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Statement by John H. Lichtblau, Research Director
Petroleum Industry Research Foundation, New York, N.Y.
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The Consumer's Stake in Residual Fuel Oil

The most important but least vociferous party to the dispute over residual fuel oil imports is certainly the consumer of this commodity. While our organization does not claim to speak officially in his name, all the jobbers and distributors for whom we speak sell directly to the end-users of residual fuel oil and are therefore aware of the latter's real needs.

Residual fuel oil consumers are located primarily on the East Coast. This area which contains 38 per cent of the country's total population accounts for 60 per cent of total U.S. residual fuel oil consumption and virtually 100 per cent of residual fuel oil imports. This regional concentration is much greater than it is for coal for which the East Coast represents only 34 per cent of the total market. In 1959 residual fuel oil accounted for 21 per cent of the total East Coast heating fuel market, compared to 13 per cent for the entire U.S. heating fuel market. It is clear, therefore, that residual fuel oil is considerably more important to the East Coast than to the rest of the country.

Quantitatively, this region consumed last year slightly more than 900,000 barrels daily of this product of which one-third was used for industrial purposes, one-fourth to heat apartment houses, schools and other buildings, one-sixth to fuel the boilers of electric utilities on the East Coast

and the balance for ship bunkering and various minor uses. Only one of these user groups - electric utilities - has a significant degree of choice between residual oil and other fuels. Approximately 80,000 barrels daily, or 55 per cent of all residual fuel oil currently sold to utilities, goes to plants with ready facilities to use coal as an alternate fuel. A few large industrial concerns are also equipped for multiple fuel utilization. A high estimate might put the quantity of residual sold to such industrial consumers at 25 - 30,000 barrels daily. Thus, only about 12 per cent of the East Coast's residual oil requirements go to consumers who could readily switch to coal, although, given a choice, they obviously prefer oil. The other 88 per cent is consumed by users to whom no other fuel is readily available. Some could possibly install facilities to burn other fuels, if they had to, but only at a very considerable expenditure in capital equipment. Some buildings on the East Coast south of New York could possibly be switched to natural gas, but not to coal, while most buildings in New York and New England as well as most ships could not change to any other fuel.

Hence, the active competition between residual fuel oil and coal on the East Coast is now very limited. The situation was different fourteen or fifteen years ago but the switch to oil since then has generally been irreversible, technologically and economically. However since the early 1950's the BTU battle between these two fuels seems to have reached a stalemate. Residual fuel oil has now apparently displaced all the coal it is economically able to and very little further penetration into coal markets is possible. In fact, in the last decade, residual fuel oil consumption on the East Coast has grown at an annual rate of only about 1 per cent which is much less

than the over-all growth rate for heating energy. This reflects the growing inroads of natural gas into actual and potential East Coast heating markets, particularly the industrial and utility sectors.

In these two sectors residual fuel oil currently accounts for about 23 per cent and 15 per cent respectively. We have no historic statistical series on East Coast industrial fuel consumption but we know that in the utility sector the share of residual fuel oil is currently slightly lower than it was ten years ago, while that of gas has doubled from six to twelve per cent. Of course, the bulk of utility fuel consumption - 73 per cent of the total - continues to be supplied by coal.

It is clear therefore that the great majority of residual fuel oil consumers on the East Coast would not be able to switch to coal if their residual oil supply became curtailed. Instead they would either have to pay higher prices to maintain their normal supplies, switch to gas of just curtail their fuel consumption.

The Need for Residual Fuel Oil Imports

Residual fuel oil imports are needed on the East Coast for the simple reason that the demand for this commodity is growing while its domestic supply is on the decline. Imports must fill the gap. The reason for the growth in demand, which has been very moderate in the last decade, are the aforementioned consumer needs and preferences. The reason for the decline in the domestic supplies is that the yield of domestic residual fuel oil per barrel of refined crude oil has been shrinking throughout the past twenty-five years. In 1930 it still amounted to 31 per cent of total refinery output; by 1950 it had dropped to 20 per cent; and currently it is just 10 per cent. As a result, domestic residual fuel oil production east of California

in 1960 amounted to only about 620,000 barrels daily, or 26 per cent less than ten years ago. In the first six weeks of the current year production declined again by 5.5 per cent compared to the same period of 1960, while demand rose, by virtue of the exceptionally cold weather.

The reason for the decline in domestic residual fuel oil yield and production lies in the by-product nature of this product. It consists of the "bottom of the barrel" of refined crude oil, that is the viscous residue left after gasoline, kerosene, diesel and light heating oils have been distilled off. Its output is therefore determined by the requirements for the higher-value products and its price is set without reference to raw material and processing costs. This has made residual fuel oil an unprofitable by-product commodity, selling consistently below the cost of the crude oil from which it is processed. Hence, domestic refiners have no incentive to produce it above inevitable minimum quantities and indeed, prefer to install costly equipment designed to improve the yield of the higher-value products and reduce that of residual oil. This process must be expected to continue.

In the inland areas of the U. S. the growing gap between supply and demand is filled largely by gas or coal. On the East Coast, it is made up of imports from the Caribbean whose export refineries are geared to the use of heavy, low-cost crude oil of which Venezuela has the world's largest supply and which yields a much higher percentage of residual oil than most U. S. crudes.

Consequently, the East Coast is heavily dependent on imported residual fuel oil for its over-all needs of this product. In 1960

nearly 60 per cent of all residual fuel oils consumed between Maine and Florida came from abroad, compared to only 42 per cent in 1950. From Washington, D. C. on north, foreign residual oil accounts for 70 per cent of total consumption and in New England alone, it provides over 80 per cent of supplies. Clearly then, the East Coast's normal economic supply source for residual fuel oil lies in the Caribbean area and not in the U. S.

Imports and Domestic Competition

Imported residual fuel oil does not compete with any domestic oil product. For, as we have seen, the decline in the domestic production of this commodity continues quite independently of the demand for it. And since residual fuel oil - foreign or domestic - does not compete with any other oil product, imports evidently do not displace domestic crude or refined oil. They do compete, to some extent, with domestic natural gas. But natural gas has been, and still is, growing at such a dynamic rate that it obviously cannot claim government protection against competing fuels.

The only real issue is, therefore, the degree of competition between imported residual fuel oil and domestic coal. Competition does exist and, undoubtedly, the absence of residual oil imports would bring some advantage to coal marketers. But, in the first place, this advantage would be confined entirely to the East Coast, since foreign residual fuel oil cannot economically be transported inland, except by water way. Hence the decline in inland residual fuel oil production has benefited coal which has retained 84 per cent of the inland utility fuel market while oil contributes only one per cent.

On the East Coast we have seen that the total quantity of residual fuel oil sold to consumers who also have coal burning

facilities amounts to about 110,000 barrels daily, equivalent to some 10,000,000 tons of coal per year. Since imports account for 60 per cent of East Coast residual fuel oil consumption, their share of this quantity is 6,000,000 tons. This is the maximum amount of imported oil that can be displaced by domestic coal without forcing consumers to undergo expensive and unwarranted heating equipment conversions. Actually, the real displacement would be still lower, since a number of consumers would undoubtedly switch to gas for some of their needs. But even 6,000,000 tons of coal represent only 1.5 per cent of total annual U. S. coal production. They could be produced by the currently employed mine labor force in less than three working days.

Another way to judge the real impact of imported residual oil on domestic coal sales at the East Coast is this: Total residual fuel oil imports for domestic consumption for all purposes (including non-coal-competitive uses) rose by the equivalent of 24 million coal-tons between 1950 and 1959. Yet during this same period, U. S. coal production declined by 99 million tons. It is clear therefore that the decline in coal production is due primarily to factors unconnected with fuel oil imports.

It is important to nail these magnitudes down because total licensed residual fuel oil imports in 1960 were equal to about 40,000,000 tons of coal in heat content. But only a small part of that quantity currently goes to consumers who have coal burning facilities. Of course, sufficiently stringent import restrictions might well force some other consumers to install coal burning facilities in their plants. But this would increase their operating and amortization costs and

thus the price of their products. This would be particularly burdensome to the millions of customers of electric utilities. Imports restrictions have already caused the barge price of residual fuel oil in New York to rise from a low posted quotation of $2.37 per barrel in February 1959 to $2.62 in February 1961.

Residual Fuel Oil Imports and National Security

If there is no economic justification for restricting fuel oil imports, there still remains the vital question of whether such restrictions are desirable in the interest of national security. The government has never specifically addressed itself to this question but has always treated the importation of residual fuel oil as part of the crude oil imports problem which it is not.

While we certainly recognize that national security involves considerations above and beyond our sphere of knowledge and judgment, we believe some pertinent factors can be pointed out. The most important of these is the high degree of the East Coast's dependence on Venezuela as a supply source. This dependence cannot be denied but the record shows that in the thirty years in which the Caribbean Republic has been an important exporter to the U. S., there has never been any interruption in the inflow of this commodity attributable to Venezuela.

However, if Venezuelan fuel oil should for any reason, short of a major war, be contemporarily unavailable to us, several steps could be taken to avoid a serious fuel oil shortage on the East Coast.

1. Supplies from other foreign sources, which in 1959 provided 93,000 barrels daily, could probably be expanded.

2. International bunker trade which currently consumes about 90,000 barrels daily at the East Coast could be rerouted to bunkering ports elsewhere.

3. The large export refineries in the Netherlands West Indies could probably be partly run on non-Venezuelan crude oil.

4. All East Coast consumers with multiple burning facilities could switch to coal or gas.

5. Additional residual fuel oil could be brought in from the West Coast, though only at a higher price.

6. In a real major emergency, the Government could order domestic refiners to raise their output of residual fuel oil and reduce production of certain higher-value products. This would, of course be quite uneconomical but it is entirely feasible technologically.

Coal's Future

In conclusion, we would like to say a word about the future of the U. S. coal industry. According to several independent studies, coal sales are expected to rise in line with the projected growth in electric power production. Resources for the Future, Inc., an independent research group, forecasts total bituminous coal sales of 754,000,000 tons by 1975, an 82 per cent increase over 1960. Coal is also likely to regain some of its lost markets via the power station. "Coal-by-wire" already heats several hundred thousand modern homes and is beginning to give natural gas stiff competition.

Most residual fuel oil forecasts are less optimistic. Resources for the Future, Inc. projects a 64 per cent increase by 1975 but other analysts are much less sanguine. Thus, John J. Winger, petroleum economist for the Chase Manhattan Bank recently stated that "almost 80 per cent of the residual fuel oil market, in terms of volume, is in a phase of decline....there are no obvious reasons for expecting any significant growth for the next few years. Indeed, as more gas becomes available to the East and West Coasts, residual demands may decline."

If the supply of imported residual fuel oil continues to be curtailed below its natural economic level, the dire process predicted by Mr. Winger will only be speeded up. We cannot believe that it is the Government's intention to do this.