OPEC AS EXPORT REFINERS

BY

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For most lesser-developed oil exporting countries one measure of industrial progress is the transition from the relatively simple technological stage of raw material production to the more complex one of processing their raw material. There are social as well as economic benefits in such a vertical integration into the refining sector. It creates jobs, mostly of a skilled and technical nature; it opens up the possibility for satellite industrial operations at a later stage; and it enables the exporting country to capture for itself the value added in the upgrading of its crude oil, thereby potentially increasing its export earnings.

The principal economic rationale for OPEC countries to move into export refining, or expanding existing refining capacity, is of course the local availability of ample crude oil supplies. An additional attraction is the existence of associated natural gas, much of which is still being flared because of insufficient local markets. Its use as a fuel and raw material gives a resource country refinery a comparative cost advantage over one located in an importing country. Still another comparative advantage lies in the fact that environmental constraints and regulations affecting new refineries are generally much less stringent and, hence, less costly, in the oil exporting countries than in many industrial oil-importing countries. (These two advantages must, however, be weighed against the comparative disadvantage of higher capital costs in the resource countries and differential tanker transportation rates).
But irrespective of relative locational advantages or disadvantages, exporting oil products is a very different business from exporting crude oil. Crude oil is where you find it and the bulk of it has been found in the OPEC countries. Refineries are where you put them and most have been put in the consuming countries or nearby. Thus, unlike crude oil, there are established local alternatives to the importation of products in most oil importing countries. Any significant switch from crude to products shipments by the oil exporting countries contains therefore the seeds of an economic conflict, since it could pit the vested interests of domestic refiners against those of foreign competitors, a very common problem in international trade. At the moment, the possibility of such a conflict is still largely academic. OPEC's refining capacity has actually grown very little in the last several years: by about 600,000 b/d, or 14%, between the end of 1973 and the end of 1977, according to published data. This is less than the increase in OPEC's domestic demand during this period. Thus, excluding Venezuela (OPEC's only major export refiner), OPEC's products exports are equal to only about 5% of its crude exports. Including Venezuela, the figure would rise to 7.5%.

But the present situation may undergo substantial changes over the next 5-7 years. Currently about 2 million b/d of new or
expanded refining capacity is under construction in the OPEC countries and plans have been announced for another 1.5 million b/d to be ready by 1985 or before, mostly in the Middle East and Africa. Much of the capacity under construction will eventually be needed to meet growing internal demand and some of the planned capacity will probably be postponed or cancelled.

But OPEC has substantial excess refining capacity at present. Hence, if all the projects under construction and the majority of those in the planning stage are actually carried out, it would undoubtedly raise the organization's collective products export capability significantly between 1978 and 1985.

The problem is that OPEC's expansion plans coincide with a drastic reduction in the world growth rate for petroleum products demand and with an equally drastic world surplus in refinery capacity. Non-Communist world oil demand by the end of this year will have risen by an annual average growth rate of less than 1.4% since 1973, a record low for any 5-year period since the end of World War II. Between 1978 and 1985, the growth rate is likely to be higher but it may not exceed 3% annually. This would mean an increase in oil demand of 11-12 million b/d by the latter year. About 10 million b/d of this increase could be met if all currently existing refineries were to raise their operating rate from last year's 74% of capacity to 90% by 1985.

Thus, the additional refining capacity required over the next 6-7 years to meet anticipated world oil demand growth is not large. How much of it will come from OPEC sources depends mainly on the
policies of the principal products-importing areas. These are the U.S., Western Europe and Japan, in that order of magnitude. Together they accounted for nearly three-quarters of total gross world oil products imports last year.

Let us first look at Europe. It is a matter of general knowledge that Europe has, by far, the largest excess refining capacity of the three areas. Last year its plants operated at less than 64% of capacity; this year's is slightly higher. At an expected demand growth rate of about 1.5%, Western Europe's refineries will still operate below 75% of capacity by 1985, even if no capacity additions are made after 1980. Thus, Europe's self interest lies in shutting down some existing capacity in order to reduce its surplus, not in expanding its products imports.

Accordingly, if there is to be any increase in OPEC products shipments to Europe it would likely have to be based on political rather than economic considerations. Such a development is, in fact, entirely possible. But it would have to be on a modest, controlled basis to be acceptable to European refiners and governments.

Japan's refining capacity utilization of about 80% last year was of course much higher than either Europe's or OPEC's. Japanese oil demand may grow at about 3.5% per year between 1978 and 1985, an increase of about 1.5 million b/d. The Japanese government has historically encouraged the importation of crude rather than products and apparently intends to continue this policy.
Last year it lifted all earlier restrictions on refinery capacity expansion and now appears to be encouraging the construction of new capacity. As a result, more than a million b/d of additional capacity is likely to be on stream by the early 1980's. Thus, OPEC's chances of increasing its refined products sales to Japan would appear to be very limited.

The U.S. had the highest refinery utilization of any major country or area last year -- 87% of capacity. The reason was of course that the U.S. government has been subsidizing its domestic refining industry for the past four years by giving it access to domestic crude oil whose price is kept by federal law substantially below the world price level. As a result, U.S. refiners have a substantially lower crude cost than their foreign competitors and have therefore expanded their market share at the expense of imports. Under existing as well as proposed legislation this advantage is supposed to end within the next 2-3 years when domestic crude oil costs to refiners are expected to move to world levels. When that happens U.S. refiners will either require a different form of import protection or foreign suppliers will be able to cut into their market. Furthermore, since most existing U.S. plants will run close to sustainable capacity within a year or so, even the foreseen very modest growth rate of around 1.5% annually in U.S. oil demand between 1978 and 1985 -- an increase of 2.3 million b/d -- can only be met by building additional domestic refining capacity.
or by increasing products imports or a combination of both.

The U.S. government has extended some form of import protection, except for residual fuel oil, to U.S. refiners for the past twenty years. The present Administration has in principle endorsed this position and has also expressed interest in providing incentives for the construction of new U.S. refining capacity. Even if such a policy were to be fully implemented simultaneously with the phasing out of the cost advantage for U.S. refiners, products imports would probably still have to increase by some 11-12% by 1980 from last year's 2.2 million b/d to meet anticipated U.S. demand. However, a large part of the increase would come from existing Venezuelan and Caribbean export refineries, all of which are presently substantially underutilized. Thus, the new OPEC plants currently under construction would not directly benefit from this increase in imports. However, higher U.S. imports from the Caribbean would reduce Caribbean exports to Europe and, thus, may indirectly help OPEC exports from Africa or the Middle East.

Increases in U.S. products imports beyond 1980-1981 would depend entirely on U.S. policy. In the absence of rather substantial additional protection, products imports could make a severe dent in the more than 1 million b/d of tanker shipments from the U.S. Gulf Coast to the U.S. East Coast because of the relatively high U.S. freight cost. However, here again, the bulk of the additional imports would come from existing Caribbean refineries. It may be
worth pointing out parenthetically that independent of U.S. refinery expansion policy, importation of one type of product from OPEC sources, liquid petroleum gas (LPG), is expected to increase substantially. The same is true for Japan and Western Europe. OPEC's LPG is of course produced largely at gas processing plants and not at oil refineries. But it competes directly with refined products. Hence, the rise in LPG imports will reduce the need for refined products imports.

There is still one other market for OPEC products exports, the oil importing developing countries in Africa, Southeast Asia and Latin America. Their volume of demand is still low, about 5 million b/d, and the market is thinly spread all over the globe, sometimes making the supply economics relatively unattractive. But its growth rate is much faster than that of the industrial countries. While most of the developing importing countries have some domestic refining capacity, few are self-sufficient in refined products. The oil importing developing countries may therefore represent an important potential future outlet for OPEC products exports, provided these countries do not continue to build new or additional local refining capacity as part of their own industrialization program.

In the face of all these potential obstacles OPEC refiners may at some time consider promoting the exportation of products. They could of course do this simply by billing their export refineries below the official sales prices for their crude oil.
This would obviously enhance the international competitiveness of these refineries. But from the National Account point of view it would reduce the return on the investment in these plants. Furthermore, it would tend to undermine OPEC's collective crude oil price agreement to which all members have so far adhered more rigorously than many of their customers had expected them to.

A variation of this approach could be the tying of products sales to crude oil sales, a not unfamiliar practice in the international oil business. However, it, too, would tend to render adherence to OPEC's price structure more difficult. For under such an arrangement the published value of a given type of crude would differ from the real value by the volume, type and quality of products a buyer might be required to purchase along with it. Furthermore, the practice could only succeed on a significant scale in a period of tight crude oil supplies. For a number of years to come this is unlikely even under pessimistic world supply/demand assumptions.

Another possibility open to some existing and potential OPEC export refiners might be partial processing in the form of desulfurization of high sulfur (sour) crude oil. Many refineries in the United States, are designed to process low sulfur (sweet) crude oil only. In the long run, however, the supply of this type of crude is expected to be insufficient to meet the
growing demand for it. Thus, either the producer-exporters or the refiner-importers of sour crude must eventually build facilities for desulfurization. Since the cost of this process is significantly affected by the price of hydrogen, the availability of low cost natural gas in the exporting country for the purpose of hydrogenation might make it more economical to build the necessary equipment there than in the importing country.

Exportation of treated crude oil would also permit the continued use of supertankers (VLCC's), where applicable. Refined products exports, by contrast, are generally limited to smaller vessels with resulting higher freight rates. It may be worth noting in this connection that over the next 6-7 years VLCC rates are expected to remain depressed while rates for smaller vessels will rise.

Altogether, then, while it is logical for OPEC crude oil producers to want to expand their export refinery operations, their plans coincide with a widespread long term excess in refining capacity and a global structural decline in the demand growth rate of refined products. This is likely to make products exportation a very different venture than exporting crude oil.