

Research Department  
Federal Reserve  
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## Second Time Around

Americans may be excused for thinking that they've been through all this before. Once again, political turmoil in the Middle East leads to a sharp reduction in U.S. oil supplies. Once again, OPEC nations raise petroleum prices substantially, and then raise them again. Once again, the President tells a national TV audience of the need to reduce our dependency on insecure foreign sources of oil. But again, according to the Gallup Poll, the public remains skeptical about the seriousness of the situation — and especially skeptical of the explanation that the recent run-up in retail energy prices is justified by the rising cost of imports. Still, as in 1973-74, an energy-price upsurge aggravates an inflation bubble generated by rising food prices. (Energy prices rose at a 17-percent annual rate between November and February, matching the rate of increase in food prices.)

Once again, the Administration searches desperately for an energy policy that will spur the development of domestic energy sources — including alternatives to oil. (But now, the problem is complicated by the Harrisburg Syndrome dimming the former bright hope, nuclear power.) Once again, Americans find themselves exhorted to behave like the virtuous Germans and Swedes, who consume only about one-half as much energy per capita as Americans do. Yet this time, unlike five years ago, the Administration proposes to unleash the price mechanism which would force Americans to follow the path of virtue trod by our European cousins.

### Silent revolution

The basic truth is that America can no longer look forward to low-cost energy. Our twentieth-century civilization has been built upon low-cost fuels, with the cost of energy declining relative to that of other commodities, decade after decade. But then, sometime around 1970, a "quiet revolution" occurred, to quote economist Alan Greenspan — the quietness of the revolution perhaps being the reason why most people still don't believe it happened.

Prior to this decade, the states along the coast of the Mexican Gulf still dominated the world petroleum market; after about 1970, however, the states along the Arabian (Persian) Gulf took over the key supply role. The shift became most apparent, of course, at the time of the 1973 Middle Eastern conflict, when Texas fields could not take up the supply slack as they did at the time of the 1967 Arab-Israeli war. Most analysts measure the shift in terms of the frequently-quoted quadrupling of OPEC prices that occurred in late 1973. But more to the point, since the beginning of that "quiet revolution" in 1970 we have incurred roughly a tenfold increase in the price of Saudi light crude, the price yardstick for OPEC oil.

### Relying on prices

In his TV message last week, the President implicitly recognized that remaining U.S. energy resources are high-cost supplies. His key announcement involved plans to phase-out price controls on domestically pro-

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duced crude oil, beginning in May. By the end of a 2½-year transition period, there will be only a single market price — the world price — for the basic commodity, oil. This will occur as the price for "old" oil is permitted to rise to the world market level, eliminating the present multi-tier structure.

This Administration, like its predecessors, has been trying to reduce the growth of energy consumption through voluntary and mandatory conservation measures. Smaller and slower cars, scarcer and more expensive parking spaces, warmer office buildings in summer and cooler ones in winter — are all measures designed to reduce the nation's reliance on expensive and unreliable OPEC oil. The Administration now believes, however, that the most positive results will come from increased reliance on the price mechanism.

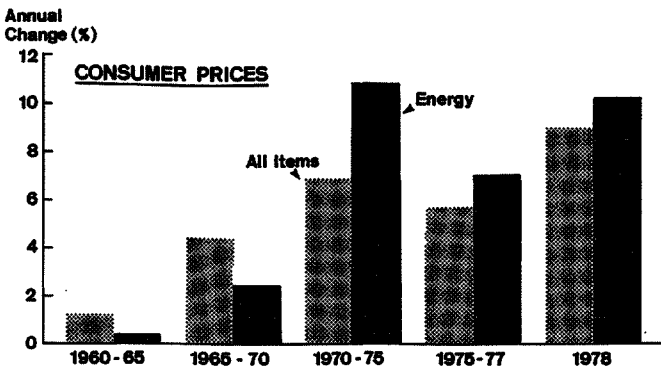
The run-up in energy prices since the 1973-74 Arab embargo has already produced some notable results along this line. For decades, U.S. energy consumption increased at roughly the same rate as GNP. But between 1974 and 1977, energy consumption grew at a lower rate than real output. And in 1978, energy consumption grew less than half as fast as GNP, with a 1.9-percent energy increase as against the 3.9-percent gain in real output. Moreover, U.S. oil consumption alone increased last year at only a fraction of the preceding year's gain — despite an

extended coal strike, an exceptionally cold winter and a relatively strong increase in economic activity.

## **Paying for new supplies**

Yet with all this success in restricting U.S. energy consumption, the nation is faced with the need to develop massive new energy supplies in coming decades to reduce its dependence on insecure foreign sources. Enormous amounts of capital will be required to develop the nation's remaining high-cost oil and natural-gas resources. Most remaining undeveloped resources of this type — in such areas as Alaska's North Slope and the U.S. outer continental shelf — require anywhere from \$10,000 to \$15,000 for each barrel-per-day of equivalent fuel energy. This translates into a capital demand of about \$4.5-6.8 billion for every additional "quad" of energy added to present U.S. consumption of roughly 75 quads per year. (A quad equals  $10^{15}$  BTU's, or British thermal units, the energy needed to raise one pound of water one degree.)

New coal supplies will be somewhat less expensive to exploit than oil and natural gas, but will provide a less flexible energy source, and may become almost as expensive because of the need to offset the safety and environmental problems involved in coal development. Synthetic gas and oil obtained from coal will be an even more capital-intensive (and expensive) process than the development of new oil and gas resources in the far reaches of the world. Altogether, the cost of new energy-supply investments could account for almost half of the business sector's capital formation over the next decade — roughly twice the share required in the recent past. The necessary funds should come largely



from the expanded profits of energy producers, as a reflection of the rise in U.S. prices to world levels.

### Salvation through co-generation

Given the sharp rise expected in energy costs, the nation is looking to its engineers to develop more energy-efficient technology for consumer products and manufacturing processes. "It is quite certain that we can re-optimize each energy consuming task to achieve the same result at equal or lower cost, and use far less energy," said Thomas Widmer and Elias Gytopoulos in the June 1977 *Technology Review*. These engineers found that efficiency could be increased substantially in those several uses which account for 60 percent of U.S. energy consumption — residential and commercial space and water heating, air conditioning and refrigeration, automotive propulsion, and the production of steel, petroleum, paper and cement.

Co-generation — the production of electricity from on-site industrial-produced steam — is frequently cited as an example of the cost savings available from advanced technology. The electricity thus produced is obtained at an additional fuel-consumption rate less than half that achieved by the most efficient central-station power plant. Co-generation today accounts for about 5 percent of U.S. electrical needs, and vast savings could be obtained just by raising this proportion to the West German level of 18 percent. Further responses of this type can be expected as Americans follow the European example and pay the world market price of energy.

### Winners and losers

Altogether, with much grinding of gears, the nation is shifting in the

1970's to an unfamiliar world of high-cost energy. In the next several decades, high energy prices seem bound to lead to more energy-efficient technologies and consumer products, greater conservation by end-users, and increased investment in new energy sources. The long-term implications could be seen five years ago — the first time that the OPEC nations increased the decibel level on their "silent revolution." But the impact will be uneven among the various sectors of the U.S. economy. Wall Street analysts, as they always do, made up lengthy lists of winners and losers at the time of the 1973-74 crisis, and their lists are still relevant today.

The list of potential losers could include many businesses tied to auto travel: vacation resorts, large-car dealers, parking-lot operators, fast-food franchisers, suburban real-estate salesmen, filling-station operators, and shopping-center developers. And the winners? They would include businesses involved in the expansion and more efficient use of domestic energy resources: oil-field equipment manufacturers, coal-mining companies, home-insulation manufacturers, bus and rail-car producers, urban home-builders, and heating and lighting equipment manufacturers — plus of course sweater manufacturers each winter and tropical-clothing producers each summer.

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

Selected Assets and Liabilities	Amount Outstanding 3/28/79	Change from 3/21/79	Change from year ago @	
			Dollar	Percent
<b>Large Commercial Banks</b>				
Loans (gross, adjusted) and investments*	122,301	- 195	+ 16,774	15.90
Loans (gross, adjusted) — total#	99,976	- 172	+ 16,940	20.40
Commercial and industrial	29,414	270	+ 3,807	10.55
Real estate	35,796	107	+ 7,744	- 27.61
Loans to individuals	20,716	136	NA	NA
Securities loans	1,561	- 46	NA	NA
U.S. Treasury securities*	7,774	34	- 661	- 7.84
Other securities*	14,551	- 57	+ 495	3.52
Demand deposits — total#	39,107	226	+ 2,194	5.94
Demand deposits — adjusted	28,900	219	+ 567	2.00
Savings deposits — total	29,900	180	- 856	- 2.78
Time deposits — total#	50,243	- 32	+ 7,851	18.52
Individuals, part. & corp.	40,741	3	+ 7,451	22.38
(Large negotiable CD's)	17,881	- 60	+ 2,104	13.34
<b>Weekly Averages of Daily Figures</b>	<b>Week ended 3/28/79</b>	<b>Week ended 3/21/79</b>	<b>Comparable year-ago period</b>	
<b>Member Bank Reserve Position</b>				
Excess Reserves (+)/Deficiency (-)	28	- 43		15
Borrowings	19	34		31
Net free reserves (+)/Net borrowed(-)	9	- 77		- 16
<b>Federal Funds — Seven Large Banks</b>				
Net interbank transactions	+ 866	+ 869		- 508
[Purchases (+)/Sales (-)]				
Net, U.S. Securities dealer transactions	+ 481	+ 2		+ 374
[Loans (+)/Borrowings (-)]				

\* Excludes trading account securities.

# Includes items not shown separately.

@ Historical data are not strictly comparable due to changes in the reporting panel; however, adjustments have been applied to 1978 data to remove as much as possible the effects of the changes in coverage. In addition, for some items, historical data are not available due to definitional changes.

Editorial comments may be addressed to the editor (William Burke) or to the author . . . .

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