AMERICA'S FOREIGN OIL TRADE — A HISTORIC REVIEW

Presented By

John H. Lichtblau

Petroleum Industry Research Foundation, Inc.

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Magnitude Of The International Oil Trade

The history of international trade over the last two to three decades is, to a considerable extent, the history of international oil trade. Oil is, and has been for some time now, the world's No. 1 import and export commodity, both by volume and by value. In 1959 the value of the free world's total inter-regional oil exports amounted to nearly 10 billion dollars, equal to almost 10 per cent of total world trade. Petroleum's share of the volume of world trade is much bigger still. It amounted in 1958 to approximately two and three-quarter billion barrels, equal to some 45 per cent of the total world high-sea trade.

What has put this relative newcomer to international commodity trade into this predominant position? One reason is, of course, the vast shift in energy consumption which has occurred over the last 50 years. At the very beginning of World War I the world entered the oil age on a massive scale and we have been getting deeper and deeper into it ever since. The second reason is really a quirk of nature. Generally speaking, oil is found where you don't need it. Venezuela, the Middle East, Indonesia, North Africa and the Caspian Sea - some 95 per cent of the oil outside the United States is located in those areas but only a tiny fraction is consumed there. Even in the U.S. our greatest oil supplies are located in the Southwest, which (with no reflection on Texas) is relatively under populated and underindustrialized, while our greatest oil market is in

the densely populated and highly industrialized Northeast. Here lies the reason for the large quantities of oil which daily are hauled across the oceans from producing centers to consuming areas. It set oil apart from all earlier energy sources. For wood, water power and coal were always located relatively close to the major consuming centers. In fact, historically, consuming centers usually developed around local fuel supplies. But oil, as a late comer to the world's energy supply, had to adapt itself to already existing conditions. It would be interesting to speculate to what extent regional economic developments, both here and abroad, would have been different if the discovery of commercial oil production had preceded the industrial revolution.

U.S. Oil Exports

The United States has played a key role in world oil trade since the very beginning. We were the world's first oil exporter, then for some time the largest oil exporter, and now we are the largest oil importer. At present we are bringing into the continental United States every day approximately 1,100,000 barrels of crude oil and nearly 600,000 barrels of refined oil. The combined value of these imports last year was 1.5 billion dollars or nearly 11 per cent of total U.S. imports. This made oil America's principal import commodity, a position which it has held since 1957.

By comparison, our total oil exports amounted to only about 200,000 barrels daily or 429 million dollars in 1960. This is a very radical change from the time when the U.S. was the world's principal oil exporter but only a minor oil importer. In fact, historically, America's oil

industry was primarily export-oriented for at least 65 of its 100-year existence. American crude oil and kerosene began to arrive in Europe within three years after the discovery of the Drake well in 1859. By 1873 over 75 per cent of all U.S. made kerosene - the principal crude oil derivative until after the turn of the century - was exported. By 1900 the share of exports was still 60 per cent. The reason for this export orientation of the early U.S. oil industry was mainly the greate readiness of Europe for the new American lamp fuel.

Later, when kerosene lost its importance, we exported primarily gasoline and lubricating oils, principally to Western Europe. We also exported crude oil and still do. But America's chief oil export trade was always in refined products. In fact, many of the East Coast and Gulf Coast refineries built during the 1910's and 20's were located there primarily for export purposes.

However, oil exports remained high only until about 1930. In the next decade they declined sharply, due to the world economic crisis, th growing competition from the Middle East and, for a while, Soviet oil exports. They flared up briefly in the immediate postwar period before Europe's war-devastated oil refineries were reconstructed. But with th continuing trend to build refineries at consuming rather than producing centers America's oil export trade has been going down for some time an is likely to continue to do so, except for some unforeseen circumstance such as the Suez crisis. At that time we exported for a while at a daily rate of over 800,000 barrels to Europe to prevent an oil shortage there.

The First Phase Of U.S. Oil Imports

U.S. oil imports follow almost exactly the reverse pattern of our oil exports. They began only around 1912, when we were already at our peak as an oil export nation. They rose very sharply during and immediately after World War I, leveled off during the 1930's and increased rapidly and steadily since World War II.

One important aspect about U.S. oil imports is that the bulk of them have always come from U.S.-owned production abroad. We were never an importer in the sense of buying oil from foreign suppliers. Instead our imports always paralleled the foreign exploration activities of U.S. oil companies. The one exception is the Shell group which is an important importer of oil to the United States. But Shell has been in the U.S. market so long and to such a large extent that it has really become part of the U.S. oil industry.

The first U.S. oil imports came from Mexico where American capital had developed oil production as early as 1876. Until World War I imports from Mexico remained quite negligible. But the war revealed the full extent to which the world had already become dependent on the new fuel, particularly in war-time. As French Prime Minister Clemenceau wrote to President Wilson in 1917 "oil is as necessary as blood in the battles of tomorrow".

In the U.S. the tremendous demands of World War I resulted in a 35 per cent increase in domestic oil production between 1914 and 1918, with output reaching nearly a million barrels daily in the latter year. But large as this increase was, demand was even higher. And instead of declining with the end of the war it rose even sharper in 1919 and the

early 20's when the automobile industry resumed its interrupted growth and the mechanization of farm equipment got underway on a mass scale. Hence, a ready import market existed for Mexican oil and the quantities that came in rose from about 42,000 b/d in 1915 to 144,000 b/d in 191 and reached a peak of 375,000 b/d in 1921. In this latter year they were equivalent to 27 per cent of total domestic oil production, a ra which has never again been reached. In fact, in 1920 and '21 the U.S was temporarily a net oil importer.

The attraction of Mexico as an import source for the U.S. was based partly on the country's nearness to our border and, particularly to the Gulf Coast refining center. Even more important was the immens productivity of the so-called "Golden Lane" which made Mexico for a fe years the world's second largest oil producer and exporter.

In 1923 the Mexican oil bonanza started to decline, largely becau of water encroachment on the wells. An additional factor was the increasingly hostile attitude of the Mexican government towards foreign oil investments which discouraged foreign oil companies from developi new deposits.

All these factors were reflected in a sharp decline in imports after 1922. For the next two years oil imports equalled about 13.5 pe cent of U.S. domestic production. After that they decline to 10-11 pe cent where they remained until 1932 when the period of unrestricted o imports came to an end.

Even this low ratio was only made possible by the establishment new oil production in Venezuela which helped to offset Mexico's declin In 1922 Venezuela supplied only 2,000 b/d to the United States, by 192

the amount had risen to 15,000 barrels and by 1928 Venezuela had become America's major foreign oil supplier, a position it has retained unchallenged to this day. In Venezuela, incidentally, the oil pioneers were not American firms but the Shell group which had established a modest production there by the time America entered World War I. But the big push came in the 1920's when Standard Oil of Indiana and the Gulf Oil Corp. joined in the oil hunt there.

Now, this first oil imports period lasted from about 1918 to 1932. It had three basic characteristics:

(1) There was complete freedom from import restrictions including even imports duties.

(2) Foreign oil was really needed, at least during the <u>early</u> part of this period, to supplement domestic production which didn't rise enough to meet the rapidly rising demand. It is important to keep in mind this original reason for U.S. oil imports.

(3) The third and most important feature of this period was the official government encouragement of U.S. oil companies to develop foreign production. The reason for this policy was a wide-spread fear that America's domestic oil resources would soon give out and that it was therefore vital for the U.S. to establish its own production abroad. Some of the country's greatest oil experts expounded this view. Thus in 1919 the director of the U.S. Bureau of Mines said:

> "The oil from the United States will continue to occupy a less and less dominant position because within the next two-five years the oil fields of this country will reach their maximum production and from that time on we will face an ever increasing decline."

A year later the director of the U.S. Geological Survey added that:

> "The position of the U.S. in regards to oil can best be regarded as precarious ... Americans will have to depend on foreign sources or use less oil, or perhaps both."

And in 1926 the Federal Oil Conservation Board, appointed by President Coolidge, stated:

> "...our companies should vigorously acquire and explore foreign fields as a first importance, not only as a source of future supply, but supply under control of our own citizens. Our experience with the exploitation of our consumers by foreign controlled sources of rubber, nitrate, potash and other raw materials should be sufficient warning to what we may expect if we shall become dependent upon foreign nations for our oil supplies."

As late as 1929 the same agency recommended that "the depletion rate of our own resources can be brought more into accord with that of foreign resources only in one way - by importing a greater quantity of crude petroleum."

In response to this fear the U.S. Government during the 1920's actively intervened on behalf of U.S. oil companies to assure them access to foreign oil deposits. This policy brought on some clashes with British oil policy which had been based on the principle of keeping non-British subjects away from the Empire's oil deposits.

As a result of the Government's continued efforts and the enterprise of American oilmen the stake of American oil companies in foreign production expanded greatly during the 20's. By 1930 American oil companies had developed substantial crude oil production in Venezuela. They had gained concessions in Iraq and the Dutch East Indies. Any fear that America would become dependent on foreign corporations for its oil imports was no longer justified.

The Great Depression

The years of the Great Depression marked a turning point in the Government's policies concerning oil imports. The U.S. oil market was inundated by a flood of oil, particularly from the East Texas field. The industry and the different oil-producing states devoted a major effort to the prevention of the waste of the oil and its conservation. At the same time, however, many groups in the oil industry called for restrictions on oil imports. Largely as a result of these pleas, which were supported by the governors and legislatures of the main oil-producing states, certain limitations were placed on imports.

The Independent Petroleum Association of America, which was formed in 1929, spearheaded the drive for restrictions. After strong but unsuccessful efforts in 1930 and 1931 to enact a tariff, the group proposed in 1932 that excise taxes on crude oil and refined products be incorporated in the Revenue Act of 1932. Congress adopted the suggestion, although it lowered the rates originally suggested by the IPAA. The taxes became effective in June 1932. On imports of crude oil, fuel oils and kerosene the taxes were set at 21¢ per barrel; on imports of gasoline and other motor fuel, $1.05 per barrel; on imports of lubricating oil $1.68 per barrel.

In spite of the enactment of these taxes, further import limitations were proposed by domestic interests. By the spring of 1933, the flood of oil pouring from the East Texas field had risen to another peak. Special conferences were held in Washington between officials of the Roosevelt Administration and representatives of the oil industry and the oil-producing states. Out of these conferences came new

attempts to provide for the conservation of domestic oil and for import restrictions. When the National Industrial Recovery Act was enacted, a provision was made in the NRA Petroleum Code for restriction of petroleum imports; it empowered the President to limit imports to whatever level would be necessary to carry out the purposes of the Code. Pursuant to this authority, the Administrator of the Code, Harold Ickes, stated in September 1933 that "until further notice, imports of crude petroleum and petroleum products shall be limited to an amount not exceeding the last six months of 1932." This base period was one during which imports had been reduced sharply as a result of the enactment of excise taxes in June 1932. The quota remained in effect until May 1935 when the NRA was declared unconstitutional by the Supreme Court.

The effectiveness of these various depression-born restrictions is shown by the fact that in 1933, the first full year of the import taxes, oil imports dropped by some 40 per cent, despite a slight increase in domestic consumption. For the duration of the full force of these restrictions (1933-1939) imports ceased to be a significant factor in the U.S. oil supply pattern, fluctuating around the equivalent of only 5 per cent of domestic output.

Reciprocal Trade Program

Even as these restrictions were being enforced, the path was laid for an ultimate reduction in the tax rates on oil imports. In 1934 Secretary of State Cordell Hull and others had proposed the enactment of the Reciprocal Trade Agreements Program. The major aim of this program was to revive America's trade with the rest of the world.

The Trade Agreements Act became law in 1934. The first effect on the oil industry was experienced in 1939 when a trade agreement was negotiated with the Government of Venezuela. It provided for a reduction of taxes on certain oil imports in exchange for concessions on U.S. exports of many commodities to Venezuela. The import taxes on crude oil and fuel oil were reduced from 21 cents per barrel to 10.5 cents per barrel on an annual amount of imports "not in excess of 5 per cent of the total quantity of crude petroleum processed in refineries" in the United States.

Three years later, in a trade agreement with Mexico, the quota related to refinery operations was abandoned. Thereafter, all imports of crude oil and fuel oil from all countries were admitted into the United States at the reduced rate of 10.5 cents per barrel.

Encouragement Of Imports, 1940-1948

This relaxation in import policy coincided with the outbreak of war in Western Europe. It was of great importance to the United States oil supply position during the last two years of the war. For domestic crude oil production approached its maximum efficient rate in 1944 and actually exceeded that rate during 1945. Hence imports of foreign oil and residual fuel oil were urgently needed to supplement domestic crude oil.

Now the Government once more supported actively the expansion of foreign oil production by American companies. Thus Secretary Ickes said in March 1944, "Year by year lately, the amount of new oil discovered in this country has been less than we have been consuming ...So I say that we should give heed to our future oil position. One way to

do this is by looking to foreign oil resources, as recommended by the Truman Committee." So important had the access of the United States to foreign oil supplies become in the Government's policy that consideration was given to the establishment of a Government-owned corporation to share in Saudi Arabian crude oil production.

The early postwar years witnessed a continuation of concern, both by Government and industry, over the American oil supply position. Commenting on oil shortages in 1946-1947 the Secretary of the Interior in his Annual Report for 1947 wrote:

> "For the first time in modern peacetime petroleum history, the American petroleum industry found itself unable to meet in full the demand for its products."

Because of the continuation of this shortage in 1948, the Government found it necessary to place controls on petroleum exports in mid-year. The Executive branch, Congressional committees, and industry groups alike encouraged increased importation of foreign oil into the United States. The Secretary of Defense, James Forrestal, told a House Committee:

> "The trend of demand against availability has become such that if military operations or individual living standards in the United States are not to be limited because of an economy of oil scarcity, we must adopt an active policy of favoring sizable importations of oil."

A Committee of the National Petroleum Council recommended in January 1948 that "all petroleum importers should continue to exert maximum effort to import crude oil and petroleum products to the extent necessary to supplement domestic supplies."

During this period, the Government actively supported the expansion of foreign crude oil producing capacity. Against the opposition of some

segments of the domestic producing industry, it made available the steel supplies necessary to build the Trans-Arabian Pipeline. In defense of this policy, the Secretary of Commerce, Averell Harriman, explained in 1948:

> "For every ton of steel used for casing and connecting an oil well in the United States, petroleum output is increased by about 100 barrels per year; that same ton of steel used for casing and connecting an oil well in Saudi Arabia will produce over 6,000 barrels a year."

Encouragement Of Imports, 1949-1952

In 1949 the oil industry's supply position shifted to surplus and several groups of domestic producers issued appeals for reductions in imports. Requests were placed before the Tariff Commission calling for the application of the escape clause in the Mexican Trade Agreement. The Commission, however, rejected the request.

Any surplus in the domestic oil market was only temporary, for in 1950 when the Korean War led to a massive rearmament effort, heavy new demands were placed on the oil industry. And imports proved again a most valuable supplement to domestic oil production.

A year later a supplementary trade agreement was negotiated with Venezuela reducing the tax rate on oil testing 25 degrees API gravity and below to 5.25 cents per barrel; and on oils testing higher than 25 degrees at 10.5 cents per barrel. These are the rates in existence today.

In 1951 a shift in policy occurred when a major effort was launched by a large group of domestic oil and coal producers to limit oil imports. A number of bills were introduced in Congress for this purpose, at the

same time that bills restricting imports of lead, zinc and several other commodities were put forward. All of these proposals were consolidated in the Simpson bill. Although it had considerable support in the House of Representatives, the Simpson bill was ultimately defeated.

Attempts to curtail oil imports continued and in July 1954 President Eisenhower took cognizance of the growing requests for restrictions. He appointed a special Cabinet Committee on Energy Supplies and Resources Policy to study this problem, as well as other aspects of the nation's energy position. The Cabinet Committee, which issued its report in February 1955, recommended that imports of crude oil and residual fuel oil should henceforth be voluntarily held to their 1954 ratios to domestic crude oil production (10.3 per cent and 5.6 per cent, respectively). However, the Committee suggested that this recommendation should be reviewed "from time to time in the light of changing requirements."

Next Congress enacted the national defense amendment to the Trade Agreements Extension Act of 1955, which granted the President authority to adjust imports of any article whenever he finds that it threatens to jeopardize the nation's security. Under the act, the Director of the Office of Defense Mobilization (ODM) was charged with the responsibility of advising the President. The amendment was strengthened in 1958.

Pursuant to these responsibilities, the Director of ODM began in August 1955 to call upon individual American oil companies to restrain voluntarily their petroleum imports into the United States. In effect the Director concentrated his efforts on gaining reductions in crude oil imports from the Middle East. For oil imports from Canada and Venezuela were exempted from his action. He also exempted total imports of residual fuel oil and imports of crude oil into the West Coast.

Voluntary Imports Restrictions On Crude Oil

A special review of crude oil imports was again undertaken by a Cabinet Committee in the spring of 1957. In July it issued a report establishing voluntary crude oil imports for individual companies in the area East of the Rocky Mountains. The total of these individual quotas amounted to about 12 per cent of domestic crude oil production in the East-of-Rockies area. This represented an upward revision in the percentage of permitted crude oil imports compared to the recommendations made in 1955. Residual fuel oil imports were again exempted from the program.

In December 1957 crude oil imports into the West Coast were also placed under the voluntary quota system. These imports are a relatively new factor in the U.S. oil trade. Before 1952 they had been quite negligible but by 1957 they had already risen to 260,000 b/d. This dynamic growth has been the major reason for the rise in the nation's total crude oil imports between 1954 and 1958.

A basic difference exists between West Coast and East Coast oil imports. The East Coast is nearly totally devoid of local oil supplies and therefore must bring all its oil supplies in from the outside - either the Texas Gulf Coast or a foreign supply area. California, on the other hand, has been the country's second largest oil producing state for many years. But since 1953, when it reached the all-time high of 1.1 million barrels daily, Californian production has steadily declined. Currently it is down to 910,000 b/d. This decline is apparently due to geological and not economic conditions. Though the West Coast is now receiving some oil from the U.S. interior, the bulk of its oil deficit can only be filled from abroad, since production from the

major U.S. oil fields in the Southwest cannot be readily shipped to the West Coast. Thus oil imports to the West Coast are more supplementary to domestic production than those coming into the East Coast.

During March 1958 the Cabinet Committee completed another review of crude oil imports. It asked all existing importing companies to reduce their shipments proportionally to make room for 13 newcomers who had not previously imported oil. In support of this recommendation the President directed all federal agencies to purchase their petroleum requirements only from companies complying with the voluntary oil imports program. This meant that a good deal of the "voluntaryness" had now been taken out of the program.

Though most companies complied with the voluntary quotas, the program was not a success. While crude oil imports did not significantly exceed the levels established by the government, a number of companies began to bring in large quantities of unfinished foreign oil products for further processing at U.S. refineries, since such products did not come under the voluntary restrictions. Another difficulty was that as soon as the government restricted the importation of crude oil every refinery in the country wanted an allocation, including many who had never before imported foreign oil. This was a consequence of the simple economic fact that by restricting the free importation of a commodity the Government had made it more valuable than before and hence everyone wanted an import quota.

Finally in February 1959 the Special Cabinet Committee to investigate crude oil imports and the Director of the Office of Civil and Defense Mobilization both recommended to the President the establishment of mandatory oil import restrictions as being in the interest of the

national security. The reason for the need to institute mandatory restrictions was perhaps put most succinctly by OCDM Director Hoegh in these words:

> "The deterioration in the reserve-demand ratio threatens an insufficiency in our domestic supply of petroleum for the requirements of an expanding industrial economy and in turn for the requirements of national security. There is a direct relationship between this decline and the fall-off in exploratory drilling. Clearly the decline in exploratory drilling is itself related to the quantities and circumstances of crude and products importation from areas of very much greater proven reserves where production costs are very substantially lower than costs in this country. These considerations support the opinion that an impairment of our national security is threatened by these imports."

Mandatory Imports Restrictions

Following the certification of the OCDM, President Eisenhower in March 1959 imposed mandatory oil imports quotas on crude oil and all products, including residual oil, in order "to preserve to the greatest extent possible a vigorous, healthy petroleum industry in the U.S." Under the mandatory imports program separate regulations exist for crude oil, residual fuel oil and other oil products.

Crude oil imports are allocated separately for two areas: Districts I-IV (the U.S. east of the Rocky Mountains)and District V (the West Coast). Virtually all allocated foreign crude oil coming into Districts I-I is processed at the East Coast (District I) but import quotas are assigned to eligible companies throughout all four districts. All refiners are eligible for quotas on the basis of either crude oil throughputs in a base period (the previous year) or on the basis of a historic position as an importer during the last voluntary allocation period, whichever is higher.

At present 70 per cent of the total allocations are given to historic importers, the balance to those qualifying on a throughput basis.

The historic importers are primarily the East Coast refiners who have traditionally relied on foreign supplies for a large part of their crude oil needs. Currently these refiners use about 55 per cent foreign crude in their plants. The throughput importers are mostly inland and Gulf Coast refiners who did not import in the past and, in many cases, are not able to process the oil in their own plants. This is one of the most controversial issues of the imports program. For the inland refiners swap their quotas with East Coast refiners against domestic crude oil delivered inland at a premium in domestic crude oil equal to $1 per barrel (the quotas cannot be sold for cash under the import regulations). The East Coast refiners argue that this is a "windfall" gain for the inland refiners while thus being subsidized by East Coast refiners. The counter argument is that in order to remain competitive with East Coast refiners, inland refiners must have the opportunity to share in the profits from low-cost crude oil imports. In fact, the principal debate today is no longer between importers and domestic producers, as it was until 1959, but between inland refiners and East Coast refiners.

The debate is further sharpened by the fact that under a sliding-scale system smaller refiners receive a relatively larger share of total imports than larger ones. Most East Coast refiners are large international companies while many of the inland refiners are small concerns. Furthermore, the share of the total imports assigned to historic importers has been steadily reduced by the Government from 80 per cent in the first mandatory allocation period, March-June 1959, to 70 per cent in the present allocations.

Another controversial feature of the program is the determination of the overall quantity of imports. Under the present Presidential Proclamation it is equal to approximately 9 per cent of total oil products demand in Districts I-IV. Domestic producers, who would like to see as little foreign crude oil come in as possible would prefer to have the base changed from total demand to total crude oil production because demand for oil products is growing more rapidly than crude oil production. There are several reasons for this difference. The biggest is the growth in natural-gas liquids production which is displacing some crude oil. Other reasons include the upgrading of refined products, Canadian and Mexican crude oil imports which are unrestricted and residual fuel oil imports.

All of these affect the level of demand. Currently total crude oil imports for Districts I-IV amount to 671,000 barrels daily.

West Coast and Exempted Imports

Crude oil imports into the West Coast are somewhat different in that they are based not on a fixed percentage of demand but are supposed to represent the balance between available domestic supplies, including Canadian imports, and total demand, as determined by the U.S. Bureau of Mines. For the June-December 1961 period the total imports allocation to the West Coast is 230,000 barrels daily, equal to 18 per cent of that district's total demand.

Overland oil imports are exempted from the restrictions. In practice this means only imports from Mexico and Canada. Mexican overland imports were almost non-existent until fairly recently when it was

discovered that they could be brought in via Brownville, Texas. They have now been stabilized at about 30,000 barrels daily under a "gentleman's agreement" between the U.S. Department of the Interior and PEMEX, the Mexican national oil company. In the last half of 1960 they amounted to 66,000 barrels daily to Districts I-IV and 47,000 barrels daily into District V, equal to 4 per cent of all imports into Districts I-IV and 3 per cent of all imports into District V. The rationale for exempting these imports is largely strategic. It is assumed that such imports would not be affected by any threat to our national security, such as war or revolution, etc. Actually, Canada has put considerable pressure on the United States for such preferential treatment, since the development of its relatively new oil producing industry depends largely on exports to the United States market. Canada has no other oil export outlets and its domestic crude is presently not competitve with imported crude on the Canadian east coast where the bulk of the country's refineries are located.

Residual Fuel Oil Imports

Now a word about residual fuel oil imports. These imports had not been restricted under the voluntary program prior to March 1959, although the Cabinet Committee on Energy Supply in February 1955 had recommended that they be kept to a ratio of 5.6 per cent of domestic crude oil production. The principal opposition to residual fuel oil imports comes not from the domestic oil producers but from U.S. coal operators. For residual fuel oil is primarily used as an under-boiler fuel. This puts it in direct competition with bituminous coal whose major use has always been for boiler-heating purposes. Residual fuel oil imports have increased quite sharply in the last decade. In 1950 they amounted to

329,000 b/d. By 1955 they had grown to 417,000 b/d and last year they reached 582,000 b/d. However, during the same period domestic residual fuel oil production east of California declined from 840,000 b/d to 794,000 b/d in 1955 and to 630,000 b/d in 1960. Hence, the bulk of the imports have complemented the declining domestic production of this commodity.

The reason for this decline lies in the nature of residual fuel oil production. It is the viscous residue left over after gasoline, kerosene, diesel and light heating oils have been distilled off. This puts domestic residual oil into the category of a by-product which falls off in the process of producing the principal products, somewhat like sawdust in a sawmill operation. As is the case with most by-products, no direct relationship exists between the supply of and the demand for domestic residual fuel oil. Its supply is determined mainly by the refiner's requirements for such higher value products as gasoline, kerosene and light fuel oil.

Residual oil has historically always had to be competitive with bituminous coal, traditionally the predominant under-boiler fuel in the U.S. energy market east of California. In the post-war period natural gas has also entered this particular market on a large scale. In order to remain competitive with these two fuels residual oil has always had to be sold at a wholesale price below that of the crude oil from which it is made. Hence, its production is essentially different from that of any other major oil product, none of which must compete in a market where the maximum price level is established by alternate fuels at a level not profitable for the refiner of the competing oil product.

Oil refiners have therefore reduced the yield of residual fuel oil per barrel of crude and raised the share of those products which permit a profit margin. This has resulted in the well-known decline in residual fuel oil's share of total refinery output throughout the U.S. - from 31 per cent in 1930 to the present level of about 11 per cent. This decline in the yield per barrel of crude oil has been only partly offset by rising crude oil runs to refineries.

Meanwhile, the demand for under-boiler fuels has increased. In U.S. interior regions the ensuing gap between supply and demand was made up primarily by coal and gas. On the East Coast, however, foreign imports of residual fuel oil offset the decline in domestic supplies and also permitted a modest long-term growth in the consumption of this fuel. Imports are therefore the consequence and not the cause of the decline in domestic output of residual fuel oil.

Since virtually all residual fuel oil imports are consumed at the U.S. East Coast which also provides an outlet for one-third of all U.S. coal sales, it is not surprising that these two under-boiler fuels are locked in a bitter competitive struggle over this market. The question of just how much residual fuel oil competes with bituminous coal is a matter of definition as well as of controversy. The direct current competition between these two fuels is limited chiefly to a number of coastal utilities and some industrial plants with multiple firing facilities. However, the potential competition might be considerably larger, since the shortage or unavailability of one fuel might force a number of

consumers to undergo the expense of installing burning equipment and storage facilities for the other fuel.

Existing import restrictions for residual fuel oil permit a total importation of 461,000 b/d for the twelve months period ending March 31, 1962. This does not include residual fuel oil imported in bond for international ship bunkering which is exempted from all import restrictions. Historic importers, i.e., those who were importers on record in 1957, currently receive 85 per cent of all imports allocations. Others are eligible if they have deep-water terminal facilities with a residual fuel oil input in the previous year. In allocating imports quotas to deep-water terminal operators the Government has used the same sliding-scale principle as in the case of crude oil import allocations to non-historic refiners. This means that the larger terminal operators get a relatively smaller share of the total quota than the smaller operators.

Concluding remarks

Now I'd like to conclude with a few brief remarks on the permanency of oil imports restrictions. Crude oil imports restrictions are probably here to stay for the foreseeable future for three good reasons: (1) the continuing domestic oil surplus; (2) the world-wide oil surplus; and (3) recognition of the fact that a barrel of foreign crude, generally speaking, displaces a barrel of domestic crude.

However, the level of crude oil imports may well increase in line with the growth in our consumption. If it does not, the price of domestic crude oil will have to rise steadily in the long run. For I believe domestic crude oil production has reached the point of diminishing return, where each additional unit of output can only be brought forth

with a correspondingly larger effort than the previous one. This law may not fully apply in the short run, given the artificial restrictions on the volume of crude oil production in form of pro-rationing restrictions. But it is bound to apply in the long run. Thus, crude oil imports become increasingly necessary to maintain domestic oil prices at a reasonable level. But these imports will - and I think they should - be strictly controlled. Their level and method of determination is going to be a matter of continuing debate among the different segments of the oil industry.

The question of whether residual fuel oil imports restrictions should be continued is currently under study by the Office of Civil and Defense Mobilization. These restrictions have little effect on domestic crude oil production whose protection is the stated aim of the current import restrictions. The question to be answered by the OCDM is therefore whether these imports threaten the coal industry to such an extent as to impair our national security.

One thing is certain, neither the oil industry's nor the coal industry's problems have been solved, or even much eased, by 15 months of imports restrictions. This is not an argument against the restrictions. But it does indicate that the failure of oil and coal production to rise is obviously due,to a very large extent, to causes other than displacements by oil imports.