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U.S. OIL REQUIREMENTS IN THE 1980'S

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BY

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You may wonder why a panel which is supposed to discuss oil supply and demand on a global scale includes a paper dealing with just one country. The justification is the size of that country's oil requirements. The U.S. contains the largest oil market of any country, is the world's largest oil importer and refiner and the third largest oil producer. Last year the U.S. accounted for one third of the non-Communist world's oil consumption and was the recipient of one-fifth of all oil exports. So, whatever happens in the U.S. oil market must be of interest to the rest of the world since it is likely to have a global impact.

This has certainly been the case in the past. One still remembers the 42%, or 2.5 million B/D, increase in net U.S. oil imports between 1973 and 1977 and its impact on world oil supplies. The increase was several times larger than that in world oil supplies during this period and was only possible because most other major oil importing countries had reduced their imports below the 1973 level. It was not surprising that these countries were deeply concerned about a continuation even for a short time of the prevailing U.S. oil import trend.

Well, as we know now, the trend did not continue but reversed itself in 1978. Net U.S. oil imports (exclusive of the volumes brought in by the Government to fill the Strategic Petroleum Reserve) have declined in every year since then. This year they will probably amount to about 5.4 million B/D which would be the

lowest level since 1972 and represent a 3 million B/D drop from the 1977 peak. Let us briefly analyze how we got to this level and then speculate on where we might be by the middle and end of the current decade.

The principal reason for the increase in oil imports up to 1977 was the decline in domestic crude oil and natural gas production during this period, due primarily to physical resource constraints which could only be offset in the short run through increased oil imports. Another reason was U.S. legislation which permitted most domestic crude oil prices to increase only gradually to the world price level between 1973 and 1981, thereby encouraging a higher level of consumption than would otherwise have been the case, particularly in the earlier years of this period.

The decline in oil imports after 1977 came about for the following reasons:

(1) Despite the legislative attempt to protect U.S. consumers from foreign oil price increases, composite crude oil prices rose by 135% between the end of 1977 and the end of 1980. Largely as a result, oil consumption during this period dropped by 1.5 million B/D.

(2) After 1977 considerable substitution of oil by other energy sources took place so that oil's share in total U.S. energy consumption dropped from 49% in 1977 to 45% last year and is likely to drop to 42% this year. Coal and atomic energy were the principal

substitutes during this period. Coal's contribution to U.S. primary energy consumption will have grown from the equivalent of 37% of oil's contribution in 1977 to probably more than half in 1981, while atomic energy's contribution which was equal to 7% of oil's in 1977 may be close to 9% this year. A much smaller but rapidly growing oil substitute is wood. In New England, for instance, it has been estimated that the amount of wood burned as fuel in 1980 was equivalent to 67,000 B/D of oil and contributed 4.6% to the region's total energy supply. In 1973 the region's wood fuel consumption was too small to be measured. The share of natural gas in U.S. energy supply has also increased since 1977 but only very modestly, due in part to legislative and regulatory obstacles to the sale of natural gas which have caused some of this fuel to be shut in.

(3) The last major reason for the decline in oil imports since 1977 has been the increase in domestic oil production. For the first three years of this period this was due entirely to the production from the North Slope of Alaska which started in 1977. As a result of the growth in North Slope oil production total U.S. production last year was nearly half a million B/D higher than in 1976, despite a steady decline in output in the rest of the country. Alaska's production levelled off last year at 1.6 million B/D. However, there are now encouraging indications that the production decline in the lower 48 states which began about 10 years ago may be levelling off, at least temporarily. This change owes much to price

decontrol of newly produced oil in June 1979. Also, the "Windfall Profit" Tax on new domestic crude oil production was set at a relatively low rate in the legislation passed in April 1980 and has been further reduced in the tax legislation passed last August. The dramatic increase in drilling activity after June 1977 was undoubtedly the principal reason for the reduction in the annual production decline from the 300,000 B/D rate which had prevailed throughout most of the 1970's to about 75,000 B/D since price decontrol of new oil. In the latest three month period, June-August 1981, production in the lower 48 states actually increased in each month, both relative to last year and to the previous month, something that has not been recorded since the beginning of the 1970's. Thus, total domestic crude oil production this year is likely to be fractionally ahead of 1980 despite the levelling off in Alaskan production.

Considering all these factors, I think the U.S. has an impressive record in oil import reduction over the last four years. So have most other major oil importers. The principal factor in the import decline has of course been the increase in world oil prices. Evidence of its effect on oil conservation and substitution abounds throughout the U.S. economy. Average miles per gallon of motor fuel for passenger cars rose from about 13 in 1973 to at least 15 in 1981, with an improvement registered in every year; the share of newly built one-family homes heated with oil declined from 10% to 3% between 1973 and 1980, with the sharpest decline occurring in the

latest year; the share of electric power generated by oil has declined from 17% in 1973 to under 10% this year, with nearly all the reduction taking place since 1977; the volume of total energy used in industrial production in 1980 was virtually unchanged from 1973 while industrial production itself was 13% higher.

From the point of view of oil substitution and energy conservation these data tell a success story. But, like most successes, it was achieved at a price. The price was higher inflation, lower economic growth and more unemployment than the U.S. would have had if oil prices had not risen in real terms. According to a recent study by the Dept. of Energy, without the direct and indirect effect of the oil price increase the annual inflation rate of U.S. consumer prices would have averaged around 7% instead of the actual 9.2% during the 1973-80 period. The same study estimates that the GNP (in constant 1972 dollars) was reduced by an annual average of \$47-57 billion, or 3.5% to 4.0%, between 1974 and 1980, as a consequence of the real increase in oil prices, and that resulting employment losses averaged 1-2 million jobs annually. These figures show that the oil price increases were a significant factor in the general economic deterioration between the 1973-80 period and the previous seven years. However, the figures also show that the oil price increases were not the sole, or even principal reasons for this deterioration.

What trends in U.S. supply and demand can we expect for the remainder of the 1980's? Next year, we expect the U.S. economy to operate at a modestly higher rate than this year. The real GNP may grow by 2.5%-3.0% against a likely 1.5%-2.0% this year. This should cause total U.S. energy consumption to increase slightly in 1982, following this year's drop. Oil demand will probably also increase modestly, particularly if the real price should decline somewhat, as now seems likely. We project a possible growth of 1.0-1.5%, to 16.4-16.5 million B/D in 1982, reversing a 3-year trend of declining demand. Assuming no change in domestic crude production next year, the demand increase will cause net imports for commercial requirements to rise by about 500,000 B/D, due to inventory adjustments. Including the SPR, net U.S. oil imports are likely to be up by only 300,000 B/D because government imports for the Strategic Petroleum Reserve (SPR) will probably be about half this year's 325,000 B/D, due to temporary underground storage limitations. While this is good news for other oil importers, I think a somewhat higher level of imports next year for the purpose of accelerating our SPR fill-rate would be even better news from the point of view of national and international security.

Now let us look ahead to 1985. Interestingly, our demand projection for that year is not significantly different from the 16.4-16.5 million B/D figure of 1982. We see two opposing forces putting pressure on demand between 1982 and 1985, one upward, one downward. The upward pressure will be generated by the assumed

absence of a real oil price increase. This would let oil demand rise along with general economic growth, albeit at a relatively lower rate. The downward pressure will come from the historic momentum of oil conservation and substitution which will continue through the first half of the 1980's even without the stimulus of further real price increases. Throughout this period ample supplies of steam coal below the cost of fuel oil will be available, a substantial number of nuclear power plants will be completed, while natural gas which we expect to be fully decontrolled by then, will be available at least in the same volume as today. At the same time, the average fuel efficiency of U.S. automobiles will continue to increase every year.

Regarding domestic crude oil production, there is not yet enough hard evidence that the decline of the last 10 years has been permanently reversed or even halted. But there is convincing evidence that the decline rate has been significantly slowed. By 1985 we expect crude oil production to be 350,000 B/D-400,000 B/D below this year's 8.6 million B/D level. Required net commercial imports would then amount to about 6.2-6.3 million B/D or nearly a million B/D more than this year's volume. The SPR fill, which under the existing schedule will still be underway in 1985, may add another 250,000 B/D to the import level.

Thus, the U.S. import decline which started in 1978 will probably come to an end this year, at least for the first half of the 1980's. But the increase in imports will be of relatively moderate proportions. Under almost any reasonable assumption, the



U.S. import level in the first half of the 1980's will be substantially below that of the second half of the 1970's.

Turning to 1990, rather than present a specific figure for U.S. oil demand and imports in that year I would like to offer some speculation on possible trends. Most current forecasts for 1990 are still based on the assumption of a modest but steady increase in the real price of oil throughout the 1980's. As you know, the compound effect of even a small annual growth rate becomes quite large over time. Thus, almost any real annual price increase can be expected to depress demand significantly over a 10-year period. But suppose there is no real price increase over that period or there is actually a slight decline in the real price. A year ago few people in the forecasting business would have advanced such a proposition as a serious possibility. Today, almost everybody is questioning the direction in which real world oil prices will go in the 1980's. Over the next 5-6 years a modest reversal in the price trend would not change U.S. demand projections very much because of the aforementioned built-in momentum in oil conservation and fuel substitution. But beyond that period the sustained absence of any real price increase or even the expectation of it could affect demand quite substantially.

The price explosions of 1973/74 and 1979/80 carried with them the seed of their own reversal. This seed is now starting to take root. The U.S. refiner acquisition cost of a composite barrel of crude is currently 9-10%, or about \$3.50/bbl, lower than six months ago. Part of this is due to the disproportionate decline in the

importation of high-price African crudes. But to a larger measure it is the result of actual domestic and foreign crude price reductions. Given the U.S.'s current underlying 9% inflation rate, the moderate drop in monetary prices represents a very substantial drop in real prices. Next year's price increase, if any, is also likely to be below the inflation rate.

All this has not gone unnoticed among energy consumers. It is beginning to influence expectations and the changed expectations are beginning to influence decisions. Here are some indications of this new attitude:

- o The U.S. automobile industry has recently been reported in the press as considering to emphasize "performance" over "fuel efficiency" in future models, partly because of the expectation that the big increase in gasoline prices is over for the foreseeable future.

- o Synthetic fuels projects are beginning to be scaled back, postponed or cancelled. Part of the reason is the present Administration's stated belief that these projects should be built by private industry, which would carry all the attendant risks. Only the existence of legislation sponsored by the previous Administration has prevented this new approach from being fully implemented. But the intention to do so is certainly there. At the same time, potential synfuels producers who were greatly encouraged when the price of the type of crude with which they will compete rose to above \$40/bbl early this year, were concerned and surprised when it dropped back towards \$35 later on. Such a

development was not part of their scenario. As a result, many are rescrutinizing their synfuel economics under the new assumption that oil prices can also move down. The new price uncertainty, together with the current record cost of money, is likely to reduce the contribution from synfuels (both oil and gas) radically from the 1.0-1.5 million B/D equivalent predicted in some respected forecasts last year.

o A similar fate may well await the giant Alaskan gas pipeline project. Without some form of government support, which now seems rather unlikely, this project which would deliver 1.3 trillion cubic feet annually by the late 1980's may not be built, given present world oil price expectations and the prospect that complete gas decontrol will eliminate the possibility of rolling-in high cost Alaskan gas.

The business community has of course no choice but to take the appropriate actions to protect its investments and earnings. But could their and the Administration's actions carry with them the seed for another sharp real oil price increase in the late 1980's? I submit that while such a course is by no means inevitable nor even the most likely, given the profound structural changes in the U.S. energy sector and the world oil market, it cannot be dismissed as an unrealistic possibility. This is why forecasting a supply and demand balance for 1990 is more difficult today than a year ago when the direction of the oil price trajectory for the 1980's was accepted as a matter of faith.