Research Department
Federal Reserve
Bank of
San Francisco

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Out in the Cold?

American consumers, long accustomed to abundant supplies of low-cost power and fuels, are becoming painfully aware that the "energy crunch" long predicted for this nation is fast becoming a reality. Having just experienced the inconvenience of this summer's gasoline shortage, the public already has received notice that it may well have to cope with another winter heating-oil shortage.

Even before the Middle East conflict threatened to disrupt petroleum imports, Interior Department officials warned that an adequate supply of heating oils could not be guaranteed, and that severe cold could bring "genuine hardship." This pessimistic outlook, which extends not only to heating oil and diesel fuels but to the entire spectrum of fuels, stems from the knowledge that many factors will have to improve for the nation to have an adequate energy supply during the heating season.

Weather conditions, for example, will play a decisive role in determining the strength of demand for heating oil. Fuels will be in short supply even with normal winter temperatures; the situation could become acute with severe cold weather, either in this country or abroad. But weather is not the only possible source of trouble; the key question is the basic availability of crude oil and products, from both domestic and imported sources.

Demand: from gas to oil

The demand for distillate fuel oil—i.e., heating oils and diesel fuels—has grown at an accelerated rate during the past several years, rising at a 7½-percent annual rate during the 1970-72 period alone. Consumption has risen sharply in all uses, including such major uses as home and commercial heating and industrial processing, but the most rapid growth has occurred in diesel fuel for highway use and in distillate for electric-power generation. While small amounts of distillate have always been used as "start-up" fuels for generators, the growing importance of turbine generators in recent years has pushed electric-utility consumption up sharply, so that this market may soon surpass the industrial sector to become distillate's third largest end-user after heating and transportation.

Heating-oil consumption in recent years has been stimulated not only by the growth of the economy, but also by natural-gas shortages and the growing demand for low-sulphur fuels stimulated by new air-quality regulations. The technology for economic removal of sulphur from stack gases has not yet been developed, so that a large percentage of Eastern and Midwestern coals, traditionally used for power generation, cannot meet the strict air-quality standards imposed during the past few years. This situation has created heavy pressures on supplies of natural gas—the cleanest burning fossil fuel—and later, due to its shortage, on distillates. Since gas production will probably rise very

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little during the next year or so, gas curtailments are expected to increase, thus bolstering the demand for low-sulphur heating oils even more.

The Department of the Interior expects distillate demand to increase 10.4 percent over the year-ago figure during the October-March winter-heating season, assuming normal winter temperatures. This winter's projected increase in demand, to some 4.0 million barrels daily, is expected to emanate mainly from the industrial and electric-utility sectors, not only because of normal growth but also because of curtailed natural-gas supplies and the substitution of distillates for coal and high-sulphur residual fuel oil. Curtailment of natural-gas usage alone could add at least 130,000 barrels per day to distillate demand, and much more in the event of severe cold.

Supply: key factors

Supplies of distillate fuel will depend upon both domestic refinery production and foreign imports. Even under optimum conditions, the Interior Department expects refinery production this winter to be only about one percent higher than a year ago. Refinery capacity has increased only modestly in recent years, reflecting cost and environmental considerations as well as the impact of import quotas on oil supplies. The lifting of mandatory import quotas in April has elicited a number of announcements of new plants and expansions, but none of this new capacity will be in operation by this winter.

To achieve even this slight gain in production, domestic refineries would have to operate at almost 92 percent of crude oil capacity, equivalent to about a 97-percent rate when not only crude but unfinished oils are included. In addition, refineries would have to maintain their distillate yields at no more than 22 percent of the total so as not to jeopardize their ability to meet gasoline demand. Achievement of this operating rate will require very high levels of crude-oil imports, since domestic crude production (because of the depletion of U.S. fields) is expected to continue its downward trend from the 1970 peak.

To satisfy these conditions, perhaps 655,000 barrels per day of distillate imports may be needed to supplement domestic refinery output—about two-thirds above last winter's import level. Even before the Middle East war, industry sources expected distillate imports at best to average only about 500,000 barrels per day, and that would have left overall supply short of projected demand by at least 150,000 barrels per day—equal to about 5 percent of the nation's estimated heating-oil needs for an average winter.

Stocks of distillate at refineries are unlikely to provide much of a buffer. Inventories in mid-October stood at about 196 million barrels, slightly lower than a year-ago and about 10 percent below 1971's more normal figure. While supplies on hand are smaller than a year ago, distillate demand has grown by about 7 percent. Supplies are also low elsewhere in the distribution system. Storage tanks of the 13 deep-water terminals which handle much of the East Coast demand were only two-fifths full on October 1. According to industry sources, the tanks should have been at least 70 percent full to assure adequate cold-weather deliveries to fuel distributors.

Arab squeeze

The shortage of all petroleum products—and not simply distillates—has now been compounded by the military events of the past few weeks. Already there is strong evidence to suggest that refineries will have difficulty in obtaining enough foreign crude oil this winter to keep their plants operating at a 92-percent capacity level. The recent embargo on oil exports to this country, which the Arab states imposed in retaliation for U.S. military support of Israel, should have a significant impact upon U.S. crude oil supplies, especially if it continues after the cease-fire.

In a communique issued on October 17, the Organization of Arab Exporting Countries announced its decision to reduce production 5 percent immediately, and by an additional 5 percent each succeeding month until completion of an Israeli withdrawal. A few days later, the Arab states banned exports to the U.S. and, in a move affecting other importers, reduced all crude-oil production by 10 percent.

The Arab move also will affect U.S. imports of refined products from Europe, Canada, and elsewhere that are processed from Arab crude. Because of the worldwide strength of petroleum demand, those countries may be reluctant to reduce their own supplies to maintain exports to the American market. Even before the Arab announcement, Italy, in its concern over possible shortages, had restricted its oil-product exports—a major blow for U.S. planners who had been counting heavily on surplus Italian refining capacity to ease the U.S. heating-oil shortage.

Altogether, U.S. imports of both crude and refined products produced from Arab oil have been running at about 2 million barrels a day. Thus, close to one-third of total U.S. crude oil and product imports of 6 million barrels a day, and over one-tenth of present U.S. consumption of 17 million barrels, could be affected by the Arab moves.

Oil companies also will have to pay higher prices for Arabian crude oil—about 21 percent more as of October 17—as well as higher taxes, an increase in costs which undoubtedly will be passed on to the American consumer. The world-wide oil squeeze already has boosted U.S. crude petroleum prices 16 percent above the level of a year ago, while refined products are up by 31 percent at wholesale.

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BANKING DATA—TWELFTH FEDERAL RESERVE DISTRICT
(Dollar amounts in millions)

Selected Assets and Liabilities Large Commercial Banks	Amount Outstanding 10/10/73	Change from 10/3/73	Change from year ago Dollar	Change from year ago Percent
Loans adjusted and investments *	77,690	+2,301	+12,746	+ 19.63
Loans adjusted—total*	60,235	+2,156	+12,510	+ 26.21
Securities loans	3,329	+2,174	+ 2,158	+184.29
Commercial and industrial	20,271	− 59	+ 3,090	+ 17.98
Real estate	17,581	+ 58	+ 3,086	+ 21.29
Consumer instalment	8,777	+ 18	+ 1,382	+ 18.69
U.S. Treasury securities	5,361	+ 30	− 758	− 12.39
Other securities	12,094	+ 115	+ 994	+ 8.95
Deposits (less cash items)—total*	73,703	+ 111	+ 9,164	+ 14.20
Demand deposits adjusted	22,497	+1,016	+ 1,611	+ 7.71
U.S. Government deposits	450	− 678	+ 4	+ 0.90
Time deposits—total*	49,380	− 182	+ 7,458	+ 17.79
Savings	17,488	− 3	− 841	− 4.59
Other time I.P.C.	22,975	− 177	+ 6,334	+ 38.06
State and political subdivisions	5,849	− 43	+ 907	+ 18.35
(Large negotiable CD's)	11,503	− 257	+ 5,453	+ 90.13

Weekly Averages of Daily Figures	Week ended 10/10/73	Week ended 10/3/73	Comparable year-ago period
Member Bank Reserve Position			
Excess reserves	+ 34	+ 78	+ 86
Borrowings	114	102	0
Net free (+) / Net borrowed (−)	− 80	− 24	+ 86
Federal Funds—Seven Large Banks			
Interbank Federal funds transactions			
Net purchases (+) / Net sales (−)	+277.8	−689.7	−402
Transactions: U.S. securities dealers			
Net loans (+) / Net borrowings (−)	+520.1	−265.0	− 32

*Includes items not shown separately.

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