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For the past few months there has been more public discussion about an impending energy crisis, future oil shortages and soaring oil prices than at any time since the oil price crisis of 1979/80. Yet, obviously there is no visible energy crisis on the horizon. The historic price collapse which began in January 1986 is now in its second year and while current prices are well above their nadir of mid-1986, they are still way below the 1985 level. In fact, in nominal dollars prices are currently no higher than they were in the spring of 1979, just before the second oil price revolution went into full speed; in real inflation-adjusted dollars they are no higher than at the end of 1973. Meanwhile, the readily available world oil surplus still amounts to at least 11 million B/D, even with the production constraints imposed by the Iran-Iraq war. And while world oil demand did rise significantly in 1986 in response to the price collapse, no perceptible further increase is expected this year notwithstanding the continuing low price level. Meanwhile on the supply side, only U.S. production seems to have been affected by the price drop. Other non-OPEC oil supplies actually rose slightly in 1986 and are expected to do so again this year.

Then why the increasingly alarming statements about a new energy crisis from Washington, Dallas, and the executive offices of quite a few oil companies? In part, the answer lies in the basic economic fact that what's good for the consumer may be bad for the producer. The U.S. oil producing industry and the industry which services it are indeed in serious trouble as a

result of the 1986 price collapse. At current prices domestic producers can not and will not drill enough wells to come near to replace their depleting oil and gas reserves.

Thus, absent a substantial sustained increase in foreign oil prices in the near future, the commercial resource base of the American oil and gas industry will shrink inexorably and probably quite rapidly. No new public policy could arrest this decline. But the industry believes that some Administrative or legislative support measures could slow down the decline, perhaps considerably so. There is much debate within the industry over what form this support should take. But there is general agreement that some public action is required. Like all special interests seeking public support, the oil industry must formulate its case in terms of the national interest to receive a serious hearing. The reason it is beginning to get attention is that it apparently has a potentially valid case, not in the near term but in the post-1990 period.

In other words, it is quite plausible, though not inevitable, that during the 1990's the U.S. and the rest of world's dependence on OPEC oil will once again rise to the level where OPEC can temporarily dictate oil prices at will. The organization succeeded twice in using temporary price explosions, caused by brief extraneous supply disruptions, to maintain oil prices for extended periods vastly above their free market value. Thus the argument goes -- and must be taken

that history repeats itself, that the 1990's will essentially resemble the 1970's and that none of the major players on the supply or demand side has learned a lesson from the past.

The strongest point underlying the present Cassandra warnings about the looming energy crisis is the almost inevitable return to the Middle East for incremental world oil supplies from about 1990 on. How rapidly this return will take place depends primarily on the future price of oil as well as the present perception of the future price. The lower the price or the price perception, the faster it will occur and vice versa. But at any realistic price assumption the share of Middle East oil supplying the world's import markets will grow significantly from now on through the 1990's. This should not come as a surprise. Total Middle East oil production dropped from 22.5 million B/D in 1977 to 10.9 million B/D in 1985, thereby absorbing the bulk of the global decline in oil demand as well as the increase in non-OPEC supply throughout that period.

Now that world demand is starting to rise again and total non-OPEC supplies are likely to level off within 4-5 years, the Middle East inevitably will provide the bulk of the required growth in supplies. Given its practically unlimited existing and potential productive capacity it can remain the world's incremental oil supplier for a very long time.

How fast this return to the Middle East will take place is illustrated in the new DOE study, Energy Security. The study projects that under its low price scenario which assumes a real price (in 1985\$) of \$22 for 1995, compared to an actual price of

\$27 in 1985, total Middle East production will amount to 23 million B/D in 1995. Under any higher price it will be lower. The 23 million B/D level would be about the same as in 1977 which was still somewhat below the then sustainable productive capacity. By 1995 this capacity could easily be higher if the region's producers want it. Thus, resource availability will not pose a problem for world oil supplies by the mid-1990's nor probably by the end of the century.

However, once the Middle East has reestablished its position as the world's incremental producer with control over virtually all actual and potential spare capacity, its exporters would collectively be in a position by the mid-1990's to raise prices temporarily almost at will if they so choose. In a rising market the marginal supplier has this power.

Whether these exporters will actually do so is of course the \$64 billion question. If they take a long-term rational approach, based on their current 100-year reserve/production ratio, in planning their revenue optimization, they will not let prices rise to the point of depressing world consumption once again and stimulating high cost oil and other energy production, particularly since such production will continue once the investment has been made, even if prices decline again. Thus the short term gains of monopolistic price maximization could well be more than offset by medium to long term market losses. This was certainly the case in the past.

How successful the Middle East countries will be in this rational economic approach depends to a significant extent on political and strategic factors and considerations that have

little to do with the economics of oil. In other words, the very low cost and superabundance of Middle East oil may not be the principal future determinants in setting its price, just as they were not in the past.

How will the U.S. oil industry fare under these conditions? U.S. crude production will of course decline for the foreseeable future. Last year's level of 8.67 million B/D crude production represented a year-to-year drop of 300,000 B/D from 1985 (but a much larger drop from the beginning to the end of 1986). This year's annual decline will be approximately of the same order of magnitude. And with North Slope production entering its foreseen terminal decline phase within one or two years, the downward trend in U.S. crude production will continue for the next 9-10 years almost independent of the level and luck of exploration activities.

The new DOE report illustrates this. Even under its High Price Case in which the nominal price of oil in 1990 is approximately back to the actual \$27 price of 1985, U.S. production in 1990 will be almost 1 million B/D below the 1985 level. By 1995 when the High Case projects the real (1985\$) price at \$28, production is expected to be down an additional 1.2 million B/D. Yet, clearly, the DOE's High Case in which the price rises significantly faster than inflation throughout the period would be considered very acceptable, even desirable, by the industry after last year's encounter with a \$14 level. An added positive factor is the substantial reduction in drilling and leasing cost since 1985 which makes a comparable price more attractive for investment purposes than it was then.

What all this suggests is that the potential for future conventional crude production is quite limited in the U.S. and only up to a point sensitive to higher prices. Importantly, this is probably less true for domestic natural gas production whose reserve/production ratio in the lower-48 area is significantly higher than that of crude oil and could be readily increased, absent the existing gas delivery surplus. Thus, higher prices may do more to stimulate gas production than oil production.

The likely limited upward price sensitivity of oil production is probably not a mirror image of its downward price sensitivity. For instance, if the delivered cost of domestic crudes were to decline to last summer's low of about \$11 and remain there for a number of years, most exploratory oil and gas drilling would cease, given the fact that direct domestic finding and development costs are in the \$12-15 range. Development drilling would also drop sharply from the already very low level of 1986 as would flowing stripper well production. The result would be the phase-out of much of the domestic producing industry and its ancillary service industry over this period.

Technically and physically a price decline of such magnitude and duration is entirely possible. There is enough readily available or developable oil in the world to meet all requirements at a positive cash flow at this price for 4-5 years, perhaps longer. Of course, such a scenario could only come about if OPEC were to collapse totally and its members then engaged in maximum competition with each other and if no reconstitution of the organization in any form became possible for this period. In other words, prices would have to be determined in a fully

competitive, totally free, unfettered market. This is highly unlikely, given the overwhelming economic and political self-interest of all oil exporters to prevent it or, if it should happen, to quickly reverse it. But those who argue persistently for a truly free world oil market must, or should, have this scenario in mind.

Now let us move away from these hypothetical speculations to the more realistic scenarios of the new DOE Report. If we take the mid-point between the DOE's Low and High price case, U.S. net commercial imports will rise from an actual 5.3 million B/D in 1986 to 6.5 million B/D in 1990 and 8.8 million B/D in 1995, with U.S. net commercial import dependency rising from last year's 33% to 40% in 1990 and 52% in 1995.

As pointed out, the physical availability of this import volume by 1995, or more if needed, is not in question, assuming the DOE's mid-price level. Purely economically, the geographic sources of these imports are of limited importance to the U.S. The reason is that oil is a fungible commodity, that is, oils from various sources are largely interchangeable and oil prices are generally inter-related and competitive. Thus, any price change initiated by one major exporter is either transmitted to all others or is unlikely to be sustained. However, there are political-strategic implications to certain foreign oil dependencies. The most obvious is of course the Middle East. In 1985 Middle East oil accounted for 7% of total net U.S. crude and products imports. Last year it had risen to 17%. It probably won't rise further this year, since the net-back price incentive

to import Saudi crude ended this February. However, as non-OPEC production starts leveling off in the post-1990 period while U.S. and other import requirements increase, the incremental supply has to come from OPEC and within OPEC primarily from the Middle East. Thus, it is not unreasonable to assume that the bulk of the DOE's "average" projected 2.5 million B/D import increase between 1990 and 1995 (the mid-point of the high and low cases) will come from that region. This could raise the Middle East's share to 25-30% of total net imports by 1995.

These developments will of course raise the U.S.'s long term dependency on foreign oil and at the same time create a higher risk of short term foreign disruptions. It is important to keep these two concepts apart, since they are essentially different and require different policy responses.

A disruption which is temporary in nature can occur at any moment or may never happen again. For the foreseeable future a disruption could only have a serious affect on world oil supplies if it occurred in the Middle East. The reason is the region's excess producing capacity. Currently it accounts for 68-70% of OPEC's total excess producing capacity. By the mid-1990's it is likely to exceed 90%. Thus, if export supplies outside the Middle East became unavailable at any time they could be readily offset by drawing on the Middle East's excess capacity. On the other hand, if Middle East supplies became unavailable so would the region's excess capacity. Which means the importing countries would then have to deal with the disruption directly.

They can do so through various readily accessible and pre-tested emergency measures. The most important of these is the

Strategic Petroleum Reserve in the U.S. and similar non-commercial reserves in all other industrial countries. Clearly, our increasing level of imports requires a more rapid fill rate of the Reserve than the 35,000 B/D allotted by the Administration in its proposed new budget. Energy Secretary Herrington's recent recommendation to raise the fill rate to 100,000 B/D represents a much more realistic target. It would also be desirable to test the physical and commercial delivery system of the SPR more frequently under simulated disruption conditions to ascertain their efficiency, analogous to military combat maneuvers. Furthermore, the long existing proposal to store some oil in the form of finished products should be reexamined in the light of current and projected developments. An oil shortage, due to unexpected extraneous events, is likely to start at the consumer end with panic buying and hoarding. Thus, a modest volume of finished products ready to put on the market could constitute a valuable first countermeasure against this type of consumer reaction.

The long-term growth in U.S. dependency on foreign oil is inevitable, as has been pointed out. However, the rate of this growth can be affected positively or negatively through government action or inaction. The pros and cons of these policies have been widely discussed recently in a variety of reports, papers and hearings. So, I will not take your time to re-examine them. I would just like to touch on a few. The government's most negative existing policy in this area is maintenance of the Windfall Profit Tax. The tax is obsolete in

concept, creates a potential disincentive to development drilling, and also reduces the cash flow for exploration that would otherwise accrue to the industry from even a modest price increase which may well occur in the near future and is certainly needed.

Regarding new governmental action, import fees and drilling tax incentives are the most widely discussed measures. There are advantages and drawbacks to both. In our view the tax measures are more efficient, less costly (for the economy) and less distorting than import fees. A related currently discussed concept is a floor price for crude oil, supported by an import fee. The question here is whether the floor price is intended to raise existing prices or to provide a safety net under them for longer term investment purposes. The first type would have the same immediate impact as an import fee. The second type would primarily assure investors in exploration projects of price stability up to a government supported minimum price. Under existing conditions the price for this purpose would presumably be at or below the prevailing market level.

The floor price concept dates back to the early days of the International Energy Agency which adopted a \$7 floor price in 1975 when the actual world price was about \$12. The price has never been adjusted. It may be time to take another look at the concept. An international floor price adopted by all or most industrial countries would clearly be a much more effective measure than one imposed by the U.S. alone and would eliminate the risk of creating a comparative disadvantage for the U.S. One may ask why oil importing countries with no significant domestic

oil or gas production would want to support any floor price rather than take advantage at all times of the lowest obtainable market price. The answer is their desire for price stability. These countries fear that excessively low prices will be followed by excessively high prices, creating a cycle of economic dislocations. Senior energy officials from Japan and some European oil importing countries have publicly viewed last year's price drop with concern and expressed their preference for a world price of at least \$20 in real terms. Their comments suggest a possible interest in a floor price concept.

In conclusion let me reiterate my basic points: public action or inaction can affect the pace but not the direction of the trend of the U.S. oil industry. Over the next ten years domestic oil demand will rise moderately to significantly, production will decline significantly to substantially, while oil imports will account for 45-60% of total supplies by 1996. Meanwhile, the OPEC Middle East countries' share of world oil production will rise throughout the period. By 1996 their output could be from less than 50% to more than 100% above last year's 11.5 million B/D.

There will be enough oil to supply the highest required volume under these supply and demand combinations. Its price will be determined less by market factors than by the cartel which controls its output. But if the cartel is to endure it must consider market factors in its pricing policy.