Research Department
Federal Reserve
Bank of
San Francisco

May 5, 1978

FRBSF Weekly Letter

GLOBAL OIL SCARCITY?

Growing production from Alaska and the North Sea, in the context of stagnant worldwide demand, has created a global surplus of crude oil in recent months. This situation probably helps explain the OPEC decision last December to leave their prices unchanged for the immediate future. But while these new production sources may dampen the demand for OPEC oil and thereby moderate the increase in world oil prices over the next few years, a seller's market for OPEC oil could again develop by the mid-1980's, according to independent studies conducted by the Organization for Economic Cooperation and Development (OECD), the U.S. Central Intelligence Agency (CIA), and the Workshop on Alternative Energy Strategies (WAES) at the Massachusetts Institute of Technology. All of these studies argue that a sharp increase in world prices for petroleum—relative to the overall U.S. inflation rate—will be required by the mid-1980's to bring supply and demand for OPEC oil into balance.

The authors of all three studies assume constant world oil prices (in 1975 dollars) over the forecast period. That is, they seek to determine what might happen to the demand and supply of oil throughout the non-Communist world if world oil prices—based on the price of light Saudi Arabian crude—were to rise in pace with the overall U.S. inflation rate over the forecast period. The authors also assume a 4-percent economic growth over the forecast period, along with the continuation of present conservation policies. (That growth rate will be somewhat below what was experienced in the decade prior to the 1973-74 world oil price upsurge).

Using this methodology, all three studies forecast "gaps" of various magnitudes by the mid or late-1980's between the amount of OPEC oil demanded by the non-Communist world and the estimated amount the OPEC cartel will be willing or able to supply for export. In addition, the CIA expects the Soviet Bloc to become a net importer of oil by 1985, widening the "gap" between total world demand for OPEC oil and available supply. Since world oil prices in actuality will rise sufficiently to balance supply and demand for OPEC oil—thereby invalidating the assumption of constant relative world oil prices—these studies suggest that world oil prices probably will have to rise sharply relative to the overall U.S. inflation rate by the mid or late-1980's to bring the demand and supply of OPEC oil into equilibrium.

Under all these assumptions, the authors of these studies expect that the world demand for OPEC oil will remain relatively constant over the 1977-80 period because of the increase in non-OPEC supplies, but will then increase in the 1980's as non-Communist world oil consumption continues to grow and non-OPEC production remains relatively stable or even declines. Indeed, they claim that because of the temporary "glut" created by Alaska

(continued on page 2)

Research Department
Federal Reserve
Bank of
San Francisco

and North Sea production, importing nations may ignore the danger of future increased reliance on insecure OPEC imports, and may fail to take the necessary steps to reduce the growth of oil consumption and accelerate the development of alternative energy resources.

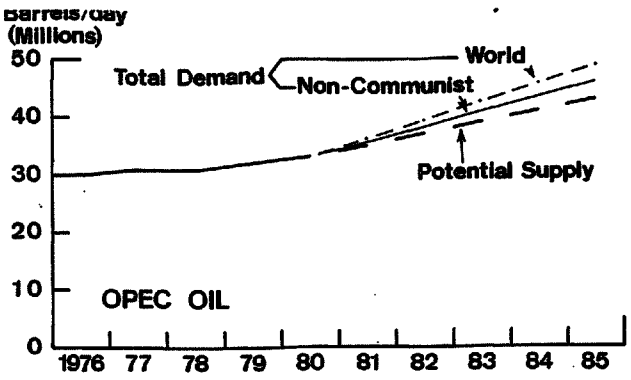
CIA and OECD findings

The CIA report, *The International Energy Situation: Outlook to 1985,* is decidedly the most pessimistic of the three energy studies. The impact of these CIA findings on the Administration's views helps account for the sense of urgency conveyed in the President's energy message a year ago, about the need for a "moral equivalent of war" to reduce the growth of U.S. energy consumption.

According to the CIA staff estimates, total non-Communist world oil demand would rise from about 50 million barrels/day in 1977 to a minimum of 68 million barrels/day by 1985, with the U.S. accounting for about one-half of that increase in demand. Meanwhile, non-OPEC (and non-Communist) oil production would rise from about 19 million barrels/day in 1977 to 22 million barrels/day by 1980—because of rising Alaskan and North Sea output—but would then level off despite increased Mexican and Egyptian production. Given those trends, the demand for OPEC oil would rise sharply, from 31 to 46 million barrels/day, over the 1980-85 period.

Meanwhile, the CIA expects non-Saudi OPEC production to remain approximately stable at around 28 million barrels/day as a result of declining reserves, so that Saudi Arabia would have to raise its production to at least 19 million barrels/day to balance world supply and demand for OPEC oil—or to 22 million barrels/day if (as the CIA expects) the Soviet Bloc turns into a net importer by 1985. This is double Saudi Arabia's present production capacity, and would require a major expansion in its present plans to expand capacity to 16 million barrels/day by the mid-1980's. Saudi Arabia has the reserves necessary to support a doubling of production, but it may not want to produce at that level because such a policy could lead to accelerated domestic inflation and rapid depletion of its oil supply.

The OECD staff in its report, *World Energy Outlook,* expects non-Communist world demand for OPEC oil to reach around 39 million barrels/day by 1985. (Unlike the CIA staff, it expects that the Soviet Bloc will meet its own requirements.) According to that study, the OPEC cartel will have the physical ability to meet that level of demand, but then as now, the margin between the rated capacity and the exporters' desired level of output may be quite large. This tendency to operate below rated capacity could produce a "close and uncertain balance" between OPEC export supplies and world demand. The OECD staff also stresses that its forecast implies a strenuous effort by non-OPEC nations to expand alternative energy sources, such as coal and nuclear power, and to stimulate more domestic oil production. The authors conclude that this effort is an "achievement that cannot be taken for granted."



Based on U.S. Central Intelligence Agency Projections, Assuming Constant World Oil Prices, 1975 dollars

Timing of downturn?

The authors of the WAES report, *Energy: Global Prospects 1985–2000,* do not expect non-Communist world production to peak for physical reasons until around 1995. Unless the Arab nations deliberately limit production—either for economic or political reasons—there would not be any impending shortfall in supplies until 1995—much later than the dates estimated by the CIA and OECD staffs. This difference in timing does not stem from different geological estimates of ultimately recoverable oil reserves, which are generally agreed to be on the order of 1.6 trillion barrels for the non-Communist world. Rather, the WAES staff is more optimistic about the extent to which new discoveries, extensions to known fields and better recovery techniques can add to proven reserves—reserves that can be mined profitably at current prices with known technology. The WAES staff warns, however, that a shortfall could develop by the early 1980's if Saudi Arabia were to limit production then to 13 million barrels/day—and a shortfall would be likely to develop by 1990 even if Saudi Arabia were willing to expand production to 25 million barrels/day by that time.

Despite this disagreement over timing, these three major studies generally agree that non-Communist world oil production will plateau and then decline sometime before the end of this century. Indeed, there are already forces in motion which strongly suggest this outcome. Between 1950 and 1970, an average of 18 billion barrels of oil were added to non-Communist reserves per year—but this figure fell to 15 billion barrels in the first half of this decade. In on-shore activities, smaller and smaller deposits are being located. While there may be a few more North Slopes remaining to be discovered, geologists are certain there are no more bonanzas similar to those in the Middle East, which contains 60 percent of the non-Communist world's total proven reserves. Offshore exploration could boost the discovery rate through the mid-1980's, but geologists believe it will fall off soon thereafter. At projected rates of growth in demand, total production thus will pass additions by the early 1980's, causing proven reserves to begin to decline. This decline will impose a physical maximum on production before the end of the century.

Consequently, on the basis of these three studies, it seems imperative that the oil-importing nations reduce the growth of oil consumption and accelerate the development of domestic alternative energy resources, in order to achieve a smooth transition from oil to other energy sources. Because of this country's importance as the non-Communist world's largest oil consumer, it must play a major role in this effort. U.S. energy policy can follow two alternative plans—permitting domestic energy prices to rise to the world oil equivalent in order to slow consumption growth and encourage domestic resource development, or mandating conservation and accelerated development by the use of the tax system, mandatory conservation or a combination of different measures. Whatever the path chosen, it is clear that there is little time to waste in developing an effective energy policy.

Yvonne Levy

FRB SF Weekly Letter

Research Department
Federal Reserve
Bank of
San Francisco

Alaska • Arizona • California • Hawaii
Idaho • Nevada • Oregon • Utah • Washington

BANKING DATA—TWELFTH FEDERAL RESERVE DISTRICT

(Dollar amounts in millions)

Selected Assets and Liabilities Large Commercial Banks	Amount Outstanding 4/19/78	Change from 4/12/78	Change from year ago Dollar	Change from year ago Percent
Loans (gross, adjusted) and investments*	109,914	+ 200	+ 14,380	+ 15.05
Loans (gross, adjusted)—total	87,409	+ 884	+ 14,735	+ 20.28
Security loans	2,183	+ 46	+ 589	+ 36.95
Commercial and industrial	26,872	+ 262	+ 3,407	+ 14.52
Real estate	29,306	+ 179	+ 6,513	+ 28.57
Consumer instalment	15,365	+ 87	+ 2,819	+ 22.47
U.S. Treasury securities	7,998	− 366	− 1,421	− 15.09
Other securities	14,507	− 318	+ 1,066	+ 7.93
Deposits (less cash items)—total*	107,428	+ 699	+ 11,984	+ 12.56
Demand deposits (adjusted)	30,950	+ 175	+ 3,365	+ 12.20
U.S. Government deposits	685	+ 327	+ 184	+ 36.73
Time deposits—total*	73,991	+ 122	+ 8,482	+ 12.95
States and political subdivisions	7,017	+ 562	+ 1,501	+ 27.21
Savings deposits	31,525	− 275	− 436	− 1.36
Other time deposits‡	32,950	− 217	+ 7,002	+ 26.98
Large negotiable CD's	14,626	− 214	+ 5,236	+ 55.76

Weekly Averages of Daily Figures	Week ended 4/19/78	Week ended 4/12/78	Comparable year-ago period
Member Bank Reserve Position			
Excess Reserves(+)/Deficiency (−)	+ 72	− 55	− 24
Borrowings	11	16	0
Net free(+)/Net borrowed (−)	+ 61	− 71	− 24
Federal Funds—Seven Large Banks			
Interbank Federal fund transactions			
Net purchases (+)/Net sales(−)	+ 2,268	+ 1,951	+ 142
Transactions with U.S. security dealers			
Net loans (+)/Net borrowings (−)	+ 126	+ 111	+ 283

*Includes items not shown separately. ‡Individuals, partnerships and corporations.

Editorial comments may be addressed to the editor (William Burke) or to the author. . . . Information on this and other publications can be obtained by calling or writing the Public Information Section, Federal Reserve Bank of San Francisco, P.O. Box 7702, San Francisco 94120. Phone (415) 544-2184.