

Inventories, Excess Capacity Hinder Energy Industry

Drilling activity, as measured by active rotary rigs, staged a modest upturn during the last 18 months. Renewed drilling has been a breath of fresh air to the Eleventh District economy, coming at a time when problems in such sectors as real estate continue to hamper the region's growth. But a closer examination of the energy sector reveals increased drilling has not revived the oil field supply industries to the same extent. High inventories and excess capacity must still be reduced before a full-fledged recovery can get under way in those industries.

Drilling Decline Magnified in Supply Industries

While most public attention has been focused on the decline in the number of active rotary drilling rigs since 1981, still greater contractions occurred in the oil field supply and service industries. For instance, employment of oil and natural gas extraction workers in the three states of the Eleventh District fell 43 percent from December 1981 to April last year, compared with the 74-percent plunge experienced by workers in oil field equipment manufacturing—a key supply industry (Chart 1).

Reduced oil field activity was magnified in the "upstream" supply industries for two reasons. First, firms that were reducing drilling activity were able to satisfy much of their demand for equipment from their own inventories, from equipment they had previously ordered, and from the inventories of failed firms. As a result, new factory orders for many types of equip-

ment dried up completely. Second, having geared up to support higher rates of drilling, supply industries were caught in early 1982 with suddenly growing inventories. Market conditions abruptly shifted from apparent shortages to excesses in inventories and capacity that glutted markets for oil field equipment.

At the same time, foreign manufacturers—who were encouraged first by the strong market growth and then by the strong dollar—also built capacity and captured a major share of the U.S. and world markets for oil field goods. This development added to the woes of the domestic supply industry as the market for oil field goods contracted.

High inventories remain in a wide range of oil field equipment and continue to impede recovery of the oil field supply industries. Furthermore, drastic changes in market conditions and new manufacturing capacity overseas have necessitated a smaller domestic industry to supply the "oil patch." Although the domestic industry has adjusted, excess capacity remains.

Strong growth in domestic drilling would help reduce the high inventories of oil field equipment. Many analysts recently thought that the recovery in drilling would continue through 1988, with domestic drilling increasing by about 10 percent more. But the failure of the Organization of Petroleum Exporting Countries (OPEC) to agree to further production restraint at its December meeting triggered another sharp drop in crude prices and put those forecasts at risk. Lower than anticipated drilling activity during 1988

will further delay recovery of the energy supply industries.

Excess Rig Inventories

The drilling boom that began in the early seventies reversed the decline in the number of available rotary drilling rigs that was evident from 1955 to 1972 (Chart 2). By 1981, however, virtually every available rig was in use, and for a time, all available "iron" was slapped together to build more units, some of which were barely adequate. As a result, the utilization rate rose to 98 percent of the available rigs (Chart 3).

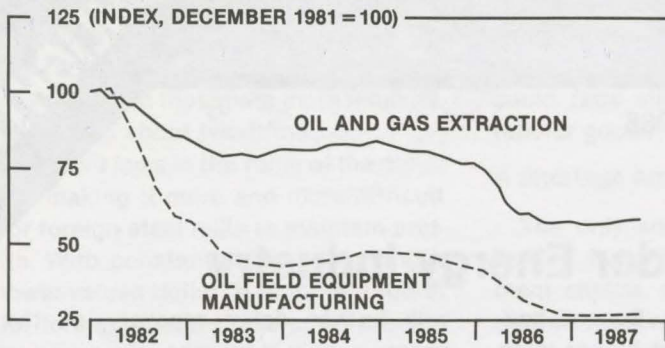
The decline in drilling activity that began in 1981 quickly led to the scrapping of worn-out, inefficient equipment. "Cannibalization" of some rigs for spare parts eliminated other units but denied sales to equipment manufacturers. Nevertheless, scrappage has yet to run its full course. Before the 1973 Arab oil embargo, normal utilization of the rig fleet was about 75 percent. On that basis, a 10-percent increase in drilling in 1988 would imply that of the more than 3,300 rigs available, about 1,300 could be scrapped from the current fleet without hampering drilling operations. Were such attrition to occur in 1988, it would be nearly double the record level of scrappage in 1984.

Excess Production Capacity

Prospects for full recovery in other input industries—for example, the manufacture of oil-country tubular goods (drill pipe)—remain similarly dim. Total footage drilled, which is a

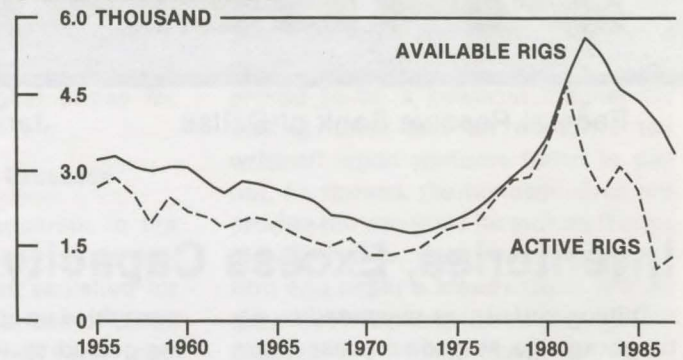
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Chart 1
ENERGY-SECTOR EMPLOYMENT
IN THE ELEVENTH DISTRICT



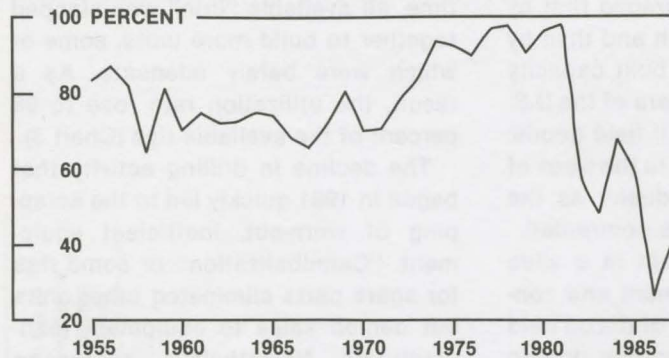
SOURCE: U.S. Bureau of Labor Statistics.

Chart 2
U.S. DRILLING RIGS



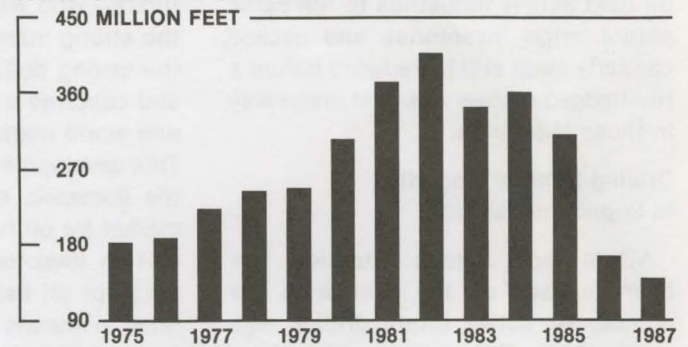
SOURCE: Reed Tool Company.

Chart 3
U.S. DRILLING RIG UTILIZATION RATE



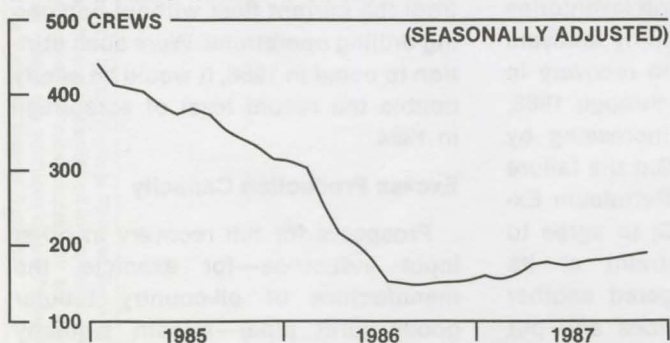
SOURCE: Reed Tool Company.

Chart 4
U.S. FOOTAGE DRILLED:
NEW OIL AND GAS WELLS



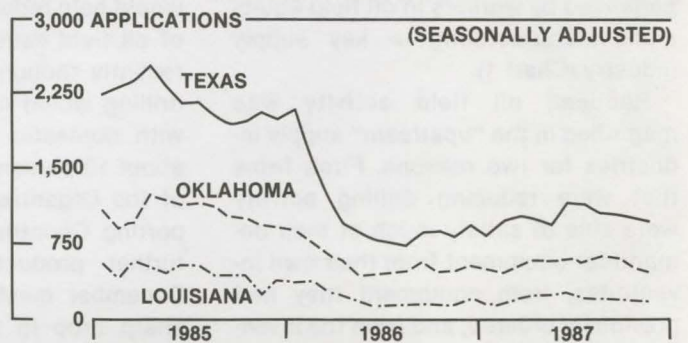
SOURCES: American Petroleum Institute.
 Author's estimate for 1987.

U.S. SEISMIC CREW COUNT



SOURCES: Society of Exploration Geophysicists.
 Federal Reserve Bank of Dallas.

WELL PERMIT APPLICATIONS



SOURCES: Louisiana Office of Conservation.
 Oklahoma Corporation Commission.
 Texas Railroad Commission.
 Federal Reserve Bank of Dallas.

ENERGY BRIEFS

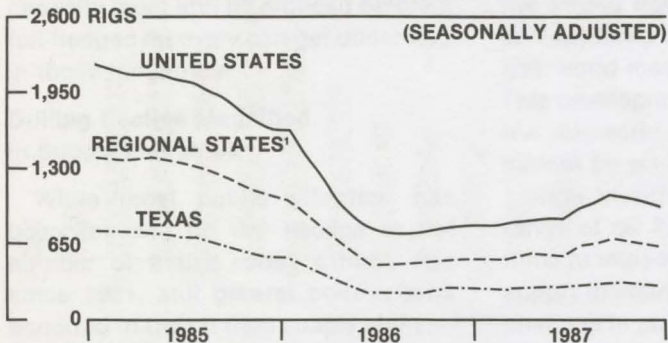
Most indicators of the District energy sector have been flat in recent months, with a few showing declines.

- Following the December meeting of OPEC, which concluded without an agreement to restrain production further, oil prices fell dramatically. The price for a barrel of West Texas Intermediate crude, moving between \$19 and \$20 from mid-August through mid-November, declined to nearly \$16 for the week ended December 25.
- In contrast, spot prices for natural gas have risen sharply since mid-November. Rising spot prices can be attributed to seasonal factors, colder than expected weather, changing contractual relations under Federal Energy Regulatory Commission Order 500, and altered market expectations about gas supplies.
- After increasing every month from February through September, the seasonally adjusted

drilling rig count for the United States decreased through December. The 8-percent fall in the Texas rig count in December was the greatest monthly decline since June 1986. Lower oil prices and falling well permit applications suggest that the rig count may decline further.

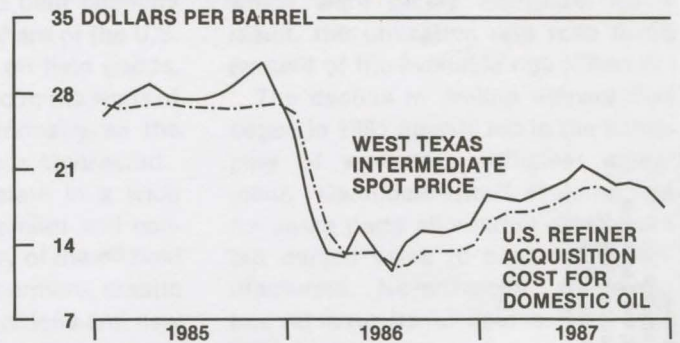
- Seasonally adjusted employment in oil and gas extraction increased in September and October but followed the declining rig count by decreasing in November. December employment may further reflect decreased drilling activity.
- After declining every month since June, seasonally adjusted Texas refinery production increased slightly in November. Nevertheless, refinery production in November was about 2 percent below a year earlier.

ROTARY DRILLING RIGS RUNNING



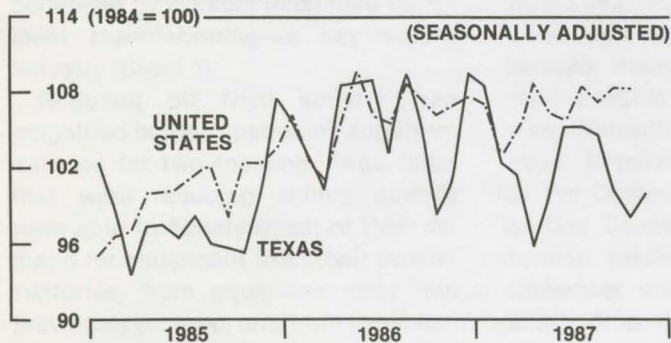
1. Louisiana, New Mexico, Oklahoma, and Texas.
 SOURCES: Hughes Tool Company.
 Federal Reserve Bank of Dallas.

SELECTED CRUDE OIL PRICES



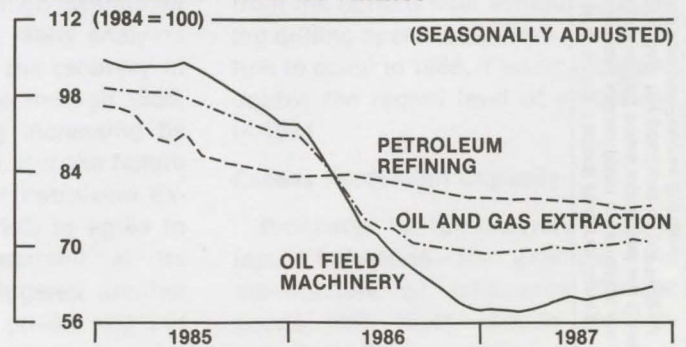
SOURCES: I. P. Sharp Associates.
 U.S. Department of Energy.
 Federal Reserve Bank of Dallas.

REFINERY PRODUCTION



SOURCES: American Petroleum Institute.
 Board of Governors, Federal Reserve System.
 U.S. Department of Energy.
 Federal Reserve Bank of Dallas.

TEXAS ENERGY EMPLOYMENT



SOURCES: U.S. Bureau of Labor Statistics.
 Federal Reserve Bank of Dallas.

measure of demand for such consumable inputs, is in steep decline (Chart 4). In addition, excess production capacity is a worldwide phenomenon, and foreign producers have carved out a large market share in this country. Although the fall in the value of the U.S. dollar and restrictions on imports have reduced that share more recently, it remains about two-fifths.

Record lows in the value of the dollar are making it more and more difficult for foreign steel mills to maintain profits. With constant-dollar prices and a lower-valued dollar, it is more difficult for foreign producers to cover production costs. Nevertheless, a weak dollar may not make 1988 a much better year than 1987 for domestic suppliers. If foreign producers set higher dollar prices to maintain profit margins, domestic producers likely would follow

suit in an effort to boost their own sagging profit margins. But with total footage drilled slumping, an increase in domestic production and a sharp price hike would be difficult to sustain together. Thus, U.S. steel mills will remain saddled with excess capacity, while domestic drilling contractors could face slightly higher prices for tubular goods.

A Shortage Among the Excesses

The only shortage apparent in the drilling industry is shown by investment capital, which has vanished for several reasons. First, prices of crude oil and natural gas are well below their peak levels. That, however, is not much of an impediment to drilling because drilling costs have fallen commensurately. Future price uncertainty is a more important factor and will only be

calmed if OPEC exerts greater production discipline than it has exercised recently.

Perhaps the most critical factor affecting drilling is recent changes in U.S. tax laws. During drilling's boom years, the highest marginal tax rate for individuals was 70 percent. That proved to be a powerful magnet for drilling funds and an attractive tax write-off when ventures failed to pay out. As revised, the tax code does not provide the generous incentives it once did. Therefore, even if energy prices firm and begin a steady climb and all excesses in inventories and production capacity are worked down, the recovery in the oil patch and its supply industries may only be modest.

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