BY THE U.S. GENERAL ACCOUNTING OFFICE

Report To The Chairman, Subcommittee On International Economic Policy And Trade, Committee On Foreign Affairs House Of Representatives

Pros And Cons Of Exporting Alaskan North Slope Oil

U.S. laws restrict the export of oil produced from Alaska's North Slope fields. Whether some of that oil should now be exported is a subject of debate. The controversy involves complex political and economic matters which affect the oil and maritime industries, government revenues, national security, and international relations. In this report, GAO presents the major perceived advantages and disadvantages of exporting Alaskan North Slope oil.

GAO/NSIAD-83-69
September 26, 1983

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

NATIONAL SECURITY AND
INTERNATIONAL AFFAIRS DIVISION

B-208429

The Honorable Don Bonker, Chairman
Subcommittee on International
Economic Policy and Trade
Committee on Foreign Affairs
House of Representatives

Dear Mr. Chairman:

This report, which is being provided pursuant to your request, focuses on the key perceived advantages and disadvantages of exporting Alaskan North Slope oil as presented by the proponents and opponents of such exports.

The General Accounting Office has taken no position on the basic issue of whether Alaskan oil should be exported or whether the Congress should extend or amend the provisions of the Export Administration Act of 1979 which restricts the export of Alaskan oil.

We are sending copies of the report to the various executive branch departments, congressional committees and other interested parties.

Sincerely yours

Frank C. Conahan
Director

GENERAL ACCOUNTING OFFICE
REPORT TO THE CHAIRMAN
SUBCOMMITTEE ON INTERNATIONAL
ECONOMIC POLICY AND TRADE
HOUSE COMMITTEE ON FOREIGN
AFFAIRS

PROS AND CONS OF EXPORTING ALASKAN NORTH SLOPE OIL

D I G E S T

Alaska presently produces about 1.7 million barrels of crude oil a day (b/d) from the North Slope, which, pursuant to legal export restrictions, remains in the United States. The West Coast uses about 900,000 b/d of that oil. The remaining 800,000 b/d are shipped primarily through the Panama Canal or Trans-Panama Pipeline to Gulf Coast and Caribbean refineries and ultimately consumed in the eastern half of the United States. A debate revolves around whether the oil currently shipped to the Gulf and East Coasts should be permitted to be sold on world markets.

The key perceived advantages in supporting Alaskan oil exports include: (1) increased revenue for Alaska and the Federal Government; (2) improved efficiency in the oil distribution system; and (3) enhanced U.S. relations with Japan from selling them Alaskan oil which would reduce Japanese vulnerability to supply disruptions.

The key perceived disadvantages to exporting Alaskan oil include: (1) harm to national security by increasing U.S. reliance on foreign oil and foreign shipping; (2) harm to the U.S. maritime industry, with its resulting domestic economic consequences; and (3) adverse effect on U.S. relations with Panama.

Economic implications of exporting Alaskan North Slope oil

Proponents and opponents agree exports will create transportation cost savings, increase Federal and State revenues, and Alaskan oil producers' profits. They also generally agree exports will harm the maritime industry and that the Federal Government would incur losses if, as

expected, shipowners default on Maritime Administration ship loan guarantees. Tax revenues from the maritime industry and wages of seamen would go down.

Export proponents and opponents disagree, however, on the amount of the transportation cost savings and the economic effect on the maritime industry. The volume of exports that would take place and the freight rates applicable to the exports are the major factors for the differing projections of savings. Nevertheless, it is generally agreed that U.S. domestic consumers would receive no immediate benefit from exports.

Effect of exports on U.S. national security and foreign relations

Alaskan oil exports would make Japan less vulnerable to oil supply disruptions. However, to the extent imported oil would be needed to replace Alaskan oil exports, the United States would become more dependent on foreign oil. Further, the loss of small tankers now used in the Alaskan oil trade could put the Defense Department in the position of relying on foreign shipping to supply petroleum products to the U.S. armed forces overseas should a future emergency situation require a military mobilization.

From a foreign relations viewpoint, Alaskan oil exports would create mixed results in relations with Japan and Panama and possibly Mexico.

Japan

Japan would welcome Alaskan oil, but Japanese officials commented that they would probably only purchase about 100,000 b/d now, with larger purchases possible in the future. Alaskan oil could increase long-term energy ties between the U.S. and Japan. However, the restrictions on Alaskan oil exports have had relatively little, if any, impact on overall U.S.-Japanese relations, according to Japanese Government and U.S. Embassy officials. A State Department official commented, however, that the export of Alaskan oil could have a positive impact on U.S.-Japanese bilateral relations.

Exporting Alaskan oil will reduce the U.S. trade deficit with Japan but the United States, a net oil importer, would have to replace Alaskan oil with imports, therefore, the overall balance of payments deficit would remain essentially unchanged. Moreover, reducing the U.S. trade deficit with Japan through Alaskan oil exports will not resolve the underlying cause of trade friction. Lifting the Alaskan oil export restriction may be viewed as eliminating a U.S. barrier to free trade, but even with Alaskan oil exports there would be continued pressure for greater U.S. access to Japanese markets.

Mexico

Export proponents have suggested a swap arrangement which would send Alaskan oil to Japan in exchange for a similar quantity of Mexican oil now committed to Japan being shipped to the U.S. Gulf Coast. However, export opponents point out that additional exports of oil to the United States would be contrary to the stated Mexican policy of limiting its dependence on any single buyer (namely the United States) to 50 percent.

An official of the Mexican Embassy in Washington has indicated that Mexico regards Japan as a very important trading partner and wants to preserve that relationship.

Panama

Panama receives revenues that are expected to grow to about $100 million a year from income, tariffs and taxes generated by the transit of Alaskan North Slope crude across the Isthmus via the Panama Canal and/or the Trans-Panama Pipeline. The Panama Government notified the State Department in March 1983 that a change in U.S. policy which would result in the loss of these revenues would lead to serious implications and unexpected changes in the economic and political situation. However the notification did not specifically state what these implications and changes would be.

AGENCY COMMENTS

GAO did not seek formal agency comments, but officials of the Departments of Energy, Defense, and State, and the Maritime Administration reviewed a draft of this report and they generally agreed with its contents.

Contents

ABBREVIATIONS

b/d	barrels per day
DOD	Department of Defense
dwt	deadweight tons
EAA	Export Administration Act of 1979
EIA	Energy Information Administration
EPCA	Energy Policy and Conservation Act of 1975
IEA	International Energy Agency
OPEC	Organization of Petroleum Exporting Countries
PTP	Petroterminal de Panama
SPR	Strategic Petroleum Reserve
TAPS	Trans-Alaska Pipeline System

CHAPTER 1

INTRODUCTION

Should the United States sell, exchange, or otherwise export Alaskan North Slope Oil? Congress considered this question in 1973, 1977, and 1979 and each time it strengthened the restrictions against such exports. This question is being considered again by Congress in 1983 during consideration of the amendment and extension of the Export Administration Act. This report addresses the perceived advantages and disadvantages of exporting Alaskan North Slope oil now and attempts to focus on the key issues and to put them in the appropriate context.

Alaska presently produces about 1.7 million barrels of crude oil a day (b/d) from the North Slope. The West Coast consumes about 900,000 b/d of that oil. The export debate revolves around the remaining 800,000 b/d that is shipped primarily through the Panama Canal or Trans-Panama Pipeline to Gulf Coast and Caribbean refineries and ultimately consumed in the eastern half of the United States.

Supporters of exports include the State of Alaska, some oil companies, some members of Congress, and several Federal Government departments and agencies.

Opponents of exports include labor organizations, consumer groups, the maritime industry, certain oil companies, some members of Congress, and certain Federal Government departments and agencies, including the Maritime Administration. It should be noted that some of these organizations would not oppose exports if the conditions cited in the present legislation are met. For the sake of simplicity we have classified these observers as opponents.

LEGISLATION GOVERNING EXPORTS

Several laws affect oil exports, but three currently restrict Alaskan North Slope oil exports.

1. The Export Administration Act of 1979 (EAA) (50 U.S.C. App. 2406)

2. The Mineral Leasing Act of 1920, by reason of the Trans-Alaska Pipeline Authorization Act, (43 U.S.C. 1652)

3. The Energy Policy and Conservation Act of 1975 (EPCA) (42 U.S.C. 6212)

Section 7(d) of the EAA governs the export of Alaskan oil. Under the EAA, the export of crude oil transported over the

Trans-Alaska Pipeline System (TAPS) is allowed only if the President finds that such exports, including exchanges, (a) will not diminish the quantity or quality of oil refined in, stored in, or committed to the United States, (b) are clearly necessary to protect the national interest, (c) will be made pursuant to contracts with a termination clause, (d) in 3 months would result in lower acquisition costs to refiners, and 75 percent of the savings would be passed on to the consumers in lower wholesale or retail prices, and (e) will meet the other provisions of the EAA. Congress, by concurrent resolution, must approve the exports.[1] The EAA exempts exports for Israel and for the International Energy Agency's (IEA) International Emergency Oil Sharing System from the restrictions. Exceptions are made for adjacent countries to allow exchanges for transportation efficiencies, provided the exchanges will lower prices to the American consumer and the exchanged oil must be refined and consumed in the adjacent country.

The EAA will expire, by operation of statute, on September 30, 1983. Should no action be taken to extend the Act, Alaskan oil exports would still be subject to the Mineral Leasing Act and the Energy Policy and Conservation Act.

The Mineral Leasing Act of 1920, as amended, covers crude oil transported over TAPS, by operation of the Trans-Alaska Pipeline Authorization Act. Exports are allowed if the President finds that exports (a) will not diminish the quantity or quality of oil available to the United States, (b) are in the national interest, and (c) are in accord with the EAA. Under the Mineral Leasing Act, the President must submit a report of these findings to the Congress. Congress has 60 days from the

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[1]Recent Supreme Court rulings may impact on such congressional action. In Immigration and Naturalization Service v. Chadha, 51 U.S.L.W. 4907 (1983), the Court found unconstitutional a provision of immigration law which authorized one House of Congress, by resolution, to invalidate a decision of the Attorney General concerning deportation of aliens. The Court found that such congressional action violated the constitutional principles of bicameralism and presentment. In a subsequent opinion, the Court affirmed the judgement of the D.C. Court of Appeals in two cases in which the circuit court invalidated a one-House veto of the Natural Gas Policy Act and a provision of the Federal Trade Commission Improvements Act authorizing the Congress, by concurrent resolution, to disapprove of final FTC rules. Process Gas Consumers Group v. Consumers Energy Council of America, 51 U.S.L.W. 3935 (1983).

receipt of the report to adopt a concurrent resolution of disapproval which will stop further exports.[2] Exceptions are made for exchanges with adjacent countries for transportation efficiencies.

Under the Energy Policy and Conservation Act of 1975, the President is required to promulgate a rule prohibiting the export of crude oil, but he can exempt exports which he determines to be in the national interest consistent with the purposes of this Act. Exceptions are also available for exchanges of similar quantities with persons or governments of adjacent countries for convenience or transportation efficiency. Congressional action is not required. In accordance with this Act, the President has promulgated rules on oil exports under federal regulation (15 C.F.R. 377.6).

Exports of crude oil in general are also restricted by the:

--Naval Petroleum Reserves Production Act, which restricts the export of Alaskan oil from the National Petroleum Reserve. (10 U.S.C. 7430)

--Outer Continental Shelf Lands Act, which restricts export of oil produced on the outer continental shelf off Alaska. (43 U.S.C. 1354)

These Acts incorporate the restrictions of the EAA. No Alaskan crude oil is currently being produced from either source.

In addition, two acts authorize the President to restrict the export of commodities, including oil, in time of emergency or war. These acts are

(1) Trading With the Enemy Act (50 U.S.C. App. 1), and

(2) International Emergency Economic Powers Act (50 U.S.C. 1701).

ADMINISTRATION POSITION

In April 1983, the administration submitted to Congress a proposal to reauthorize the EAA but eliminate the Alaskan oil export restriction. Administration officials testified that, although the proposal would remove the specific provisions relating to the export of Alaskan crude oil from the EAA, Alaskan crude oil exports would still be restricted by the other legislation and subject to Commerce Department export licensing procedures.

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[2]See footnote 1 on page 2.

Although favoring the elimination of the export restrictions in the EAA, the administration has not yet taken a position as to what, if any, action it would take on allowing exports of Alaskan oil. The Senior Interagency Group on International Economic Policy, in April 1983, concluded that exporting would be economically beneficial, but any decision to support Alaskan exports should be deferred.

BASIC ISSUES

The key perceived advantages and disadvantages of exports, as offered during the 1983 debate on whether or not Alaskan North Slope oil should be exported, are listed below.

Advantages to exporting	Disadvantages to exporting
Increased revenue for Alaska and the Federal Government.	Harm to national security by increasing U.S. reliance on foreign oil and foreign shipping.
Improved efficiency in the oil distribution system.	Harm to the U.S. maritime industry with its resulting domestic economic consequences.
Enhanced U.S. relations with Japan from selling them Alaskan oil which would reduce Japanese vulnerability to supply disruptions.	Adverse effect on U.S. relations with Panama.

OBJECTIVES, SCOPE, AND METHODOLOGY

The objective of this report is to provide the Congress and other interested parties with an overview and balanced perspective of the issues raised on the Alaskan oil export question.[3]

We obtained information for this report from officials at the Departments of Commerce, Defense, Energy, Interior, State, Transportation (Maritime Administration), and Treasury. We also contacted representatives of the Central Intelligence Agency, Council of Economic Advisors, Council of Environmental Quality, National Security Council, Office of the U.S. Trade Representative, and the Panama Canal Commission.

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[3]GAO has issued two prior reports which include discussions on Alaskan North Slope crude oil exports. These are
--Potential for Deepwater Port Development in the United States, dated April 5, 1978, EMD-78-9.
--Effects of Alaskan North Slope Crude Oil and Continued Crude Oil Production at Elk Hills Naval Petroleum Reserve, dated July 9, 1978, EMD-78-78.

To obtain non-Federal perspectives, we sought the views of various organizations. Letters were sent to 57 different organizations, including representatives of the State of Alaska and the State of California, Alaskan North Slope oil producing companies, other oil companies, maritime organizations, consumer groups, oil pipeline associations, and other organizations, such as the American Petroleum Institute and the National Petroleum Council. About half of those queried responded and the majority of the responses were substantive. Where appropriate we also followed up responses with telephone calls.

We asked these organizations about

--their position on the oil export restrictions and actual exports;

--how the oil export restrictions had affected their organization; and

--their perspective as to what events have occurred or changes have taken place in the world and/or the United States since the last congressional debate in 1979 and which should be considered in the 1983 debate.

We met with officials of the U.S. Embassy in Tokyo, the Japanese Ministry of International Trade and Industry, the Japanese Ministry of Foreign Affairs, the Japan National Oil Corporation, the Petroleum Association of Japan, the Institute of Energy Economics, and several private Japanese oil companies to ascertain the Japanese perspective on the Alaskan oil export issue. We also contacted the Mexican Embassy in Washington, D.C. Pertinent information on the views of the Government of Panama were obtained from cognizant Department of State officials.

The study was conducted in accordance with generally accepted government auditing standards, except that at the request of the Subcommittee's office official comments on this report were not obtained from the executive branch departments or agencies mentioned in the report. However, officials of the Departments of Energy, Defense, and State, and the Maritime Administration did informally review a draft of this report. They generally agreed with its contents and their suggestions to enhance the report have been incorporated where appropriate.

CHAPTER 2

EXPORTING ALASKAN NORTH SLOPE OIL: ITS ECONOMIC IMPLICATIONS

The impetus behind the Alaskan oil export issue is the savings that would accrue by shifting to Japan and other Pacific Rim nations all or part of the crude oil which goes to the U.S. Gulf and East Coasts. Proponents and opponents of exports agree that such a shift would result in transportation savings, but they differ on the amount of the savings. They also differ on the extent to which the savings would be neutralized by negative impacts, such as the harm exports would cause the maritime industry.

There are many varied economic advantages and disadvantages associated with the export of Alaskan North Slope oil. The discussion that follows presents the key economic advantages and disadvantages.

FACTORS AFFECTING POTENTIAL GROSS REVENUES

The volume of exports that would take place, and the freight rates applicable to the exports are major factors in the differing assessments of potential savings.

The actual volume of exports projected by various sources, has generally ranged from 100,000 b/d to 800,000 b/d. Many analyses have used 800,000 b/d as the basis for calculations.

This study discusses the implications of an export level of 800,000 b/d. Since that level is production not now being consumed on the West Coast, that level is likely to be the greatest volume of Alaskan oil that would reasonably be exported under current conditions. Therefore, it provides the maximum impact on revenue, revenue offsets and non-revenue issues that reasonably would be expected. We recognize, however, that various lower export levels have been discussed. Should a level of export be lower, we believe the basic effects would be similar, only the magnitude of impact would be smaller. For example, the revenue generated would be lower, as would the negative impacts with regard to the maritime industry.

According to Japanese government and industry officials, being able to purchase Alaskan oil is desirable, but Japan would not purchase much now given the current oil glut. Due to declining demand and contractual commitments to other suppliers, these officials indicated that Japan would purchase only about 100,000 b/d initially, however, larger purchases might be possible in the future. They explained that at present, Mexico and Saudi Arabia supply all Japan's heavy oil needs and Japan would probably not reduce its heavy crude imports from these sources.

Officials of the Ministry of International Trade and Industry consider estimates of Alaskan oil purchases for the near future of even as much as 300,000 b/d to be overly optimistic.

Reduced transportation costs

Estimated transportation cost savings, derived from transportation rates cited by various analysts, ranged from $1.64 to $5.16 per barrel, with the general norm about $3.00 if U.S. flag ships are used and $3.40 if foreign flag ships are used.[1] Savings are determined by comparing the cost per barrel of shipping to the Gulf Coast by the Trans-Panama Pipeline and to Japan. Costs to the Gulf coast are usually cited as $4.00 per barrel for oil transported via the Trans-Panama Pipeline (ranging from $3.14 to $5.52) and costs to Japan are about 60 cents on foreign flag ships (ranging from $0.36 to $1.10) and $1.00 on U.S. flag ships (ranging from $0.76 to $1.50). The ranges in rates are generally due to the sizes of the tankers used. Also, some analysts use current foreign tanker rates, which others say are inappropriate because the current world tanker market is depressed and the rates quoted do not reflect normal market conditions.

The potential savings attributable to the shift in transportation rates ranges from about $.8 billion to $1.4 billion a year, based on exports of about 800,000 b/d. However, potential savings would fall in general proportion if projections of smaller export volumes are used.

REVENUES THAT COULD ACCRUE

The saving in transportation costs is generally expected to yield an equivalent increase in the wellhead price of Alaskan oil that would be exported. The increase in the wellhead price represents an additional return to the oil producers on the oil they sell. The return to the oil producers is basically determined by the price at the oil's destination less the cost of transporting it there. Accordingly if the transportation costs are reduced the return to the oil producers will increse. However, this increase would be divided between the Federal Government in the form of windfall profit taxes and corporate income taxes (60%), the State of Alaska in the form of royalties, severance taxes, and State income taxes (30%), and producers in the form of profits (10%). Therefore, if 800,000 b/d of oil were to be exported, and if it were transported in foreign flag ships at an average savings of $3.40 per barrel, the wellhead price of the oil would increase by about $1 billion a year. Assuming the increased wellhead price is fully subject to the windfall profit

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[1]The assumptions underlying the postulated transportation costs are not always given.

tax, the U.S. Government would receive about $600 million, Alaska about $300 million, and producers about $100 million. For each 100,000 b/d below 800,000, total revenue would decrease by $125 million with a corresponding adjustment to the share each party would receive.

One study, commissioned by the maritime industry, asserted that the first 200,000 b/d of oil exports could be Alaskan royalty oil[2] and would produce little or no revenue for the Federal Government (since the State revenue would not be taxable) or oil producers. Should the State of Alaska choose this option, its revenue would increase by about $75 million, from about $300 million to about $375 million. The revenue from the first 200,000 b/d of exports would go entirely to the State of Alaska. Revenue from the exports above 200,000 b/d would be split between the Federal Government, the State (for severance and State income tax) and the producers. Based on 800,000 b/d, therefore, the first $250 million would go to the State of Alaska to satisfy its royalty share and the remaining $750 million would be shared by the Federal Government ($518 million); the State of Alaska ($125 million); and the producers ($107 million). However, Alaska currently has committed about 112,000 b/d of its royalty oil to its own intrastate refineries, which could reduce the amount of royalty oil Alaska might consider exporting.

It should also be noted that the windfall profit tax is due to expire in 1990 and applies only to oil derived from the Sadlerochit Reservoir at Prudhoe Bay. Alaskan North Slope oil from other than that Reservoir is exempt from the windfall profit tax. Should the windfall profit tax not be extended or applicable to the exported oil then the Federal Government revenues generated by exports could be cut basically in half.

It should be further noted that factors other than transportation savings on exported oil could affect the value returned to the wellhead by exports, thus affecting the revenue generated and the returns to the Federal Government, State of

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[2]When the State of Alaska issues oil leases, it reserves a royalty share equal to a minimum of 12.5 percent of production. The state may take this royalty as oil and dispose of it itself, or it may accept the dollar value of the royalty oil and allow the producers to market it. Currently, Alaska takes 54% of its royalty oil in kind, all of which is supplied under long (81,000 b/d) or short (31,000 b/d) term contracts for Alaskan consumption. During the next few years, according to the Alaska Governor's office, approximately 100,000 b/d will remain uncommitted, and thus available, in theory, for export.

Alaska and oil producers. For example, one analyst has considered that Japan would negotiate a discount of as much as $2 per barrel as an inducement to buy Alaskan oil because the analyst reasoned that Alaskan oil was worth less to Japanese refiners than American refiners because its product yield is of less value in the Japanese petroleum market. The Japanese market has a need for a different product yield than the United States. Alaskan oil is better suited to the United States because it yields more gasoline.

COSTS THAT COULD RESULT

Export opponents argue that the U.S. merchant marine and maritime industry would be seriously harmed by these exports. They believe harm to the merchant marine and maritime industry could force the use of federal funds and/or loss of federal tax revenues, offsetting some or all of the increased federal revenue gained by exporting the oil. However, the impact, as with revenues gained, would depend on the volume of exports. The impact would increase as volume increases. It should also be noted that some Alaskan oil producers have invested heavily in setting up methods to transport their oil to the Gulf and East Coasts.

The U.S. domestic tanker fleet comprises about 200 vessels with a total capacity of about 10.4 million deadweight tons (dwt). Outstanding Federal ship loan guarantees associated with the domestic tanker fleet totals about $1.4 billion, according to Maritime Administration officials.

The Maritime Administration indicated that of the 200 U.S. tankers about 80 are presently involved in the Alaskan North Slope oil trade, with a capacity of 6.8 million dwt; 30 of these tankers, with a capacity of 3 million dwt, have outstanding Federal ship loan guarantees of about $686.6 million. Employment on the 80 tankers totals about 4,800, or an average of about 60 merchant seamen, or two crews per ship.

According to the Maritime Administration, exports would displace primarily the tankers that are engaged in the delivery of Alaskan North Slope oil from Panama to the East and Gulf Coasts. These are generally smaller and older than the tankers that operate in the Pacific. Maritime Administration data shows that exports would have the following maximum effect on the 80 tankers employed in the Alaskan oil trade.

Export volume (b/d)	No. of ships displaced	Federal ship loan guarantees at risk (millions)	Jobs lost
200,000	29	$ 12.6	1,740
300,000	38	97.2	2,280
500,000	52	348.4	3,120
800,000	68	447.8	4,080

Source: Maritime Administration data.

Even if 800,000 b/d were exported, some of the 80 ships would be needed to move oil to the West Coast. In May 1983, 21 tankers of varying size were able to move about 765,000 b/d between Alaska and the West Coast.

Some export opponents have estimated that up to 20,000 jobs could be lost in the maritime industry and related industries. Proponents counter that this estimate is too high. They contend that some new jobs would result in the oil industry and the maritime industry (to supply the Alaskan oil industry's exploration and development effort) that would offset to some degree the lost maritime jobs.

The Maritime Administration has estimated that Alaskan oil exports might not only affect the 80 tankers in the Alaskan North Slope oil trade, but could extend to the entire domestic tanker fleet which could experience repercussions from the expected bankruptcies of North Slope oil tanker operators. The greater the volume of oil exported, the more severe the impact could be on the domestic tanker fleet. Thus a large part of the Federal loan guarantees outstanding on the entire domestic tanker fleet could be at risk.

Also at risk, according to the Maritime Administration, could be the loan guarantees on seven U.S. flag foreign trade tankers which in the past have been allowed to operate part-time in the Alaskan oil trade. The outstanding federal ship loan guarantees on these vessels is about $140 million.

The Maritime Administration has estimated that a worse case export situation would likely expose the Federal Government to maximum defaults of about $1 billion. About half of that exposure would be directly applicable to the tankers employed in the Alaskan North Slope oil trade.

Estimates offered by different sources of the negative impact on the Federal Treasury of exports up to the 800,000 b/d level are shown below.

Cost of default on Federal ship loan guarantees (one time costs but occurring over a period of years)	$0.5 billion to $1.4 billion
Income taxes lost due to lost shipping revenue and maritime jobs	$300 million to $325 million a year
Tax writeoffs due to private non-guaranteed debt defaults by ship operators	$45 million to $430 million
Cost to Treasury to buy ships for Defense reserve fleet (excludes ships with Federal ship loan guarantees)	$50 million to $150 million

Alaskan oil producers, in particular, would have a difficult decision to make. Their own domestic marketing needs and transportation infrastructure investment could limit the amount of oil these companies would export. While exports of crude currently shipped to the Gulf Coast could increase these producers profits through savings in transportation costs, the producers would have to abandon some or all of their large investment in the current Alaskan oil distribution system. This includes contracts based on guaranteed throughput agreements with the Trans-Panama Pipeline; construction and/or long-term charter of oil tankers; and refinery investments to process the Alaskan North Slope oil. These investments could total in the hundreds of millions of dollars.

IMPACT ON DOMESTIC CONSUMERS

The Mineral Leasing Act of 1920, as amended, by reason of the Trans-Alaska Pipeline Authorization Act, sets forth the first specific export restrictions on Alaskan North Slope oil. The Trans-Alaska Pipeline Authorization Act reflected congressional intent that this natural resource be available to domestic consumers. Congress also clearly wanted to safeguard U.S. consumers' interests in the event of possible future exports.

Only the Export Administration Act of 1979, however, has provisions that specifically protect consumer interests. It requires that, before TAPS-transferred oil can be exported, the President must find that the export will result in lower crude oil acquisition costs to refiners and 75 percent of the savings will be passed on to U.S. domestic consumers in lower wholesale or retail prices. A Commerce Department official acknowledged that although consumer protection was appropriate, that finding

could not be made under today's conditions. The official pointed out that at the time the provision was enacted in 1979, there were allocation and price controls either in place or as standby authority; however, because of decontrol, the official asserted that it is not now possible to ensure that savings would be passed on to consumers.

Export proponents generally base their arguments for benefit to the consumer on the fact that the worldwide and domestic oil situation has changed significantly since earlier legislation was enacted. They argue that the need to safeguard availability and prices for U.S. consumers is no longer as important since worldwide production is now adequate to meet foreseeable U.S. demand and alternative sources of supply exist at competitive prices. Since crude oil prices do not vary widely worldwide[3] and there is currently an abundant supply, they believe consumers would be best served by allowing market forces to work.

Most agree, however, that there will be no immediate decrease in domestic consumer prices, and that consumer prices on the West Coast for some products may undergo near-term price rises as a result of Alaskan North Slope crude oil exports. They point out that consumers will benefit in the long run generally as participants in a more efficient economy, while the direct monetary benefit will accrue principally to the producers, the State of Alaska, and the Federal Treasury.

From the export opponents point of view, the export of Alaskan oil would mean a significant cost increase to the consumer, reducing the availability of a low-priced domestic crude oil and replacing it with more expensive foreign crude oil. Opponents point out that Alaskan North Slope oil delivered to the Gulf Coast is landed at an average refiner acquisition cost that is well below the average refiner acquisition cost of imported oil. They state that the difference cannot be fully explained by crude oil quality differences. They believe that much of the difference reflects market conditions, i.e., regional supply and demand balances, the value of different crudes to refiners and the needed product yield.

Opponents estimate that unrestricted exports would cost consumers about $1 billion to $2 billion a year because (1) the landed price of Alaskan oil on the Gulf Coast is about $2 to $4 per barrel less than the price of foreign oil and (2) a current

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[3]The world's oil is typically priced off the Saudi benchmark oil, thus the delivered price is the quality- adjusted Saudi price plus transportation.

discount for crude oil on the West Coast (about $1 to $2 a barrel) would be eliminated because the existing supply and demand imbalance which now favors consumers would be reversed.

Furthermore, they believe the current world oil situation does not change the need to ensure that domestic oil requirements are satisfied. Of particular concern is the necessity to safeguard the industrialized northeast, which has traditionally been most vulnerable to being cut off the distribution system. The worldwide oil disruptions of the last decade are reminders of a similar possibility in the future for which the United States should be prepared, they argue.

OTHER RELATED ECONOMIC ISSUES

During our study, we heard arguments that the export of Alaskan oil would (1) improve the U.S. bilateral trade balance with Japan by $1 billion to $8 billion annually depending on the volume and price, (2) increase incentives to explore for more oil, (3) moderate potential increases in world oil prices, and (4) affect the quality and quantity of oil available within the United States.

We believe these arguments need to be put in the proper perspective. For instance:

--Exporting Alaskan oil will reduce the U.S. trade deficit with Japan (about $17 billion in 1982) at the rate of about $1 billion a year for every 100,000 b/d exported. However, since the oil to be exported would no longer be available to the U.S. Gulf Coast region it would have to be replaced. Because the United States is a net importer of oil, the replacement oil would have to be imported. Thus, to the extent the United States offsets exported Alaskan oil with imports, the overall U.S. balance of payment deficit (about $31 billion in 1982) would remain essentially unchanged.

--While oil companies would receive additional income from exports, according to some analysts, Alaskan oil producers earned a total of about $5 billion in 1982 and already have sufficient inducement to explore and produce more oil. Export opponents argue that if that profit is not sufficient inducement then the added profit that exports would generate--about $100 million annually--would not be much more of an incentive. According to one Alaskan oil firm, development of crude supplies is currently proceeding as expeditiously as possible and lifting the export restrictions would have no predictable impact on

current plans. A second Alaskan oil firm cited its recent continental shelf lease bidding and participation in the exploration and development of other potential North Slope fields as examples of its determination to continue exploring for and producing future crude oil reserves from Alaska regardless of the export restriction. Nevertheless, export proponents counter that a $2 to $3 per barrel increase in the wellhead price may be sufficient to keep marginal wells producing and may spur additional production. They also point out that should the windfall profit tax expire, as scheduled in 1990, the producers would receive additional income which could provide additional incentive to increase oil exploration.

--The amounts of Alaskan oil being considered for export represents such a small portion (about 2 percent) of the 53 million b/d in the world market, that such exports probably could not exert substantial pressure on the general price of oil.

--Export of Alaskan North Slope oil would probably not now reduce the quality and quantity of oil available to the United States. Alaskan crude oil is not considered the best in the world but it is better than some crudes, i.e., Mexican and Venezuelan heavy crudes. It is relatively similar to Saudi Arabian light crude with regard to refinery costs and product yields. Comparable foreign crudes, therefore, would be available in sufficient quantities at the world price to replace Alaskan oil exports. Mexico, Venezuela and Saudi Arabia are most commonly cited replacement sources. Where imported oil will come from, of course, depends to a large part on how much Alaskan oil is exported, relative crude oil prices, what oil is backed out of the Far East markets by Alaskan oil, the policies of oil exporting countries, and preferences of individual oil companies. Sources from other than the nations belonging to the Organization of Petroleum Exporting Countries (OPEC), such as Mexico, Canada and Great Britain, could probably replace small volumes of Alaskan oil exported (100,000 b/d to 200,000 b/d), however, large volume exports, i.e., above 300,000 b/d, would probably require some imports from the Middle East, probably Saudi Arabia. (See also app.I.)

CHAPTER 3

EFFECT OF ALASKAN OIL EXPORT ON U.S. NATIONAL SECURITY AND FOREIGN RELATIONS

National security and the impact on foreign relations are important issues in the Alaskan oil export debate. The exports would enhance U.S. security interests in the Far East but make the United States more dependent on foreign oil and could displace U.S. tankers that may be needed for military use. From a foreign relations viewpoint, the exports would create mixed results, e.g., it could help U.S.-Japan relations, but strain U.S. relations with Panama and possibly Mexico.

ENERGY SECURITY

Proponents argue that one goal of exporting Alaskan oil is to enhance this nation's security by strengthening Japan's energy security. They believe that by providing Japan with a secure supply of Alaskan oil, then Japan's reliance on less secure sources of supply would be reduced. Japan would then be less vulnerable to oil disruptions, making it a more secure ally of the United States. Japan imports about 3.7 million b/d. About 84 percent comes from OPEC sources. About 70 percent comes from the Middle East.

Opponents, however, point out that by exporting Alaskan oil which is now being used domestically on the Gulf Coast, the United States would have to import foreign oil into the Gulf Coast. They believe that some of that oil will probably come from the Middle East. Therefore, while the United States would be helping Japan to increase its energy security by reducing its dependence on Middle East oil, they conclude the United States would be increasing its dependence on imports from the Middle East, with the probability that the very same Middle East oil displaced in Japan by Alaskan oil could very easily find its way to the U.S. Gulf Coast.

Proponents believe that the increased world oil supply from more secure suppliers, coupled with declining consumption, and with the Strategic Petroleum Reserve (SPR) and International Energy Agency emergency oil sharing arrangement in reserve, should reduce the strategic risks and lessen the U.S. anxiety concerning exports of Alaskan oil. They point out that the SPR contains about 300 million barrels of oil and is continuing to be filled.

They further argue that the United States can best guarantee crude oil supplies by relying on the world market and taking advantage of the transportation economies that would ensue. They believe the more the United States participates in the world oil market, where that makes sense, the more likely the consuming nations will be able to resist the ill effects of any

disruption. Export proponents say that locking the Alaskan crude to only the United States and to a domestic system which is wasteful and keeping it in areas where it is not most efficiently used, only weakens U.S. ability to meet its own needs.

Export opponents believe that disruption of U.S. supplies for any reason is a possibility against which the nation must protect itself. They cite the original legislative intent to assure a viable domestic distribution and marketing system for the oil. While they acknowledge that Alaskan oil exports will provide greater energy security to Japan, they also hold that it would be detrimental to the United States, making it more dependent on imported oil. They point out that for the past decade, the United States has been working to decrease its dependence on imported oil.

Opponents also argue that exports would (1) be a disincentive to building west to east pipelines to move oil eastward readily and easily, and (2) force many tankers out of business. Thus, they assert that should an oil emergency develop without the pipeline system or the merchant marine, the eastern half of the United States would not be able to use oil from Alaska without relying on foreign shipping, to the detriment of national security.

IMPACT ON U.S. MILITARY

Export opponents point out that with Alaskan oil exports, the Department of Defense would lose the availability of small tankers capable of carrying oil products (as opposed to crude oil) to forces overseas, thus putting Defense in the position of possibly not being able to meet emergency supply commitments, or relying on foreign shipping to supply U.S. and allied forces, again, to the detriment of the national defense.[1] The opponents cite that the United States must be able to support the nation's vital military interests overseas, without having to rely on foreign flag ships. They also contend that international fleet tankers are too big to satisfy Defense needs to operate to and from small ports.

Export proponents acknowledge that there would be a national security penalty to be paid by exporting Alaskan oil--the loss of part of the merchant marine, as discussed earlier, which, because of its naval auxiliary function, would present problems for national defense, i.e., the emergency transport of oil for military use. However, proponents say the few product

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[1]The U.S. ships now carrying Alaskan crude are not used for routine military resupply of U.S. forces overseas, but could be needed for future military mobilization during an emergency situtation.

tankers which export opponents want to preserve are just not worth the cost to the taxpayer and the economy from not exporting Alaskan oil. Moreover, proponents contend that it would be cheaper to "mothball" these tankers than to continue this subsidy to the maritime industry.

The Department of Defense (DOD) views Alaskan oil exports as providing both positive and negative influences on this country's national security. A DOD official explained that if the United States allowed Japan access to Alaskan oil, then should an emergency occur and Japan be asked to assist the United States, Japan would be more likely to do so. This involves not only military help, but also access to Japan's industrial base.

This Defense official stated, however, that if Alaskan oil exports put U.S. tankers out of business the national defense and the nation's security would be impaired. DOD is concerned about the small petroleum tankers (about 25 to 30 ships) with coated tanks capable of carrying petroleum products which DOD needs to haul products into world harbors, most of which will only handle small ships. DOD would like to see those tankers deemed vital to national security remain in the trade; but should these tankers go out of business, DOD would have to subsidize or buy the tankers; and the Military Sealift Command would have to find employment for them or put them into the reserve fleet. DOD is currently studying its tanker requirements.

A Maritime Administration official told us that 35 tankers were of the right size and specifications to meet DOD requirements. Five of these have outstanding federal ship loan guarantees. Should the operators of these ships default, the government would pay the outstanding debt and the ships could be retained for DOD. Tankers without outstanding loan guarantees would have to be acquired by direct purchase. These tankers would cost between $2 million and $5 million each depending on the ship's age, condition, and specifications. However, the future availability of privately owned ships with trained crews to meet military mobilization needs would be jeopardized. Those ships that might be placed in the reserve fleet to meet that future need, would, of course, be available, but they would have to be reconditioned when needed at considerable cost and time.

BILATERAL RELATIONSHIPS--JAPAN

Both the government and private industry of Japan would welcome Alaskan oil exports. Alaskan North Slope oil could provide additional energy security to Japan through diversification, and increase long-term energy ties between the United States and Japan. Japanese officials acknowledge, however, that it is realistic for the United States to protect a scarce natural resource, especially oil, since the United States is a net importer of oil.

Export proponents favor lifting the Alaskan oil restrictions because it means eliminating a U.S. barrier to free trade and would help U.S.-Japan relations. They say that the U.S. opening its oil supplies to Japan would be viewed by the people and government of that country as a U.S. commitment to reducing Japan's vulnerability to disruptions in the oil market.

U.S. Embassy officials in Japan stated, however, that Japan's energy security may be largely unaffected now by access to Alaskan oil because the quantities involved would be small during the present oil glut. Japan wants to be assured of access to a long-term, stable supply of Alaskan oil during both normal times and the time of crisis.

According to Japanese Government and U.S. Embassy officials in Japan, the restrictions on the export of Alaskan oil have had relatively little, if any, impact on U.S.-Japanese relations, since Japan never expected to receive Alaskan oil. However, a State Department official commented that the export of Alaskan oil could have a positive impact on U.S.-Japanese bilateral relations and as oil prices rise, Alaskan oil would become more desirable to Japan.

By providing Japan a valuable resource, proponents believe Alaskan oil exports would create a more positive negotiating climate in ongoing U.S./Japan trade negotiations. However, opponents fear a reduction in the U.S. trade deficit with Japan created by the Alaskan oil exports would reduce the pressure on Japan to negotiate trade concessions.

BILATERAL RELATIONSHIPS--MEXICO

Mexico, with substantial oil reserves, now exports about 1.5 million b/d, about half of which goes to the United States. In 1982, Mexico exported about 100,000 b/d to Japan, about 7 percent of its total oil exports. Exports to other Pacific Rim nations were smaller; i.e. Korea, the next largest recipient in the Pacific, represented 1 percent of Mexico's exports.

Proponents of Alaskan oil exports have suggested that the oil exported to Japan and other Pacific Rim nations could be replaced by oil from nearby countries, such as Mexico, so U.S. dependence on Middle East sources would not be heightened. They believe a swap arrangement with Mexico could help to ease Mexico's financial problems. They do not consider Mexico's stated policy of diversifying its customers to be a problem. This policy indicates that Mexico does not want to sell more than 50 percent of its oil to one customer; and the United States already receives about 50 percent. Alaskan oil export proponents believe the economics of the situation will govern, and that Mexico would probably sell more oil to the United States to replace at least part of the exported Alaskan North Slope oil.

Export proponents explain that under the suggested swap arrangement the United States would send Alaskan oil to Japan in exchange for a similar quantity of Mexico's oil committed to Japan being shipped to the U.S. Gulf Coast, with all three nations benefiting from reduced transportation costs.

Export opponents counter that such swaps are not prohibited by current U.S. export restriction provisions under which a swap can be made if it would benefit the United States. Regarding the proposed swap involving the United States, Mexico, and Japan, export opponents argue that:

--Alaskan exports could reach 800,000 b/d, but Japan imports only 100,000 b/d from Mexico.

--Mexico could not increase production sufficiently to offset Alaskan export volume.

--Additional export volume to the United States would be contrary to the Mexican policy of limiting its dependence on any single buyer.

--U.S. refineries cannot currently handle any more of the type of heavy crude that Mexico produces.

However, opponents of exports do agree that Mexico's financial problems would probably give it little choice but to sell oil to the United States, but they believe that the Mexican people would perceive a swap arrangement as yet another U.S. attempt to induce Mexican dependency on the United States.

A swap arrangement would only complicate a commercially simple purchase, according to Japanese officials. They indicated that Japanese shipping companies, which currently move Mexican crude to Japan, might also object depending upon the transportation arrangements in such a swap.

According to an official at the Mexican Embassy in Washington, Mexico regards Japan as a very important trading partner and wants to preserve that relationship; it would oppose any move by the United States to displace the 100,000 b/d it ships to Japan; and it does not believe Japan would drop Mexico's crude to pick up Alaskan crude.

In any event, the official said there is not much flexibility in the Mexican oil production capability. For economic and physical reasons, he felt Mexico would not be in a position to increase current production. Production could not be increased significantly, or for an extended period, because it would require additional investment in equipment which Mexico is not willing to do under present economic conditions. Moreover, even if Mexico were to decide to increase its production for export, it would take some time to generate the additional production.

IMPACT ON PANAMA

One country which would be adversely affected by Alaskan North Slope exports is Panama, which receives revenues that are expected to grow to about $100 million a year. The revenue is derived from income, tariffs, and taxes generated by the transit of Alaskan North Slope crude across the Isthmus via the Panama Canal and/or the Trans-Panama Pipeline. In March 1983, about 766,000 b/d was transmitted across the Isthmus; 705,000 b/d by the pipeline; 61,000 b/d via the Canal.

The Government of Panama will assume complete control of the Panama Canal by the end of 1999. Until that time, a Panama Canal Commission oversees the operation of the Canal for the United States and Panama. The Government of Panama receives income from the Canal, including 30 cents for every net ton moving through the Canal. The Panama Canal Commission reported that 33.8 million net tons of Alaskan oil passed through the Canal in fiscal year 1982.

The flow through the Panama Canal peaked in fiscal year 1982 at an average daily rate of 636,000 b/d, which generated about $51 million in toll revenue. However, the Trans-Panama Pipeline opened in October 1982, and most of the Alaskan oil is being diverted from the Canal to the Pipeline. The Panama Canal Commission estimates that Canal revenue from Alaskan oil would be $8 million during 1983, and $4.5 million in 1984 and 1985, assuming no oil is exported to Japan or other Pacific Rim countries. The Commission believes a decision to export the Alaskan oil to Japan would completely eliminate shipments via the Canal.

Petroterminal de Panama (PTP) is the Panamanian corporation that operates the Trans-Panama Pipeline. The Government of Panama owns 40 percent of the PTP and two U.S. corporations own the remaining 60 percent. Under the terms of the agreement governing PTP, the Government of Panama can acquire 100 percent of the corporation and the pipeline, in 15 percent installments once the debt of the pipeline has been paid off--in 3 or 4 years.

The PTP has 3-year contracts with Exxon, Mobil, Sohio, and Arco to transmit crude through the pipeline. The volumes vary as do the tariff rates, but PTP uses $1 per barrel for estimating purposes. The contracts stipulate that about 380,000 b/d be passed through the pipeline by these oil companies for a 3-year period and that the companies are obligated to pay for this throughput whether they use the pipeline or not. The pipeline is currently transmitting about 700,000 b/d.

The Government of Panama receives about 80 percent of the pipeline revenues by virtue of its 40 percent ownership of PTP, a 50 percent income tax rate on net taxable income of PTP; certain miscellaneous taxes, and a 5 cent a barrel royalty on each barrel of oil transported through the pipeline.

Export proponents are relatively silent on the effects of Alaskan oil exports on Panama, but opponents believe that the economic loss to Panama would have a significant effect on U.S. relations with Panama during a time of increasing instability in Central America. The Government of Panama, a friendly government in a strategically located country, would lose revenue of about $100 million per year once the pipeline debt is paid off. That potential loss of revenue takes on significance when compared to Panama's total central government estimated revenues for 1983--$1.1 billion.

The Panama Government notified the State Department in March 1983 that a change in U.S. policy which reduces the flow of oil through Panama would result in the loss of revenue to Panama and lead to serious implications and unexpected changes in the economic and political situation. However, the notification did not specifically state what these implications and changes would be.

CRUDE OILS AVAILABLE TO THE U.S. NOW AND IN THE FUTURE

The United States gets its oil from a variety of sources. In some quarters it has been suggested that Alaskan North Slope oil should be exported because new oil discoveries off the California shores make the Alaskan oil excess to West Coast needs. This appendix discusses the crude oil available to the United States now and in the future.

CRUDE OIL NOW PROCESSED ON THE WEST COAST

Essentially three types of crude are refined on the West Coast--Alaskan (900,000 b/d); California (950,000 b/d) and imports, primarily from Indonesia (200,000 b/d).

Alaskan North Slope crude is a 27 degree gravity, 1.6 percent sulfur crude. It is comparable to Saudi Arabian light crude with regard to refinery cost and product yield.

The West Coast has the refinery capacity to process more Alaskan crude, however, declining West Coast consumption of petroleum along with increased California crude production has lessened the need on the West Coast for crude from Alaska. California domestic crude comes from on-shore or close-in off-shore wells. Alaskan oil is the incremental source of supply. In theory without the California production, most of the West Coast refinery capacity could process Alaskan oil.

California crudes are extremely diverse in quality, but on average are less desirable than Alaskan crude. California crude averages about 18 degrees gravity, with a sulfur level exceeding 2 percent. Such low-gravity/high-sulfur crudes (sour crudes) are expensive to refine and yield a product slate of lower value products than Alaskan crude, e.g., less gasoline. California refiners have had to make considerable investment in developing the refining capacity to handle these low-gravity crudes.

Imports on the West Coast are primarily a low-sulfur/high-gravity crude oil (sweet crude) from Indonesia. Imports of this type of crude oil are made to meet air quality requirements and processing limitations of some refineries.

CRUDE OIL NOW PROCESSED ON THE GULF/EAST COASTS

Alaskan North Slope crude oil accounts for about 10 percent of the crude oil processed in refineries on the Gulf and East Coasts--about 700,000 b/d of the 7.3 million b/d used by refineries in May 1983. Besides the Alaskan crude, Gulf and East

Coast refineries process other domestic crudes such as those from Texas and Louisiana as well as foreign crudes from such sources as Mexico, Saudi Arabia, the North Sea, and Nigeria. The quality of these oils varies from low-gravity/high-sulfur Mexican crude to high-gravity/low-sulfur North Sea and Nigerian crudes.

Refineries on the Gulf and East Coasts can process more than the 700,000 b/d of Alaskan North Slope crude now used. These domestic refineries are now processing about 600,000 b/d of imported crude that have similar or less desirable chemical characteristics than Alaskan oil.

FUTURE OIL SUPPLIES

Most studies forecast that petroleum consumption will recover from the depressed level of 1982, domestic crude oil production will decline gradually and U.S. reliance on imported oil will increase. A common theme in these forecasts is that during the 1983-90 period oil production from Alaska and California will increase while total domestic production is expected to decline, implying declines in traditional domestic production sources such as Texas and Louisiana. Increasing petroleum consumption and declining domestic oil production are expected to raise U.S. oil import requirements. For instance, the U.S. Energy Information Administration (EIA) forecast domestic oil consumption, oil production, and oil imports, for 1985 and 1990 (assuming a mid-price path for oil) as follows.

	1982	1985	1990
	millions of b/d		
Oil consumption	15.6	18.4	17.4
Domestic oil production	10.8	10.6	10.0
Oil imports (consumption less production)	4.8	7.8	7.4

Source: 1982 Annual Energy Outlook, EIA, April 1983.

The additional crude oil supplies over the 1982-90 period are expected to come from the West Coast and foreign countries. It is projected that California will provide the domestic increase because Alaskan oil fields will have peaked by the mid to late 1980's. West Africa and the North Sea are expected to provide about one-third of the increased imports, with the other two-thirds coming from the Middle East.

Alaskan crude production

Declining production from the Prudhoe Bay field after 1987 will be offset to some degree by rising production from smaller fields on the North Slope, as shown below. However, this forecast assumes a mid-price oil scenario and does not incorporate estimates of potential major new field discoveries and production over the 1983-90 period. As a practical matter, it is unlikely that statistically significant production from major (and undiscovered) new fields in Alaska could be brought on stream during the 1980's because of the lead times associated with the exploration, development and production activities.

FORECAST OF ALASKA OIL PRODUCTION BASED ON ALASKA STATE PETROLEUM REVENUE ESTIMATES (IN MILLION OF BARRELS PER DAY) ASSUMES EIA MID PRICE OIL CASE

	83	84	85	86	87	88	89	90
Prudhoe Bay	1.518	1.520	1.525	1.535	1.524	1.440	1.360	1.280
Kuparuk & Miline Point	.090	.115	.201	.240	.270	.280	.290	.300
Canning River, Flaxman Island & Point Thompson	--	--	--	--	--	.010	.015	.020
Beaufort Sea	--	--	--	--	--	.050	.060	.070
Cook Inlet	.072	.065	.060	.055	.050	.040	.030	.020
Total	1.680	1.700	1.786	1.830	1.844	1.820	1.755	1.690

Source: Petroleum Production Revenue Forecast, Quarterly Report March 1983, Alaska Department of Revenue Petroleum Revenue Division

California production

The new California crudes will be low-gravity/high-sulfur crudes. For instance, crude oil from the Point Arguello field has a gravity classification of 18 degrees.

California crude production will come from both on-shore and off-shore oil fields. One of the problems associated with forecasts of California oil production is that off-shore output is expected to rise, but production from the on-shore fields is

estimated to decline. In aggregate California oil production is expected to rise over the 1983-90 period, as the table below shows.

ESTIMATED NET CALIFORNIA CRUDE OIL PRODUCTION
MID PRICE CASE (In Millions of B/D)

	83	84	85	86	87	88	89	90
On-shore	1.027	1.020	1.014	1.002	.997	.982	.968	.953
Off-shore	.080	.105	.130	.180	.290	.340	.400	.450
Total	1.107	1.125	1.144	1.182	1.287	1.322	1.368	1.403

Source: On-shore estimates derived from information obtained from the California Division of Oil and Gas.

Off-shore estimates derived from Bechtel Corporation's study entitled Feasibility Study, Southern California Coastal Pipeline, Vol. 1, Dec. 1982.

The gradual decline in on-shore production reflects the combined impact of the fall in production from the older oil fields (Elk Hills, Wilmington, Huntington Beach) being offset to some extent by rising production from enhanced recovery projects (South Belridge, Kern River, Midway Sunset).

Off-shore projection forecasts include the impact of rising output from the Point Arguello field (after 1986) and relatively constant production from other fields. California off-shore production is expected to rise from 80,000 b/d in 1983 to 450,000 b/d by 1990. Production from the Point Arguello field is expected to begin in mid 1986 and rise to approximately 300,000 b/d by 1990.

Imports

The composition of U.S. oil imports will be influenced by the replacement of domestic oil production lost in Texas and Louisiana. This production is high-gravity/low- to medium-sulfur crudes.

On the basis of forecast availability of world crude supplies, anticipated oil prices, estimated petroleum demand and the conversions that have and are being made to modify refineries to process sour instead of sweet crudes it is unlikely that wide price disparities will develop between foreign sweet and sour crudes. Therefore, it is likely that future declines in sweet domestic production will be replaced to a large degree

with high-gravity/low-sulfur sweet foreign oil. Potential sources of supply for this type of crude include: Great Britain; Norway; Algeria; Nigeria; Libya and Indonesia.

With the forecasted increase in U.S. petroleum consumption it is likely that heavier foreign crudes will also be imported. Since 1979 considerable investment has been made in modifying U.S. refineries to process heavy/sour foreign crude.

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