# Bad News From the Oil Patch: Why the Rig Count Is Depressed

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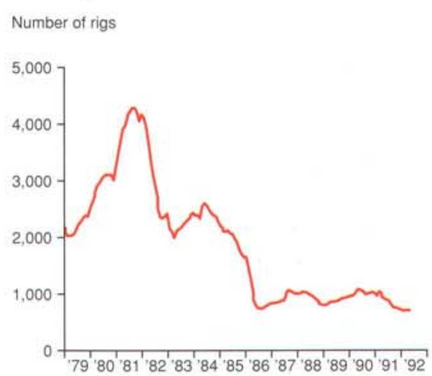
Economic conditions in the U.S. oil patch have again taken a sharp turn for the worse. The Baker Hughes rig count, perhaps the most widely watched indicator of domestic drilling conditions, shrank to a 52-year low of 623 rigs in April, indicating some of the most depressed levels of activity ever seen in American oil fields (*Chart 1*). The previous low levels occurred during World War II and were caused by shortages of steel and other critical materials.

On a seasonally adjusted basis, the average *monthly* rig count never fell below 735 during the darkest days of the 1986 downturn, when oil prices briefly slipped under $10 per barrel. The rig count has now been below 735 since November 1991. And indicators other than the rig count also point to a major downturn. Between fourth-quarter 1991 and first-quarter 1992, the number of active seismic crews seeking potential oil- or gas-bearing geological formations in the United States fell by 26 percent. The number of well completions for oil or gas fell 29 percent. Nearly 17,000 jobs were lost in the oil and gas extraction and oilfield machinery sectors in Texas, Louisiana and New Mexico between March 1991 and March 1992.

Although depressed prices for natural gas play a major role, other factors also have contributed to the deterioration of exploration activity. Along with diminished expectations for natural gas prices, there have been changes in the nature of natural gas supply, such as new seismic technologies and subsidies to nonconventional sources of natural gas. Furthermore, domestic drilling has been reduced by a structural shift in favor of international drilling. The recovery from current depressed conditions may take several years, depending largely on the growth of markets for natural gas.

**Chart 1**
U.S. Rig Count




## A Shift to International Oil Exploration

We are seeing a deliberate and rapid shift away from domestic oil exploration in the United States. The turn away from domestic exploration continues a long-standing trend, as illustrated by the exploration and development spending of a panel of firms that report to the Energy Information Administration (*Chart 2*). Major companies that recently announced sales of domestic reserves or large cutbacks in their domestic exploration and production staffs include ARCO, Chevron, Mobil, Marathon and Phillips.

The shift from domestic exploration is not caused by changing expectations for future oil prices. Short-term expectations for oil are only slightly more pessimistic now than they were six to 12 months ago, and the long-term outlook for oil prices has not really changed. The changing pattern of oil exploration is related to other fundamental issues.

One issue is diminished opportunities to make major domestic oil strikes. The United States is perceived as "drilled out," with the average size of a newly discovered field shrinking from four million barrels in the 1950s to fewer than half a million today. Despite high levels of drilling activity in the 1980s, only three giant fields of 100 million barrels of oil or more were discovered in the 1980s. Thirty-six such fields were discovered between 1960 and 1980.

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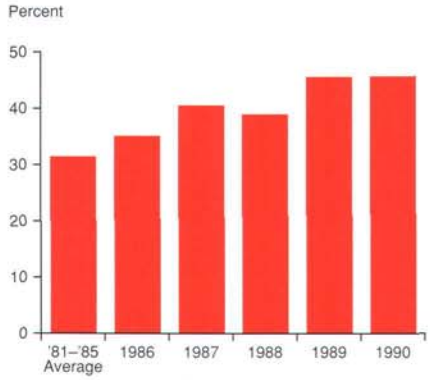
**Chart 2**
Exploration and Development Spending in Foreign Countries




SOURCE: Panel of firms reporting to Energy Information Administration.

Major oil companies' interest in foreign prospects is becoming stronger because of increasing political risk at home and decreasing political risk abroad. In the United States, increasing environmental restrictions are keeping oil companies out of certain areas and curtailing production in others. The oil industry has been barred from further drilling in areas where there may be opportunities for significant discoveries, such as the Arctic National Wildlife Refuge and the Outer Continental Shelf. On the other hand, with the fall of the Iron Curtain and the dissolution of the U.S.S.R., investment abroad is perceived as less risky than in the past. Interest in exploration encompasses places as diverse as Yemen, Tunisia, New Guinea and the People's Republic of China. New opportunities have also opened up with the economic liberalization of Latin America. Latin American national oil companies have become more commercially oriented and open to foreign investment. Some governments are taking steps to privatize national oil companies.

An important side effect of disenchantment with domestic operations by major oil companies has been the ongoing sale and rationalization of existing oil- and gas-producing properties. In other words, the major oil companies are selling many small and widely dispersed properties to reduce and consolidate domestic production capacity. The majors are joined by a number of large independents who are selling properties to finance their own overseas exploration programs. With these developments, large numbers of oil- and gas-producing properties have come to market. Independents find these properties cheaper than domestic drilling and are curtailing their drilling to finance purchases of existing reserves.

## Natural Gas Prices Fall Below 1991 Expectations

The major reason for less drilling activity is diminished expectations for domestic natural gas prices. A surge in natural gas drilling, based on expectations of strong and rising prices in 1991 and thereafter, was supposed to more than take up the slack left by the decline in oil drilling. These expectations were not realized.

Instead of increasing, natural gas prices fell 13 percent during 1991, from $1.58 per thousand cubic feet in 1990 to $1.38 in 1991. The brief fall in prices to 14-year lows during the summer of 1991 caused turmoil in the natural gas industry. February prices, which usually are at a seasonal peak, matched the summer lows. The low winter prices can be blamed largely on a second consecutive mild winter in the United States. The natural gas futures market is now forecasting prices for the next 12 months that are close to 1990 levels.

The collapse of natural gas prices touted by the press and the industry is largely a collapse of high price expectations. Consultants and forecasters who follow this market widely predicted rising prices in 1991 and 1992. In the first sign of real optimism in the oil patch since the early 1980s, many companies—majors, independents and oil-field services—built up staffs in anticipation of a drilling boom. Employment cutbacks began in July 1991 when the mistake was recognized. Forecasters now expect strong increases in wellhead prices for natural gas in the mid-1990s at the earliest.

High price expectations contributed to the so-called "natural gas bubble," or the excess supplies brought to market. Record additions to natural gas reserves in recent years reflect a shift to exploration for natural gas instead of oil. Between 1977 and 1985, 139,000 wells were drilled, which added 142 trillion cubic feet of natural gas reserves. From 1986 to 1990, 43,000 wells added 83 trillion cubic feet of reserves, nearly doubling the historical ratio between drilling and gas reserves. Furthermore, important technical advances significantly improved the industry's ability to find new oil and gas reserves. In particular, improved acquisition, interpretation and processing of seismic data in the late 1980s enhanced geologists' ability to "see" below ground and better target each well.

This kind of technical advance has two important implications. First, it places downward pressure on natural gas prices by diminishing the cost of production. Second, improved technology reduces the number of working rigs required to bring new reserves on line. Any rebound in the rig count will be moderated by drilling programs that are now conducted with more effective geological information.

Another reason for the large new supplies of natural gas brought to market in recent years is federal subsidies for nonconventional sources of natural gas, particularly coal-bed methane and gas from tight sands formations. It has been estimated that coal-bed methane may have accounted for one-third of the natural gas wells drilled in the United States in 1990. Production of coal-bed methane currently receives tax credits worth 84 cents per thousand cubic feet, with built-in price escalators through 2002. Subsidies for tight sands natural gas are set at 52 cents per thousand cubic feet. The need for such subsidies has been widely questioned at a time when finding costs for conventional gas are falling, and some conventional reserves are being shut in due to low gas prices.

## Outlook: Long-Term Prospects Are Positive

The oil and gas industry continues to contract, with domestic drilling activity at a 52-year low. The difficulties stem from several sources: a shift to more international exploration, widespread sales of existing properties and a poorer-than-expected market for natural gas. Any rebound is likely to be slow, moderated by the permanent loss of rigs to overseas locations and by improved geophysical data that enhance the success of drilling programs.

Ultimately, the future of domestic exploration depends on natural gas. Although the short-term outlook for natural gas improved in late April and early May, the industry remains pessimistic. In contrast, the long-term outlook remains quite positive. Industrial consumption of natural gas has continued to rise, despite the recent recession.

Natural gas is the fuel of choice for new home construction and heating system conversion. The implementation of the recent amendments to the Clean Air Act will open markets for natural gas to power fleet vehicles; it can serve as a feedstock for octane enhancers and many alternative fuels. Natural gas has a bright future, but one that will unfold slowly toward the mid-1990s. The recovery of the domestic drilling and oil-field service industries will follow the growth in the natural gas market.

—Robert W. Gilmer
Mine K. Yücel

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