpd)	Net crude oil imports (percent)
Mexico	659	20.31
Venezuela	253	7.80
Trinidad and Tobago	87	2.68
Total from Caribbean	999	30.79
Total from all sources	3,245	100.00

Source: Energy Information Administration, Petroleum Supply Annual, published June 1985.

MEXICO

As the largest crude oil supplier to the United States, Mexico's petroleum resources and policies are of vital interest to the United States. Despite large oil reserves, whether it can continue or increase its oil supplies to the United States depends on Mexico's (1) nationalistic attitudes, (2) policies to limit production and exports, (3) increased domestic oil demand, (4) financial constraints limiting oil exploration and development, (5) operational constraints, and (6) the uncertainty surrounding any future government-to-government arrangement for the U.S. purchase of Mexican oil for the Strategic Petroleum Reserve.

Oil resources are significant

As of January 1, 1984, the Oil and Gas Journal estimated that Mexico has proven crude oil reserves of 48 billion barrels, making it the fifth largest source of crude oil, trailing only Saudi Arabia, Kuwait, the Soviet Union, and Iran. Thus, Mexico's proven crude oil reserves represent 7.2 percent of the total worldwide crude oil reserves. Petroleos Mexicanos (PEMEX), Mexico's nationalized oil company, estimates that the oil reserves are even higher.

Mexico has sufficient petroleum resources to continue as a major oil producer and exporter well into the next century. Using a conservative estimate of 48 billion barrels, the oil reserves will last nearly 48 years at PEMEX's current production rate of 2.75 million barrels per day (bpd). Furthermore, according to a 1983 U.S. Geological Survey report, Mexico's undiscovered recoverable oil resources range from 26 billion to 170 billion barrels, with 50 billion barrels as the most likely amount remaining to be found.

Nationalized oil industry

Mexico was among the first of the developing nations to nationalize its oil industry. Since the 1938 nationalization, PEMEX has managed and directed all aspects of the petroleum industry and is Mexico's largest enterprise, with assets of about $20 billion. Mexican law forbids majority foreign investment in Mexico's energy industries. Presently, foreign participation in Mexico's energy development is limited to providing equipment and technical services only.

Although PEMEX is a legal entity with the power to own property and carry on business in its own name, its pricing, capital expenditures, and financing policies are subject to approval by the government. The government is not liable for financial obligations incurred by PEMEX, but PEMEX's annual budget is subject to government approval.

As a national oil corporation, PEMEX pursues a wide set of corporate, social, and broader national economic policy objectives, but is also subject to constraints not generally faced by privately owned oil companies. One of the main goals of the energy sector described in Mexico's National Development Plan 1983-1988 is to promote active participation in the development and modernization of Mexico's industries, taking advantage of PEMEX's potential as a consumer of commodities, source of foreign exchange, and taxpayer.

Production plans

In response to domestic demand, Mexico has pursued a conservative oil production program by limiting PEMEX production to 2.75 million bpd. It has also limited its crude oil exports to 1.5 million bpd through 1988 and, although it is not a member of OPEC, had until August 1985 followed the OPEC pricing structure. PEMEX plans to continue to sell Mexican crude oil only under contracts rather than participating in the spot market.

PEMEX's Director General indicated that, in the short run, PEMEX has excess production capacity of about 10 percent and existing infrastructure, particularly offshore, which would permit rapid increases in production. U.S. State and Energy Department officials agree that Mexico could increase production by as much as 300,000 bpd but that is it not in a position to increase production beyond that level. Increasing production beyond 300,000 bpd would entail significant expenditures, which is unlikely under current economic conditions.

To support oil price stabilization, Mexico announced its intention in October 1984 to reduce foreign crude oil sales, but by no more than 10 percent, starting in November 1984. This particular action was a sign of support of OPEC, following the price reductions announced by Norway, the United Kingdom, and

Nigeria, but was subsequently rescinded in February 1985 and exports have returned to a level of 1.5 million bpd.

Export policy

Mexico has a policy of not exporting more than 50 percent of its total exports to any single country or more than 20 percent of a single country's total imports. The objective is to diversify its petroleum exports and reduce dependence on one customer, particularly the United States.

However, these particular policies have not always been observed. According to a State Department official, Mexico has on occasion deviated from its policy of providing no more than 20 percent of any single country's total imports. For example, Mexico at one time supplied 100 percent of Nicaragua's and 30 percent of Israel's crude oil imports. The 50-percent export limit was also exceeded in 1983, when the United States received 53.6 percent of Mexico's crude oil exports. PEMEX's Director General indicated that, if Mexico excluded its large special sales contract with the U.S. government for the Strategic Petroleum Reserve, sales to the United States equaled only 47.4 percent of total Mexican crude oil exports. He added that PEMEX exceeded this limit due to financial considerations and not to a change in its oil policy. PEMEX plans to continue to sell Mexican crude oil only under contracts rather than participating in the spot market.

Nevertheless, with the anticipated economic growth and increase in U.S. demand for imported oil, a PEMEX decision to strictly adhere to the export policy could force the United States to make up needed imports from other sources of supply.

Growing domestic demand may affect exports

Although the Mexican National Energy Plan 1984-1988 anticipates a 300,000 to 400,000 bpd increase in crude oil production, the amount of oil available for export may not increase. The Mexican economy depends heavily on oil and gas for domestic energy consumption. According to the Mexican Petroleum Institute, since 1970 oil and gas has averaged around 90 percent of domestic energy consumption.

If the Mexican economy improves as Mexican officials predict, consumption of petroleum products is projected to increase from 1 million to 1.4 million bpd by 1988. Mexico may satisfy domestic demand before increasing oil exports. If domestic demand increases above the projected consumption levels, the export level may decline.

Financial constraints affect future production and export levels

Petroleum remains Mexico's most valuable resource, generating significantly large amounts of foreign exchange to support its foreign debt. Yet financial constraints could affect future PEMEX production and export levels as well as development plans.

Due to the size of its operations, PEMEX is the major source of foreign exchange and generates significant resources for the public sector. Its oil and gas exports account for 75 percent of Mexico's total merchandise exports. In 1983, PEMEX operations provided about 36 percent of the $26.8 billion in government fiscal revenues. In addition, over one-third of total public investment was carried out by PEMEX.

Because of the significant role petroleum plays, sudden oil price changes, up or down, have significantly disruptive affects on Mexico's economy. For example, Mexico's current financial dilemma was precipitated by its confidence in the oil market when it embarked on full-speed exploitation of newly found petroleum deposits. Oil production and exports were the key ingredients in a high-growth strategy characterized by heavy public sector spending. Crude oil production and PEMEX contributions to the public sector increased dramatically from 1978 to 1982. Production increased by 127 percent and exports rose by 372 percent in volume and 680 percent in value. However, Mexico did not respond in a timely manner to lower world oil prices and higher international interest rates, while spending and inflation outstripped oil revenues. In August 1982, Mexico requested emergency assistance to enable it to meet external debt commitments. At the end of 1984, PEMEX's debt, most of which is foreign held, amounted to $16.5 billion.

PEMEX budget reflects reduced drilling

Faced with the weak oil market and its outstanding public debt, Mexico has increased PEMEX's budget in nominal but not real terms. PEMEX's 1984 budget reflected a nominal increase of 123 billion pesos[2] over that of 1983, but in real terms it is lower due to inflation, as shown below.

PEMEX Operations and Investment Budget
(billions of pesos)

(in nominal pesos)		(in real 1983 pesos)	
1983	1984	1983	1984
1,039	1,162	1,039	469

In calculating PEMEX's operations and investment budget, we converted its reported 1984 budget into its equivalent 1983 purchasing power, discounting for inflation by using Mexico's

actual 1984 inflation figure of 59.6 percent, as reported by the State Department.

Given current budgetary constraints resulting from the decrease in real purchasing power, PEMEX officials have opted for sustaining planned exploratory expenditures while curtailing part of their development work, according to PEMEX's Director General.[3] Development drilling decreased from 261 development wells in 1982 to 228 in 1984. PEMEX plans to further reduce its development drilling efforts as described in the 1984-88 energy plan, which states that 900 to 950 wells will be drilled during the 5-year period. This equates to a simple average rate of 180 to 190 development wells a year.

Operational constraints affect future oil supply

Future oil production and supply from Mexico will be influenced by operating obstacles that PEMEX faces in production and transportation and export systems.

Technical production issues

One of the major questions concerning Mexico's oil production centers on PEMEX's ability to maintain production. Reservoir pressures in many oil fields are declining, possibly as a result of the high production rates from 1976 to 1982. Because declining pressure generally indicates declining future production, Mexico has been turning to secondary recovery techniques to maximize ultimate field production. About 20 percent of Mexico's total crude oil production is coming from 21 secondary recovery projects using water injection. Such enhanced recovery methods increase the cost of production. For example, PEMEX entered into a loan agreement on October 10, 1984, with the Export-Import Bank of the United States and a major U.S. bank to finance 85 percent of the purchases of U.S. goods and services valued at $75 million to be used in one water injection project.

Another technical issue involves the lack of storage for natural gas, which could be substituted for oil to meet Mexican energy requirements. Over 79 percent of Mexico's gas production is associated with the production of crude oil. Although Mexico already consumes a large amount of natural gas, PEMEX plans to

---

[2]As of January 2, 1985, the Mexican government's officially controlled exchange rate was 226.25 pesos per U.S. dollar.

[3]Development drilling is performed within the proven area of an oil reservoir; exploratory drilling is performed to find and produce oil in an unproven area, to find a new reservoir, or to extend the limits of a known oil reserve.

increase the use of available natural gas associated with crude oil production. In 1983, PEMEX flared (burned off) 10.7 percent of its total gas production. According to Mexico's National Energy Program 1984-88, PEMEX plans to reduce gas flaring to 2 percent by 1988. Although we have no specific estimates as to the cost, the equipment needed to capture, store, and use the gas is considered to be expensive. To the extent Mexico can use natural gas which is currently being flared to meet domestic energy demand, oil available for export may increase.

Technical problems with transportation and export systems

Two constraints affecting Mexico's oil exports include the lack of adequate storage capacity and maintenance of offshore loading buoys. Without additional storage capacity, PEMEX deliveries will not always be routine or continuous and production could be reduced unless additional storage is constructed in 1987 as planned.

The lack of adequate storage capacity was highlighted as a problem area in Mexico's National Energy Program. Currently, PEMEX has only 10 million barrels of crude oil storage capacity, which provides an export margin of only 4 days based on domestic consumption and exports. The lack of storage capacity limits PEMEX's flexibility, because crude oil loadings are often interrupted during bad weather, especially during winter storms. According to an oil company official in Mexico, because PEMEX's loading capabilities are limited, PEMEX is often unable to load ships on schedule and must pay demurrage charges to ship owners for the delays. PEMEX has taken some actions to help mitigate the consequences of its lack of storage capacity. For example, it used an ultra-large crude carrier, the SEAWISE GIANT, anchored 100 miles off the Mexican coast to serve as a floating transshipment terminal for crude oil. PEMEX has also slated a crude oil storage expansion program that includes construction of three saline caverns with a total capacity of 10.5 million barrels. The construction of the salt caverns, scheduled to be completed in 1987, will be financed by a 275-million franc loan from France.

Another area of concern is Mexico's offshore loading buoys. These buoys handle 80 percent of Mexico's crude oil exports but are considered by some experts to be, at best, in fair to poor condition because of lack of repair. Several buoys have leaking distribution units, and one has a cracked pipeline. Without adequate maintenance, experts predict several buoys could be out of service in 6 to 18 months.

Special government-to-government relationship unlikely to continue

Mexico and the United States have negotiated two government-to-government agreements for the supply of oil. But

any further contracts will depend upon market conditions at the time, and chances for a third agreement now seem doubtful. Under the two agreements, Mexico supplied crude oil to the U.S. Strategic Petroleum Reserve (SPR)[4]. The first contract, PEMEX I, will expire in 1986 and the second shorter term contract, PEMEX II, expired in 1983. The United States is re-evaluating the size of the SPR with a view toward curtailing further procurements.

The Department of Energy negotiated PEMEX I in August 1981 and purchased 109 million barrels of oil for the SPR in order to help bolster Mexico's failing economy. PEMEX II was part of a $1-billion rescue package negotiated in August 1982 to help the Mexican government meet its financial commitments.

In late 1983, the United States and Mexico began to informally explore the possibility of purchasing an additional 25,000 to 40,000 bpd, but no contract resulted from these informal talks.

According to a Department of Energy official, the United States might agree to an extension of the PEMEX I contract if the Mexicans are willing. But future supplies of oil for the SPR from Mexico or elsewhere will depend on the term prices versus the spot market prices.[5] With the current worldwide oil surplus, U.S. officials have been purchasing most of the crude oil for the SPR on the spot market because recent spot market prices have been lower than term prices.

VENEZUELA

Venezuela also has abundant oil reserves, but restrictions on crude oil production because of its OPEC obligations, current financial difficulties, and prospects for a continued weak world oil market may limit future exports to the United States. Due to reduced revenues and funds available for investment as well as reduced expectations for significant increases in world oil demand, the national oil company's programs and plans have been cut back. Total exploration activity by Petroleos de Venezuela, S.A. (PDVSA), the national oil company, has declined sharply and is expected to remain modest for the next several

---

[4]The SPR was authorized in 1975 to provide a reserve oil supply for the United States in the event of a short-run disruption in the supply of foreign oil. As of March 1985, the SPR contained 461 million barrels. Mexico has supplied 35 percent of the total.

[5]Spot market prices refer to the price of oil which is not under contract and which can fluctuate daily; term prices refer to contractual prices that generally remain constant for a longer duration.

years. PDVSA has also scaled back its plans to develop Venezuela's heavy oil reserves. Furthermore, if domestic demand increases, volumes available for export may be reduced.

Oil reserves are significant

Because its oil resources are significant, Venezuela can be a major oil producer and exporter well into the next century. As of January 1, 1984, reported reserves of conventional crude oil were almost 26 billion barrels, which represent about 3 to 4 percent of the world's total crude oil reserves and make Venezuela the ninth largest source of crude oil. Venezuela now ranks as the third largest producer in OPEC and the eighth largest oil producer in the world. If Venezuela maintains its 1984 production level in the future, its proven conventional crude oil reserves should last 45 years.

Venezuela also possesses the largest deposit in the world of extra-heavy oil. The amount in the Orinoco Oil Belt is estimated at 1.0 trillion barrels, of which 250 billion barrels could be recovered. Production of extra-heavy oil cannot compete economically with conventional crude oil production, but the presence of such large quantities of the extra-heavy oil assures the future availability of naturally occurring oil.

OPEC quota limits production

Venezuela currently has excess production capacity of over 0.8 million bpd, according to the Central Intelligence Agency's International Energy Statistical Review, dated September 1984. Venezuela has been supportive of U.S. oil needs during the Arab oil embargo and other supply disruptions; however, as a co-founding OPEC member, it supports adherence to OPEC production quotas. Venezuela believes its actions to regulate production are necessary to maintain prices and stabilize the world oil market.

Although Venezuela has one of the largest excess capacities outside the Persian Gulf, Venezuela has indicated that it will not increase its oil production without close coordination with other OPEC members. For example, in support of the OPEC pricing structure, Venezuela and other members of OPEC agreed to cut back crude oil production. Under the OPEC production quota plan announced November 1, 1984, Venezuela agreed to reduce production by 120,000 bpd, to 1.555 million bpd, as part of the goal of reducing total OPEC production.

To maximize export revenues while still adhering to the OPEC production ceiling, PDVSA has outlined a number of energy substitution measures to meet the domestic energy demand, estimated at 370,000 bpd. One measure involves increased production of condensate and natural gas liquids which is not subject to the ceiling and can domestically be substituted for oil. But these measures were not expected to be sufficient to offset decreases in oil production.

Budgetary constraints may limit future production

PDVSA's ability to finance its own operations and investments has been affected by the weak world oil market and the transfer of control of its foreign exchange holdings to the government to help offset international financial obligations. As a result, PDVSA has cut back exploration and development activities extensively, including its long-term, extra-heavy oil development project.

Triggered by sharply decreased revenues from oil exports (from $19.1 billion in 1981 to $13.9 billion in 1983) and the drying up of international lending with the onset of the international debt crisis in 1982, Venezuela accumulated a massive short-term debt--from $16.5 billion at the end of 1978 to $35.4 billion at the end of 1983.

To help offset Venezuela's declining financial position, PDVSA signed an agreement in September 1982 transferring its $4.2-billion foreign exchange reserves to the Central Bank of Venezuela. In return, an equivalent amount in Venezuelan bolivars was credited to PDVSA's Central Bank account to pay its domestic operating costs. In December 1982, the government instructed PDVSA to buy $1.75 billion in interest-bearing bonds issued by the Central Bank with 2- to 4-year maturities. This left PDVSA with little liquidity, because most of the approximately $2.3 billion remaining in its Central Bank account was already committed to 1983 investment projects. This adversely affected its ability to fund planned investment programs.

PDVSA reduced investments and project goals

From 1982 to 1983, PDVSA's investment expenditures declined by $863 million. Initial planning for 1983 called for investments in excess of $4 billion, but actual investment for the year totaled only $3 billion. The hardest hit areas were exploration, development, and refining. For example, investment in exploration declined by $317 million, resulting in only 53 new wells being started in 1983 -- well below the 222 wells started in 1982.

To satisfy long-term objectives of heavy and extra-heavy oil playing increased roles in PDVSA's production, refining, and marketing strategy, PDVSA is continuing its two extra-heavy oil development projects in the Orinoco Oil Belt but at a scaled-down pace. Due to financial stringency as well as the current weak world oil market, the anticipation of new discoveries, and successful secondary recovery in older fields, PDVSA has reduced by 50 percent its goal of Orinoco oil production by the end of the century.

TRINIDAD AND TOBAGO

Despite a slight increase in production and exploration in 1984, the chances for a continued and increased oil supply from Trinidad and Tobago appear low. Proven crude oil reserves are small and declining. The general trend in production among most of the oil companies over the last 6 years has been lower. Exploration has decreased, with little chance of finding significant new fields.

Crude oil production averaged 162,000 bpd during the first 6 months of 1984. The United States imported nearly half of that production, but this accounted for only 2.4 percent of the daily U.S. net crude oil imports.

Oil reserves, production, and exploration

The Trinidad and Tobago government's current estimate of proven reserves is 600 million barrels, which is low compared with Mexico's 48 billion barrels and Venezuela's 26 billion barrels; 600 million barrels would result in approximately 9 years of production if output continued at the production rate of 178,000 bpd reported in April 1985.

From 1978 to 1983, crude oil output fell from 229,500 to 159,800 bpd, primarily because of the decline in the offshore oil fields of two major oil companies. Production increased slightly during 1984 and to 178,000 bpd reported in April 1985. A July 1984 report by the Trinidad and Tobago Ministry of Energy and Natural Resources attributes the increased production to a reduction of the supplemental petroleum tax for onshore operations, the anticipated adjustment of the tax for offshore operations, and the completion of a special well construction and repair project. However, sustained increases will be constrained by remaining proven reserves and the limited potential for discovering additional reserves.

Although exploration also increased somewhat in 1984, little oil remains to be discovered in Trinidad and Tobago. Drilling during the first 6 months of 1984 increased 4.3 percent over the comparable 1983 period. However, according to a 1983 U.S. Energy Information Administration report, only 0.8 billion barrels of conventionally recoverable crude oil resources remain to be found. Once discovered, this could increase the oil reserves and last another 12 years at the 178,000 bpd production rate.

CONCLUSION

Despite the unrest in neighboring Central America, the Caribbean is considered a more secure source of oil than the Middle East. It has substantial oil reserves and the United States represents a natural market for Caribbean oil. However,

the ability and willingness of individual Caribbean countries to sustain or increase oil supplies to the United States should not be taken for granted. The availability of future Caribbean oil supplies largely depends on the countries' perceptions of their economic and political self-interests, which may or may not coincide with U.S. needs.

CHAPTER 3

FACTORS AFFECTING THE AVAILABILITY OF CARIBBEAN REFINED PETROLEUM PRODUCTS

Caribbean oil refining countries (excluding the U.S. territories of the Virgin Islands and Puerto Rico) supplied 593,000 bpd, or about 40 percent of net U.S. refined petroleum product imports in 1984, even though the refineries are operating below capacity. Limited prospects exist for Caribbean countries increasing or even continuing production and exports to the United States at current levels, but U.S. vulnerability to a reduced supply may not be significant. The situation in the Caribbean may be more or less serious, depending on the excess U.S. refining capacity available at the time.

Increased Caribbean refined oil production and exports to the United States will depend on reported excess non-Communist world refining capacity, Caribbean domestic energy policies, financial constraints, and the availability of crude oil supplies which are economically priced for the Caribbean refineries. Non-Communist world refining capacity is reportedly 57 million bpd and demand is about 46 million bpd. In the absence of a shutdown of current capacity, this situation will be exacerbated by the expansion of oil refineries in the Middle East and other countries.

Venezuela's future refinery production may be limited; as its heavy crudes constitute a growing share of total crude oil production, PDVSA's refineries will require upgrading to process the remaining heavier crudes. Due to financial constraints and current excess refining capacity worldwide, PDVSA has curtailed some refinery upgrading plans.

Mexico's refinery production is linked to domestic demand. Its policy is to export only the excess of refined production over what is consumed domestically. If domestic demand increases beyond planned production increases, less will be available for export.

From the Caribbean oil refining island countries, future production and potential exports will probably be limited. Companies in the Netherlands Antilles are considering closing or have terminated uneconomical refining operations because they no longer have access to a low-cost crude supply. In Trinidad and Tobago, it is uncertain what effect recent changes in refinery ownership might have on production and export levels. Due to high operating costs and low returns, the U.S. oil company which owned the refinery has sold the operations to the Trinidad and Tobago government. Increased refined oil imports from the Bahamas may be influenced by the availability of a secure supply of crude oil. The refiner in the Bahamas continues to process crude oil from the Middle East, where continuing political and

military instability can jeopardize oil production and shipments.

As shown in table 3, Venezuela was the largest Caribbean supplier of refined petroleum products to the United States during 1984, followed by the Netherlands Antilles, the Bahamas, Mexico, and Trinidad and Tobago. The U.S. territories of the Virgin Islands and Puerto Rico, which are not included in the table, supplied 319,000 bpd during 1984, or 21.7 percent of total U.S. net petroleum product imports.

Table 3

Net petroleum product imports

Country	(thousands of bpd)	(percent)
Venezuela	291	19.8
Netherlands Antilles	164	11.2
Bahamas	77	5.2
Mexico	55	3.7
Trinidad and Tobago	6	0.4
Total from Caribbean	593	40.3
Total from all sources	1,470	100.0

Source: Energy Information Administration, Petroleum Supply Annual, published June 1985.

VENEZUELA

Venezuela has made limited progress toward increasing its refining of petroleum products and exports to the United States. PDVSA is continuing to modernize its domestic refineries to process a larger volume of heavier Venezuelan crudes due to an abundance of heavy crude and Venezuela's goal of having a long-term market for its heavy crude oil and products. However, due to the worldwide oversupply of oil, PDVSA has postponed the upgrading of two domestic refineries. It is also making efforts to ensure a market in Western Europe for its heavy crude. In addition, exports of Venezuelan refined products may be affected by projected increases in domestic demand.

PDVSA cancels refinery modernization projects

In the long-term, PDVSA's refining of heavy and extra-heavy crudes is important to Venezuela's export of petroleum products, but its plans to upgrade all its refineries to process those crudes have been modified.

According to the August 1983 Integral Energy Policy document prepared by the Venezuelan Mines and Energy Ministry, Venezuela's continuing strategy is to modify the crude processing methods by installing equipment that will allow the refineries to process a larger proportion of heavy and extra-heavy crudes. Based upon this strategy, Venezuela began to upgrade its domestic refineries, which were geared toward processing mostly light or medium-grade crudes. During 1983, PDVSA reported it had completed the first phase of its Refining Pattern Changes Program in which two refineries were modernized. The change in refining pattern brought about enough flexibility to substantially modify the makeup of its product exports by reducing deliveries of residual fuels and increasing the volume of higher-value light distillates. The two upgrading projects at the Amuay and Cardon refineries increased heavy crude processing by 150,000 bpd.

Due to reduced expectations for the future world oil market, PDVSA has postponed or cancelled plans to modernize the remaining refineries. The first phase of the Refining Pattern Change Program (1977-83) cost 8,268 million bolivars, or approximately $1.9 billion. A U.S. embassy petroleum report stated that restructuring of PDVSA's investment budget for 1983 and beyond caused two refinery modification projects to be cancelled. The reduction in refinery investments is also highlighted in PDVSA's annual report. During 1983, investments in refining operations were 772 million bolivars, or $180 million, a reduction of 1,812 million bolivars, or $421 million, from the 1982 investment level.

PDVSA investment in West German refinery

Another part of PDVSA's long-term strategy is investing in foreign downstream refineries to enhance market diversification and to develop dependable future markets for increasing volumes of heavy and extra-heavy Venezuelan crudes. The first step is PDVSA's $65-million venture with Veba Oil A.G. of West Germany to purchase a 50-percent interest in a West German refinery. This agreement gave PDVSA access to 100,000 bpd of refining capacity capable of converting both heavy refinery residuals of normal crude and the super-heavy grades from the Orinoco Oil Belt into higher value products.

PDVSA has shown some interest in acquiring refineries in the United States; however, State Department records indicate that Venezuela's interest in U.S. refineries was dampened to some degree by Venezuela's debt crisis.

Increased domestic demand may reduce export of refined products

PDVSA's export of refined products may decline as a result of increased domestic demand for refined petroleum products. A1983 report by the Venezuelan Ministry of Energy and Mines projects a decline in the export of refined products due to increased domestic demand. Under two different petroleum supply-demand scenarios

considered in the report, the level of refined products available for export by the year 2000 will be 203,000 bpd under the low domestic consumption scenario and 6,000 bpd under the high domestic consumption scenario.

THE NETHERLANDS ANTILLES

Confronted by financial problems and the lack of a guaranteed low-cost crude supply, the future of U.S. oil imports from the Netherlands Antilles (Curacao and Aruba) is uncertain. In late 1983, PDVSA reduced sales to both Antilles' refineries by nearly 50 percent and discontinued selling crude at concessionary prices. The refineries have been operating well below capacity and losing money. The refinery in Aruba owned and operated by a U.S. oil company has closed, and the Curacao refinery may also be closed in the near future. The closing of the refineries will eliminate the potential for U.S. petroleum imports from the Antilles.

Refining companies shutting down uneconomic operations

The two refineries located in the Netherlands Antilles were originally built by U.S. oil companies to take advantage of the islands' geographic proximity to international shipping routes. The companies' affiliates were also exploring, developing, and producing crude oil in Venezuela, but Venezuela lacked sheltered harbors where the crude oil could be transshipped into large vessels. With its harbors, the Netherlands Antilles was a natural solution. The refineries in the Netherlands Antilles flourished even after Venezuela nationalized its oil industry in 1976. PDVSA agreed to supply crude oil to the Antilles' refineries on concessionary terms.

Being the second largest contributor to the Antilles economy, the refining industry benefited from the Antilles' policy and programs to promote private enterprise in the islands. The bulk of economic development assistance received from the government of the Netherlands is used for infrastructure projects, including enhanced harbors. But the refining industry has been adversely affected by the depressed international economic situation and refining activity has dropped considerably in recent years. The Curacao and Aruba refineries were operating at 36 and 41 percent of capacity, respectively, during the summer of 1984.

From the companies' viewpoint, they cannot operate profitably given a worldwide surplus of refined products, a full-priced crude oil supply, and operational inefficiencies. PDVSA reduced its sales of crude oil to the two Antilles refineries by nearly 50 percent and discontinued selling crude oil to them at a concessionary price. According to an American embassy official, PDVSA's decisions were due to Venezuela's efforts to comply with its OPEC production quota and increased demand for

its crude oil by other refineries which could process the heavy crudes. PDVSA has no reason to sell crude to the Antilles' refineries on concessionary terms when it can sell elsewhere at market prices, particularly in light of Venezuela's need for foreign exchange to service its outstanding debt. Furthermore, to assist the local economies and to employ as many of the local citizens as possible, the refineries have much larger work forces than their U.S. counterparts, thus increasing costs and decreasing profitability.

The Curacao refinery is operating at a loss and its operators have expressed interest in selling partial equity in the refinery to PDVSA. The Antilles' and Dutch governments have lobbied for the PDVSA to purchase an equity share in the refinery to help ensure a crude oil supply and continued operations. However, neither PDVSA nor any other company has indicated an interest in this offer.

Officials of the Aruba refinery would not discuss the effect of Venezuela's supply decision on the company's earnings, other than to say the decision adversely affected business. As a result, they began to "mothball" some of the equipment and offered early retirement to 300 of the 1,300 employees. However, the company stopped all refining and shipping operations in Aruba in December 1984.

THE BAHAMAS

Stronger prospects exist for continued or increased refined oil imports from the Bahamas, which provided 5 percent of net U.S. petroleum product imports in 1984. Future production and exports to the United States may be affected by the availability of a secure crude supply, since the Bahamas' refinery processes crude oil from Middle East and North African countries.

According to refinery operators, the Bahamas provide a variety of advantages that U.S. oil companies seek, including geographic location, available deep water ports, lower operating costs, and government support. The Bahamas is located on the main shipping lanes from Europe and Asia to U.S. East and Gulf ports and Central America. The deep water ports can accommodate the large tankers which most U.S. ports cannot. Operating costs are lower due to minimal environmental restrictions. The government has been supportive of the industry because it is a good source of employment for the country. The oil companies consider the Bahamas Ministry of Economic Affairs to be open, fair, and non-interfering.

Future of refinery depends on world oil market

With demand down worldwide for refined products and excess worldwide refining capacity, the refinery in the Bahamas is confronted with reduced operations and financial difficulties.

One of the owners has filed for protection from creditors under chapter 11 of the U.S. Bankruptcy Code. The remaining partner has indicated that the refinery's future is contingent on the world oil market. The possibility of closing the refinery exists, but the remaining partner is making adjustments to reduce costs while maintaining refinery capacity in anticipation of future increased demand.

The refinery has three large primary distillation refining units which can handle virtually any kind of crude and produces basic products, such as fuel oil, diesel, napthas, jet fuel, and propane, rather than gasoline or other downstream chemicals. It also supplies basic feedstocks for U.S. Gulf Coast refineries that have more sophisticated capabilities. The primary distillates are less expensive to ship than various refined products, which often have higher tariffs and import duties.

The refinery has been operating well below its 500,000-bpd capacity (180,000 bpd in 1983 and 130,000 bpd for the first 6 months of 1984) and one of the three refining units has been mothballed. However, company officials are taking steps to ensure that the unit could be operating at capacity within 2 months, which they consider minimal time. The company is keeping the tanks filled with nitrogen, rotating parts, and lubricating the equipment to minimize necessary start-up time.

Continued supply of petroleum products possibly limited by less secure crude oil suppliers

Sustained or increased U.S. petroleum product imports could be affected by the refinery's processing of crude from the Middle East and North Africa.

Although the Bahamas' refinery has shifted its dependence somewhat for crude oil supply away from the Middle East and North Africa, it continues to process crude from these sources. In 1980, the Bahamas imported 59 percent of its crude oil from Saudi Arabia and 12 percent from Libya, while Mexico supplied less than 1 percent. In 1982 Mexico, Nigeria, and Saudi Arabia provided 36, 25, and 20 percent of imported oil, respectively, and Libya provided another 6 percent. For 1983 or 1984 no precise data was available from the government, but the refinery operators indicated that Middle East and Libyan crudes were still being processed.

MEXICO

Currently the United States is importing a very small amount of petroleum products from Mexico and increased imports are unlikely because PEMEX (1) prefers to export crude oil rather than refined products and produces refined products primarily to satisfy domestic demand and (2) has no plans to construct refineries geared primarily to export production.

PEMEX exports surplus refined products

Mexican exports of oil products play a balancing role between domestic product supply and demand, according to PEMEX's Director General. Reduced domestic consumption for the past 4 years has led to a relatively small surplus (100,000 bpd in 1984), which has been exported primarily to the United States. Reduced product consumption was a result of a decline in economic activity and policy decisions to increase domestic prices since the end of 1982. Refinery production and products available for export have been and will continue to be limited by refining capacity. According to Mexico's National Energy Program Plan 1984-1988, PEMEX production of refined products will average an annual growth rate of 6 to 7 percent, geared primarily for domestic consumption rather than export demand. PEMEX's Director General has stated that the current refinery expansion program, which will increase nominal refinery capacity to 1.7 million bpd, is specifically geared to satisfy domestic rather than export demand.

PEMEX has no plans to build export refineries

PEMEX has decided not to construct export-based refineries because of the excess refining capacity in the United States and Western Europe, the weak world oil market, and the large commitment of investment funds needed to build the refineries. During 1983, total worldwide refining capacity decreased by 1.9 million bpd to 75.2 million. A major factor was the low utilization rate, particularly in the United States, where the average utilization rate was approximately 72 percent of capacity. In addition, Middle East refineries are expected to come on line, which will further increase worldwide capacity.

Investment in export refineries would require significant funding and, given PEMEX's goal to increase productivity, new investments in a mature and stagnant industry was not attractive, according to the Director General.

TRINIDAD AND TOBAGO

The two major refining companies in Trinidad and Tobago have operated at far below capacity since 1983. The U.S. company-owned refinery, located at Pointe-a-Pierre, is designed to produce heavy distillates with a capacity of 220,000 bpd but is currently operating at 27 percent capacity. The other refinery is owned by the government of Trinidad and Tobago and has a capacity of 85,000 bpd but is currently operating at 24 percent of capacity.

Reasons for the marked decrease in refining activity include reduced worldwide demand for refined products and high operating costs. Officials of the refinery owned by a U.S. oil company have indicated that the cost of refining a barrel of oil

would have to be reduced by 44 to 50 percent to make the refining facility even remotely profitable. Local taxes were also cited as a major contributor.

Because of high operating costs and low returns, the U.S. oil company decided to sell the refinery to the Trinidad and Tobago government, which agreed in principle to buy it in August 1984 primarily because it is an important source of employment. It is difficult to predict how the changes in the ownership of the refining industry will affect U.S. access to petroleum products from Trinidad and Tobago. Although other factors may influence the future supply, economic considerations will probably be the dominant factor.

CHAPTER 4

PERCEIVED THREATS TO CARIBBEAN OIL FACILITIES AND TRANSPORTATION SYSTEMS APPEAR MINIMAL

The U.S. administration, in statements on the U.S. military operation in Grenada and requests for increased U.S. military assistance to Central America, indicated that the Caribbean is strategically important because, among other things, nearly half of all U.S. petroleum imports originate in or transit the Caribbean.

U.S. officials advised us that there is little or no near and medium-term threat to the geographically dispersed Caribbean oil fields and refineries or to the multiple shipping routes from Cuba or from the unrest in Central America. In the long term, they believe there would be sufficient warning signals on whether U.S. energy supplies and other trade would be jeopardized by external forces in the Caribbean Basin. U.S. officials also indicated that political instability is not currently a problem in the Caribbean petroleum exporting countries.

POTENTIAL THREATS TO REGIONAL AND U.S. SECURITY

The Caribbean Basin constitutes the fourth border to the United States and plays a major role in U.S. global security. Regional instability affects the security of the United States. In the United States Military Posture FY 1985, the Joint Chiefs of Staff noted that:

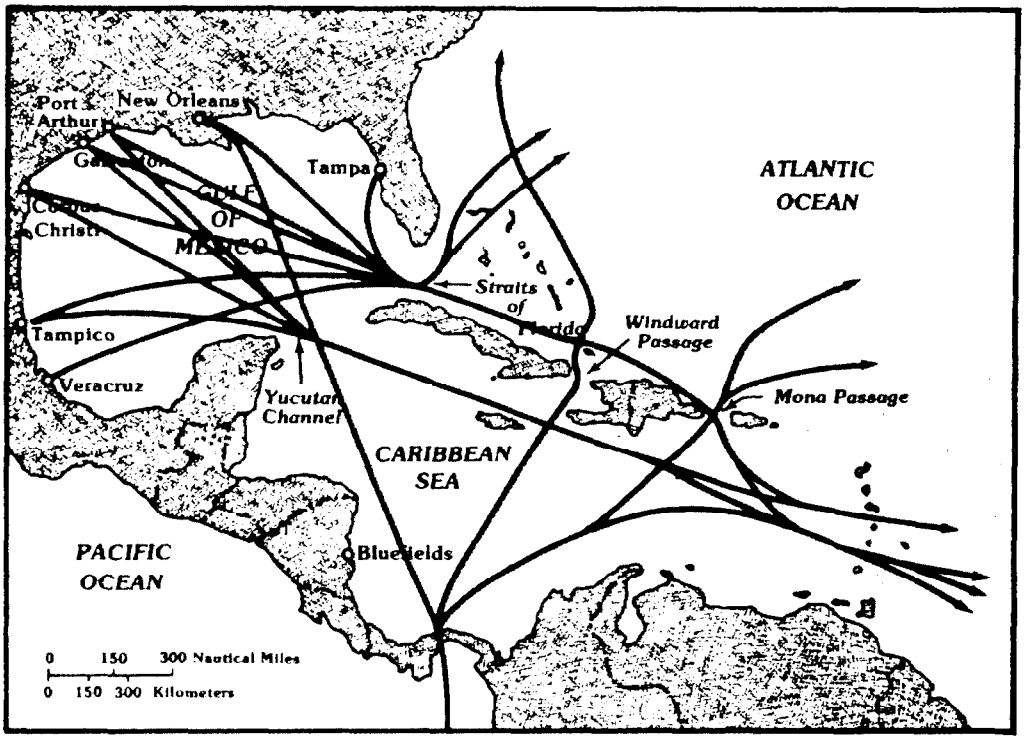
> "Economically, nearly half of the U.S. seaborne trade passes through the Caribbean, including half of all crude oil imports. Militarily, a large percentage of NATO's reinforcements and resupply for the European World must pass through the Florida Straits. Instabilities and conflicts in this region could divert U.S. attention and resources from other areas of the world."

The map on page 26 depicts primary routes and passageways through the Caribbean.

U.S. officials believe the principal potential threats to Caribbean Basin security most likely will be from the Soviet Union and Cuba, which view the Caribbean as vulnerable to low-intensity military and political aggression. This view is also evidenced in the 1983, 1984, and 1985 Joint Chiefs of Staff's publication, United States Military Posture. For example, the 1985 publication noted that "Caribbean . . . regional instability offers the Soviet Union and Cuba opportunities to exploit regional social, political, and economic problems. Cuba, armed and supported economically by the Soviet Union, contributes to

Figure II

PRIMARY SEA LANES



Source: Secretary of Defense, Annual Report to the Congress: Fiscal Year 1983.

the spread of insurgency, revolution, and discord in the region . . ."

Soviet economic aid has enabled Cuba to develop a large and well-equipped defense force in the Caribbean Basin. Cuba's defense force of 254,000 men is twice as large as Mexico's, although Mexico's population is seven times larger than Cuba's.

The Cuban-Soviet influence in the Caribbean and Central America and the risk it poses to national and regional security are used by the administration to justify U.S. military and economic aid to the region and was used to justify, in part the U.S. military operation in Grenada. Cuba could conduct limited interdiction missions in the Caribbean, but it is doubtful that Cuba would independently try to close off U.S. oil imports transiting the sea lanes in the Caribbean; such an attack would be tied to a larger conflict, according to State Department officials.

PERCEIVED EXTERNAL THREATS TO OIL FACILITIES

Despite concerns about the Cuban-Soviet influence in the region, State Department officials in Washington, D.C., U.S. embassy officials in Caribbean countries, and Caribbean government representatives have indicated that threats which would jeopardize the major Caribbean producers' ability to produce, refine, and export crude oil and petroleum products are now low.

The United States believes that unrest in Central America is not a localized conflict but a major security concern for the whole region. However, State Department officials in Washington and U.S. embassy officials in Mexico City and Caracas stated that they do not perceive such unrest as a threat to Caribbean oil supplies. Similarly, a director of the Secretariat for Energy, Mines and Parastatal Industries for the Mexican government told us that even though Central America is a volatile area, Mexico currently does not see any immediate threat to its oil.

According to State Department and U.S. embassy officials, Cuba is a potential threat to Mexico, although Cuban-Mexican relations seem quite good. The government of Venezuela is concerned about growing Cuban-Communist influence in the Caribbean region but is acting to minimize the potential threat. Part of this concern centers on Cuban-backed insurgents in Venezuela in the 1960's, to which the government of Venezuela has embarked on a number of initiatives. For example, it plans to upgrade its air force with the purchase of 24 F-16 aircraft from the United States to protect domestic strategic resource areas. Additional initiatives include participating in the Contadora group[1], whose efforts are aimed at avoiding armed conflict in the region.

No significant external threats are perceived to the petroleum exporting Caribbean islands by island government and U.S. State Department representatives. They do not view the unrest in Central America or Soviet-Cuban influence as risks to oil production and exports from these countries. An official from the Trinidad and Tobago government believed that the U.S. military operation in Grenada eliminated a major threat, but he was still somewhat concerned about the potential unrest in the Eastern Caribbean, Suriname, and Guyana.

---

[1]The group consists of Mexico, Panama, Colombia, and Venezuela. Chiefs of state from each of these countries met in July 1982 to propose that the Central American states undertake a series of commitments for the peaceful settlement of their differences. According to the State Department, by September 1983 all participants (including Nicaragua, El Salvador, Honduras, Guatemala, and Costa Rica) agreed on a set of objectives which included political, economic, and security concerns.

PERCEIVED INTERNAL THREATS TO OIL FACILITIES

The primary challenge to both major Caribbean oil producing countries centers on how well the Mexican and Venezuelan governments succeed in countering financial and economic difficulties. Failure could create civil unrest, which might jeopardize oil facilities and production. However, their failure is not considered likely, according to those we interviewed.

Mexico has enjoyed a long period of relative political stability. Since progress has been made on adjusting to the severe economic and financial difficulties, the prospects of civil disturbance and acts of violence against petroleum industry assets are low. Although acts of sabotage by the oil workers cannot be ignored, the Mexican government and PEMEX have maintained effective relations with the oil workers and union to minimize this possibility.

Venezuela has operated a free and open democratic system of government for over 20 years. Since 1959, the armed forces have rejected a direct role in national politics. Venezuela has also adequately managed its debt problems, which should minimize the potential for political instability. The country is gradually adjusting to the need to live within a reduced oil income and without new foreign borrowing.

There is some concern whether deterioration in the economies of Trinidad and Tobago and the Netherlands Antilles could lead to social unrest, increased leftist activities, and potential acts of sabotage against the oil facilities. However, Trinidad and Tobago is a stable, democratic country with a history of free elections since its independence from Great Britain in 1962. The country follows a non-aligned foreign policy and is basically pro-Western. Its defense force is small, but, according to U.S. sources, the police and military are loyal to the elected government and are believed capable of dealing with unrest and maintaining law and order and internal security.

The governments of Venezuela and the United States are concerned about the potential political and economic implications that shutting down the two Antilles refineries will have on the stability of the islands and are continuing to discuss solutions to the refineries' problems.

PERCEIVED THREATS TO TRANSPORTATION SYSTEMS

The sea lanes in the Caribbean are used to transport nearly 50 percent of all U.S. crude oil imports, and a large percent of Alaska's North Slope crude oil transits through Panama either by the Trans-Panama Pipeline or the Panama Canal. The Caribbean Basin also has numerous ports and harbors that can accommodate the supertankers to off-load, store, and load crude oil. The

sealanes include natural choke points at which commercial shipping could be severed. But due to the multiple shipping routes through the Basin (see map on p. 26), U.S. and Caribbean officials consider significant disruptions to U.S. oil supplies unlikely in situations short of general war. These multiple shipping routes make significant disruptions of U.S. supplies unlikely in periods of localized instability in the Basin. However, the Department of Defense commented that this threat is constantly increasing because of the Soviet Union's expanded access to the region via Cuba, Nicaragua, and other countries and that in a general war the Soviet Union has the capability to disrupt shipping along the Caribbean sea lanes. Virtually all crude oil transiting Panama goes through the Trans-Panama Pipeline. If the pipeline were obstructed, oil could be shipped through the Panama Canal while repairs were made.

CHAPTER 5

OTHER FACTORS AFFECTING U.S. ACCESS TO CARIBBEAN OIL

The United States has developed and/or participated in a number of international assistance programs designed to deal with energy supply problems. However, our review of various bilateral and multilateral assistance programs involving energy development showed that they are not designed to lead to an increased U.S. oil supply from the Caribbean.

CARIBBEAN BASIN INITIATIVE

The Caribbean Basin Initiative is a program of trade and economic assistance designed to promote political stability and economic growth by providing duty-free access to the U.S. market for 12 years to designated beneficiary countries. This duty-free access, it is hoped, will stimulate the private sector to promote economic development in those countries.

Although the list of products eligible for duty-free treatment includes most exports from the Caribbean, it excludes crude oil and petroleum products. One reason for the exclusion of petroleum was U.S. procedures for safegarding domestic industries. Under these procedures, domestic industries may petition the U.S. International Trade Commission to exclude items from the list of duty-free goods if they can prove that increased imports cause or threaten to cause serious injury to the domestic industry. Industry representatives believed that including crude oil and petroleum products in the Caribbean Basin Initiative could have a major impact on the already depressed U.S. refinery industry. In any event, tariffs do not represent major impediments to the export of petroleum projects to the United States. In 1983, duties collected on Caribbean petroleum products, primarily from the Netherlands Antilles, the Bahamas, and Trinidad and Tobago valued at $5 billion were only $17.5 million, or less than one-half of one percent of the products' value.

ASSISTANCE PROGRAMS

Several multilateral and bilateral energy programs provide funds to the oil-importing Caribbean countries to decrease their dependence on imported oil, mostly by helping them to develop alternative energy resources, such as hydroelectric projects. The programs provide few funds for oil exploration and development. No funds are allocated to oil-exporting countries in the region for oil exploration and development. Two multilateral lending institutions, the World Bank and the Inter-American Development Bank, support the development of alternative energy resources rather than petroleum. Two U.S. bilateral programs promote the development of alternative resources as well. To

the extent these programs displace oil imports in recipient countries, it has the impact of making oil available for other countries, including the United States.

World Bank

Although the World Bank focuses much attention on energy development lending, it makes few oil and gas development loans to Caribbean countries and no loans to countries that already export oil (Mexico, Venezuela, and Trinidad and Tobago). The bank prefers to help countries decrease their dependence on imported oil by developing alternative energy resources.

Since 1978, the World Bank allocated almost $3 billion for oil and gas projects worldwide. But only 3 of the 40 energy projects approved by the bank in fiscal year 1983 were approved for Caribbean countries. These projects were in Panama and Haiti rather than the major Caribbean oil exporting countries and none involved oil and gas development. In fiscal year 1984, no petroleum projects were approved for Caribbean countries.[1]

Inter-American Development Bank

The energy assistance programs of the Inter-American Development Bank are not designed to increase U.S. oil supplies from the Caribbean. The programs focus on the development of alternative energy sources rather than petroleum and dedicate few funds to oil projects in the Caribbean. Only 4 of 24 energy-related loans approved in 1982 and 1983 were allocated to petroleum projects and none were allocated to any Caribbean country. The majority of the energy loans were for hydroelectric projects, electric transmission and distribution, and geothermal power projects.

Agency For International Development

Like the two multilateral lending institutions, the energy programs at the Agency for International Development are not directed to increasing the export of Caribbean oil to the United States. The agency also concentrates on alternative energy development projects and plans to allocate $6.6 million in fiscal year 1985, or 4 percent of funds devoted to energy development projects, to the Caribbean. None involve oil and gas development.

---

[1]During the first quarter of fiscal year 1985, the World Bank did approve funding for oil field development and other activities in Colombia. Because Colombia is not an oil exporting country, it was not considered in the development of this report. However, to the extent that new discoveries in Colombia allow export potential over the next few years, the impact may or may not be noticeable.

The Agency for International Development is a U.S. government agency that carries out assistance programs to help people in developing countries promote their human and economic resources, and it has specific energy objectives. It recognizes the crucial link between energy and development and promotes the use of private sector investment in developing countries by helping countries establish a policy framework that encourages private investment.

The agency plans to commit about $165 million in fiscal year 1985 for energy-related projects, 4 percent of which is for the Caribbean. Moreover, Caribbean countries currently receiving assistance for energy projects are primarily net energy importers rather than major oil exporters, such as Mexico and Venezuela.

Central American Energy Resource Project

The objective of the Central American Energy Resource Project, another U.S. bilateral program, is to promote the development of indigenous energy resources in Central America and the Caribbean to avoid paying for expensive imported oil. Since it is not the purpose of the project to encourage petroleum resource development, the project will not likely result in any significant exportable surplus of petroleum.

The project, recently funded by the Congress through the Agency for International Development's appropriation, was created in response to recommendations by the National Bipartisan Commission on Central America.[2] Located at the Los Alamos National Laboratory in New Mexico, the project will be the focal point for U.S. assistance for development of energy and mineral resources in Central America and the Caribbean. The Project will provide joint research and development, technical assistance, and training at Los Alamos, other national laboratories and universities, and in the private sector. The program costs will be about $10.2 million.

ENERGY RESEARCH AND DEVELOPMENT AGREEMENTS

Department of Energy research and development agreements primarily involve information exchanges and joint basic research. The department plays the role of communicator by providing detailed knowledge of U.S. energy policy and markets.

---

[2]The commission was established by the President of the United States to advise him of the appropriate elements of a long-term U.S. policy that would best respond to the challenges of social, economic, and democratic development in the region and to internal and external threats to its security and stability. It reported its analysis and recommendations to the President in January 1984.

It also helps to link countries that need technical or research and development assistance with U.S. companies able to provide that assistance.

The department and Mexico currently have a 3-year umbrella agreement involving oil recovery. The agreement was signed in 1983 and contains two implementing agreements. One involves heat transfer and modeling and the other an advanced chemical process simulation.

The department and Venezuela also have an active research and development agreement. This umbrella agreement was executed in March 1980 and contains six implementing agreements which deal primarily with heavy oil. Under the agreements, the department and Venezuela exchange the results of research performed in their respective laboratories.

SAN JOSE ACCORD

The San Jose Accord is an effort by Mexico and Venezuela to supply crude oil on concessionary terms to 10 Central American and Caribbean countries.[3] The small quantity of oil supplied under the accord to the beneficiary countries is not likely to impair Mexico's and Venezuela's ability to export oil to the United States. Furthermore, one purpose of the accord is to provide loans for energy development in the beneficiary countries, but the countries have used only a small portion of the loans for energy development.

Under the original agreement, signed on August 3, 1980, Mexico and Venezuela each were to ship up to 80,000 bpd of oil to the beneficiary countries. In addition, the exporters pledged to grant the participating countries credits amounting to 30 percent of the commercial price of the oil for a period of 5 years at a 4-percent annual interest rate. If the loans were used for economic development projects, specifically those involving domestic energy production, the loan period would be extended to 20 years at 2-percent annual interest. Mexico and Venezuela have annually renewed the accord and most recently renewed the agreement in August 1984 for the 1984-85 period. However, Mexico's and Venezuela's exports to the beneficiary countries were reduced to 130,000 bpd (65,000 bpd each) and loan terms were modified. Credits are now granted for 5 years at an 8-percent annual interest and for 20 years at 2 percent when used for domestic energy production. Also, Venezuela has required that half of its credits be deposited in the recipient country's name with the Venezuelan Investment Fund for expenditures within the country.

---

[3]Under the original San Jose Accord, Mexico and Venezuela pledged to ship oil to Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Jamaica, Barbados, and the Dominican Republic. Belize also became a beneficiary in 1982.

The reduced supply is a result of the difficult economic conditions that the Central American and Caribbean beneficiary countries face. Some have not been able to pay their suppliers. Nicaragua has not paid for much of the oil it received from Mexico. Venezuela suspended oil shipments to Nicaragua in August 1982 because Nicaragua had not paid for oil already received. Costa Rica, Jamaica, Guatemala, and the Dominican Republic also have had difficulty paying for the crude oil supplied under the accord. The reduced supply under the accord also reflects lower demand by the beneficiary countries.

The accord also attempts to encourage the beneficiary countries to use the credits from the loans to begin economic and energy development projects, but the participating countries have not done so. According to a State Department official, less than half of the concessionary financing was used for energy projects. With recent changes in the terms of the accord, less money is available for economic and energy development projects and at higher interest rates.

APPENDIX I

THE ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, D. C. 20301-2400

INTERNATIONAL
SECURITY AFFAIRS

3 JUL 1985

In reply refer to:
I-10146/85A

Mr. Frank C. Conahan
Director, National Security and
International Affairs Division
General Accounting Office
Washington, D. C. 20548

Dear Mr. Conahan:

The Defense Department appreciates the opportunity to comment on the Draft GAO Report No. GAO/~~RCED~~-85-76, "The Availability of U.S. Oil Supplies from the Caribbean."

We concur in the report with the following exceptions:

- Pages iii, 25 and 27. These pages contain references to a U.S. invasion of Grenada. The October 1983 U.S. military action in Grenada was a rescue mission and should not be characterized as an invasion in U.S. Government publications.

- Page 29 "Perceived Threats to Caribbean Transportation Systems," fourth sentence. Recommend adding "...in situations short of general war." Following fourth sentence, insert, "The multiple shipping routes through the Basin make significant disruption of U.S. supplies unlikely in periods of localized instability in the Caribbean Basin. However, this threat is constantly increasing through the Soviet Union's expanded access to the region via Cuba, Nicaragua and other countries. In the case of general war, the Soviet Union clearly has the capability to disrupt shipping along the Caribbean sea lanes."

Sincerely,

RICHARD L. ARMITAGE
Assistant Secretary of Defense
(International Security Affairs)

GAO note: Page numbers in this appendix have been changed to correspond to page numbers in the final report. The Department of Defense incorrectly identified the draft GAO report number in its letter.

APPENDIX II

Department of Energy
Washington, DC 20585

JUN 17 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 "Assessment of Factors Affecting the Availability of U.S. Oil Supplies from the Caribbean." We find the report a comprehensive assessment of the political and economic elements affecting U.S. access to Caribbean petroleum.

Although we would prefer to have data in the report updated to reflect the latest Energy Information Administration information, we concur with the statement on page four of the draft report that updated figures would not materially change the thrust of the report.

The one change which we feel is necessary concerns Mexico's October 1984 announcement that it would reduce foreign crude oil sales to support oil price stabilization, referred to on page nine. This policy has since been rescinded.

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

Sincerely,

William S. Heffelfinger
for Martha Hesse Dolan
Assistant Secretary
Management and Administration

GAO note: Although not reprinted here, The Department of Energy annotated a copy of the draft report to reflect updated import data. Those figures and citations have been incorporated in the report where appropriate.

APPENDIX III

United States Department of State

Comptroller

Washington, D.C. 20520

June 12, 1985

Dear Frank:

I am replying to your letter of May 13, 1985 to the Secretary which forwarded copies of the draft report "Assessment of Factors Affecting the Availability of U.S. Oil Supplies from the Caribbean".

The enclosed comments on this report were prepared in the Bureau of Economic and Business Affairs.

We appreciate having had the opportunity to review and comment on the draft report. If I may be of further assistance, I trust you will let me know.

Sincerely,

Roger

Roger B. Feldman

Enclosure:
As stated.

Mr. Frank C. Conahan,
Director,
National Security and
International Affairs Division,
U.S. General Accounting Office,
Washington, D.C. 20548

GAO note: Although not reprinted here, the State Department provided a number of specific technical comments and editorial changes. These have been incorporated in the report where appropriate and helped to ensure the clarity and accuracy of the report.

APPENDIX IV

UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D C 20523

ASSISTANT
ADMINISTRATOR

MAY 31 1985

Dear Mr. Conahan:

The Agency for International Development has reviewed the draft report, Assessment of Factors Affecting the Availability of U.S. Oil Supplies from the Caribbean, pursuant to your request of May 13, 1985. Since AID has not been charged with responsibility for U.S. domestic energy supply we do not have any formal capability to evaluate the overall content of your report. We find that with respect to the brief description of AID's activities which might be related to available oil supply, the factual content and assessment of the report are generally acceptable and accurate. We do suggest some clarifications: (a) On page iv, we believe that the statement that the World Bank and the Inter-American Development Bank "typically promote the development of alternative energy resources rather than petroleum" is misleading. Substantial resources are currently being provided by these donors for development of conventional energy (hydroelectric, coal and petroleum) as well as alternatives. and (b) With respect to the AID activity, The Central American Energy Resource Project, we suggest that you modify the phrasing on p. 32 to read: "The program costs will be about $10.2 million." (For your information, this project is to extend through December, 1986 and was fully funded in FY 1985 at the level indicated.)

We appreciate the opportunity to review this paper prior to finalization and hope our observations are helpful.

Sincerely,

Victor M. Rivera
Assistant Administrator

Mr. Frank C. Conahan
Director
National Security and
International Affairs
V.S. General Accouting
Office

GAO note: Page numbers in this appendix have been changed to correspond to page numbers in the final report.

(488116)

AN EQUAL OPPORTUNITY EMPLOYER

UNITED STATES
GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

OFFICAL BUSINESS
PENALTY FOR PRIVATE USE $300

BULK RATE
POSTAGE & FEES PAID
GAO
PERMIT No. G100