

Research Department  
Federal Reserve  
Bank of  
San Francisco

November 22, 1974

## Persian Gulf of Coal

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The U.S. is the Persian Gulf of coal, with more than one-fifth of the world's reserves locked up in its crust, and coal accordingly is counted on to play a major role in solving the nation's energy problems. In fact, the industry already has profited considerably from the crisis created by the Arab oil embargo and the subsequent quadrupling of oil import prices, and some large producers are now reporting profits ten times larger than a year ago.

The industry is faced with many problems, however, with the current strike symptomatic of just one of them. Coal production has trended downward for several decades, due largely to the competition from the lower-cost and cleaner-burning fossil fuels—natural gas and oil—but more recently due to the unions' understandable emphasis on mine safety and the environmentalists' understandable interest in curbing the excesses of strip mining. Moreover, its future growth could also be restricted by the stricter enforcement of air pollution regulations over time.

U.S. coal reserves have been conservatively estimated at about 3.2 trillion tons. (About 1.6 trillion tons of that total have been identified by mapping and exploration.) These reserves, measured in terms of BTU heat content, amount to about three-quarters of the nation's total known reserves of fossil fuels. Only about 150 billion tons are recoverable under current technological

and economic conditions—but even this amount could provide over two centuries' supply at current consumption rates.

### **Trend reversal**

Still, abundance has not necessarily led to increased consumption. Coal's share of total U.S. energy consumption has dropped from 48 to 18 percent over the past quarter-century, as natural gas and petroleum have supplanted it in the industrial, household and transportation markets. The trend was temporarily reversed in the 1960's because of the expansion of the utility market, but consumption then headed downward again in the early 1970's as strict air-pollution control laws forced utilities to switch from high-sulfur coal to oil.

This year has witnessed a sharp upsurge in demand, however. The utilities—the outlet for about two-thirds of the industry's output—have increased their purchases of steam coal for electricity generation, because of the scarcity and stratospheric price of oil. In addition, steel producers have been heavy purchasers of metallurgical (coking) coal to help meet booming worldwide demand for steel. Substantial exports of coal, plus strike-hedge inventory accumulation, have then added a cap to the boom. Meanwhile domestic mine production has been running only about 5 percent above the year-ago level, and with the strike, 1974 output could easily fall below the 1973 total of 597 million tons.

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The inevitable result has been a sharp run-up in prices. Over the past year, spot market prices have jumped sharply, from less than \$11 to as much as \$50 per ton for steam coal, and from \$16 to \$80 per ton for metallurgical coal. The overall price increase has been considerably smaller because most coal is sold under long-term contract, but the impact shows up in the new contracts recently negotiated. Thus, the October wholesale price index for coal was 76 percent above a year ago.

## **Wages and productivity**

Against this background of strong worldwide demand and soaring prices, it could be expected that a fairly generous wage settlement would result from this fall's labor contract negotiations. The contract now awaiting union locals' ratification would boost hourly compensation about 45 percent above the present \$8-per-hour average over a three-year period, in line with this year's pattern-setting steel settlement. The agreement specifically calls for an immediate 9-percent wage increase, followed by 3-percent increases in each of the next two years. In addition, a cost-of-living escalator would be adopted for the first time, and maximum pensions would be raised from \$150 to \$250 per month over the length of the contract. But the crucial issues—crucial both to labor-management relations and to productivity trends

—involve certain work practices and (especially) safety practices, such as the right of a miner to leave his workstation if he considers himself to be in imminent danger.

The productivity record of the U.S. industry is unrivalled anywhere, but efficiency in underground mines has fallen in recent years—by 29 percent in the 1969-73 period alone, or from 15.6 to 11.2 tons per day. The productivity decline reflected such factors as wildcat strikes and a heavy influx of inexperienced miners, but the main factor was the Federal Coal Mine Health and Safety Act of 1969. This legislation has brought about a spectacular improvement in mine safety, reducing annual fatalities to less than half of the 1970 level. (Still, 829 miners have been killed in this highly dangerous industry just since 1970.) At the same time, the health-and-safety act has contributed to a reduction in output and to a 20-to-30 percent rise in underground mining costs, by forcing a change from near-continuous production to intermittent production with increased manpower usage. These developments have led the industry to push research into such productivity-enhancing areas as automated underground mining.

## **Stripping the West**

The industry's preferred method for expanding productivity and output is strip mining, which now accounts for one-half of total out-

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put, compared with less than one-third in 1960. Strip mining requires less manpower and capital than underground mining, and is also safer and more productive—but it can be environmentally disastrous. Consequently, Congress has been preparing stringent controls on strip mining during the current session. The Senate version—more extreme than the House version—would flatly ban surface mining on all lands where the Federal Government retains the mineral rights, even where coal firms themselves have bought the land and leased the mineral rights. This prohibition is designed to prevent the unspoiled Western coal lands from becoming a vast slag heap like parts of Appalachia.

The states of Montana, Wyoming and North Dakota contain enormous reserves, about 40 percent of the total reserves accessible to strip-mine techniques. Until recent years, the West's subbituminous deposits occasioned little interest, because they have a lower BTU content than Eastern coal and are expensively far from Eastern markets. However, these reserves also have a very low sulphur content, and consequently are now meeting the demand of Midwestern utilities for the type of fuel capable of fulfilling the requirements of new clean-air legislation. Western coal production thus has grown phenomenally in the last few years, although the region still accounts for only 4 percent of total U.S. production.

In this connection, further expansion of the coal industry may be hampered even more by clean-air legislation than by surface-mining restrictions. The Clean Air Act of 1970 prohibits electric utilities from burning high-sulphur coal after June 30, 1975, thus making almost one-third of total production unusable for that purpose. The Environmental Protection Agency has granted Eastern utilities temporary variances to switch from oil to coal in the wake of the Arab oil embargo, but it has shown no intention of suspending the mid-1975 ban on high-sulphur coal. The problem is complicated by the failure of industry to develop a commercially viable technology for removing sulphur oxides from stack gases.

From all these portents, it would seem that exploiting the Persian Gulf of coal will be a very expensive proposition. In the immediate post-strike period, prices could actually weaken, reflecting both the end of hedge-buying and some weakening of demand. Utility demand for steam coal could soften because new contract prices are already approaching the equivalent price of oil, while steel demand for metallurgical coal could soften because of the worldwide weakening of the steel boom. Still, in view of the nation's increasing reliance on this basic fuel, the underlying price trend should remain strong far into the future.

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

Selected Assets and Liabilities Large Commercial Banks	Amount Outstanding 11/6/74	Change from 10/30/74	Change from year ago	
			Dollar	Percent
Loans (gross) adjusted and investments*	83,792	+ 491	+7,288	+ 9.53
Loans gross adjusted—	66,629	- 75	+8,570	+ 14.76
Securities loans	1,249	- 258	- 49	- 3.78
Commercial and industrial	24,242	+ 84	+4,144	+ 20.62
Real estate	19,923	- 38	+1,993	+ 11.12
Consumer instalment	9,756	- 1	+ 808	+ 9.03
U.S. Treasury securities	4,655	+ 478	-1,099	- 19.10
Other Securities	12,508	+ 88	- 183	- 1.44
Deposits (less cash items)—total*	80,486	+ 11	+6,197	+ 8.34
Demand deposits adjusted	22,754	- 99	- 5	- 0.02
U.S. Government deposits	451	+ 203	- 5	- 1.10
Time deposits—total*	55,745	- 124	+5,973	+ 12.00
Savings	17,951	+ 8	+ 278	+ 1.57
Other time I.P.C.	28,584	+ 81	+5,704	+ 24.93
State and political subdivisions (Large negotiable CD's)	5,731 15,150	- 316 + 93	- 232 +3,852	- 3.89 + 34.09
<b>Weekly Averages of Daily Figures</b>	<b>Week ended 11/6/74</b>	<b>Week ended 10/30/74</b>	<b>Comparable year-ago period</b>	
<b>Member Bank Reserve Position</b>				
Excess Reserves	109	6		96
Borrowings	105	286		11
Net free (+) / Net borrowed (-)	+ 4	-280		+ 85
<b>Federal Funds—Seven Large Banks</b>				
Interbank Federal fund transactions				
Net purchases (+) / Net sales (-)	+656	+718		-199
Transactions: U.S. securities dealers				
Net loans (+) / Net borrowings (-)	+610	+722		+106

\*Includes items not shown separately.

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