

Houston Business

A Perspective on the Houston Economy

Oil Cities and Declining Oil Regions: Houston and Aberdeen

We see a rapid shift in oil exploration from the United States to other parts of the world.

What does this mean for Houston?

How does the decline of the United States as an oil-bearing region affect its preeminent oil center? There is no easy answer, although it can hardly be a positive development.

The search for oil in the United States is now winding down. Onshore regions are considered as “drilled out,” with new field discoveries shrinking from four million barrels in the 1950s to fewer than half a million today. Except for the western Gulf of Mexico, offshore exploration is placed off-limits by political and environmental concerns. As a result, we see a rapid shift in oil exploration from the United States to other parts of the world. Domestic drilling for natural gas will take up some of the slack left by oil, but a surge in drilling for conventional gas remains a medium- to long-term proposition.

What does this mean for Houston? How does America's decline as an oil-bearing region affect the growth prospects of its preeminent oil center? There is no easy answer, although it can hardly be a positive development. Assessing the damage is complicated by the fragmented industrial organization found in upstream oil: multinationals, independent producers and operators and an array of service and equipment suppliers. Further complications arise from the barriers likely to be constructed by nations with newly discovered oil, as they seek to stem their imports of American oil expertise and equipment.

This article is a case study, an effort to put issues that affect the future of domestic oil suppliers in perspective with a look at how oil services were provided to the British sector of the North Sea. How does Aberdeen compete with Houston as an oil service center? This story is one of considerable success for many American and Houston-based companies. However, it also points to jobs throughout the United States, including Houston, put at risk

by the continued decline of American oil production.

OIL SERVICES DEFINED

This case study focuses on oil services and equipment. These industries consist of companies in many market segments that sell products and services to large multinationals, independent producers and operators for exploration, new field development and production. Table 1 lists many of the services and equipment these companies provide. The actual mix of services used varies over the life of a field; for example, seismic and drilling services are required in the exploration phase, while production chemicals and artificial lift equipment are needed as fields decline.

The list in Table 1 focuses on a core of businesses tightly knit to the work performed at the wellhead. There is also a group of secondary industries that are less integrated into downhole technology but which also provide essential oil field services. Some examples of these support services are marine supply bases; air, land and marine transportation; caterers; mechanical and electrical contractors; engineers and constructors; machine shops and welders; emergency medical services; personnel services; and insurance, finance and real estate services.

The names of oil service and equipment companies that perform the tasks listed in Table 1 are familiar to Houstonians. Operating in many service and product lines are the biggest companies, such as Baker Hughes, Halliburton/Dresser and Schlumberger. Drill bits, for example, are produced by Baker Hughes and Dresser, along with Smith International, Reed-Camco and others. These same large companies produce drilling fluids as do Baroid and others. Offshore drilling is done by companies like Rowan, Penrod and Global Marine. Taken together, oil service firms account for roughly 30 percent of the 80,000 upstream oil jobs in Houston, and oil equipment firms make up another 20 percent. Thus, fully half of Houston's oil employment provides services, capital goods or consumables for oil field exploration, development and production.

Why do these service and equipment suppliers form a separate industry? Why aren't oil field needs met more often by the large multinational oil companies, for example, that are so thoroughly integrated forward into refining and

Table 1
Core Businesses in Oil Service and Equipment Companies

Oil Field Services

- Geological, Geophysical and Seismic Services**
- Drilling Contractors**
- Drilling Mud and Services**
- Cementing and Stimulation Services**
- Formation Evaluation and Well Completion**
- Workover and Well Services**
- Oil Field Chemicals and Services**
- Rental Tools and Equipment**
- Pipe Coating, Corrosion Control and Inspection**
- Diving and Remotely Operated Vehicles**
- Blowout and Fire Fighting Specialists**

Oil Field Equipment

- Geophysical Measurement Equipment**
- Rigs and Downhole Tools**
- Consumable Drilling Products**
- Wellhead Valves and Controls**
- Artificial Lift Equipment**

petrochemicals? Economists explain separate establishments by economies of scale in separable productive activities. But why different companies and not subsidiaries? One answer might be that these services, literally hundreds of different inputs, would distract producers and operators from their main lines of business. Another answer is tied to the volatile nature of upstream work and the opportunity this arrangement gives producers and operators to shift the risk of a downturn to suppliers. Finally, perhaps no producer alone can achieve the necessary scale economies to provide services, and other producers are unwilling to hire the services of a competitor. The confidentiality required, for example, in exploration and drilling makes it difficult to share data. Separate, noncompeting service companies maintain confidentiality while working for many producers.

ABERDEEN AND THE NORTH SEA

Exploration of the North Sea began in the 1960s, prompted by the discovery of large natural gas fields in the Netherlands. Oil was found in commercial quantities in 1969, and the following year the giant Forties field was discovered. By the mid-1970s, most of the large fields had been found. Throughout most of the North Sea's history, the British sector has dominated production. British production peaked at

2.6 million barrels per day in 1986 and declined to 1.6 million barrels last year. In 1991, for the first time, Norwegian production exceeded that of the British.

Aberdeen was chosen as the port from which the North Sea would be developed because it is the port closest to the fields with year-around, 24-hour availability and adequate air service. The free market philosophy of the British government, combined with its determination to exploit the North Sea deposits rapidly, led to a decision to turn development of the North Sea over to the multinational oil majors. Both the oil companies and service firms flocked to Aberdeen, and after a relatively depressed economic situation in 1970, the Scottish port rode the boom and bust oil cycle of the 1980s as the petroleum capital of Europe.

The oil service firms that moved to Aberdeen faced the problem of how to operate as multinational operations: export from the home base, license a local supplier, or establish an affiliate. Because many services are applied at the site, and because the producer typically demands service suppliers located close to the job, most formed an affiliate. Further, the North Sea's deep waters and harsh environment created a host of problems never before faced. The result was the creation of numerous research and development (R&D) facilities in Aberdeen, but most were geared largely to solving local service and equipment problems.

As the development of the North Sea proceeded, and as British production peaked, Aberdeen began to ask where it might find the long-term benefits of the oil boom. After the oil runs out, the multinational oil companies are highly unlikely to stay, so attention focused on oil services. If a local oil service sector could be developed, strong enough to export from Aberdeen as home base, then some benefits of the oil boom might be preserved for a future without oil.

In response to these concerns, a number of studies focused on the development of oil services in Aberdeen. From Aberdeen's perspective, their conclusions are not encouraging. Although Aberdeen and Britain have developed a large number of service companies, most of them reside among the secondary support group listed above, while the core, described in Table 1, remains dominated by American companies. Many of the support group companies have a strong local orienta-

tion and will be difficult to export to the former Soviet Union or Africa. It is the core that represents export potential, and it remains dominated by American patents and technology.

The American advantage was partly based on experience gained in the intensive exploration of U.S. oil fields. This experience drew U.S. companies to the North Sea early in its development and gave them a lead that was too difficult to overcome for any nascent British oil service industry. The American companies also conducted more R&D than British companies, more often building their companies around key patents.

CONCLUSIONS

The good news is that Houston's position in oil services and equipment is the envy of Aberdeen—as well as Midland, Tulsa and Denver. No city is better positioned than Houston to export oil services worldwide.

The bad news comes in two ways. First, as oil production declines domestically, there is clearly less work for oil service companies. This situation will be particularly acute for those companies that constitute our own secondary or support industries. They too face decline at home with little prospect of moving abroad. The implications are more severe for the oil basins throughout the United States than for Houston.

Second, the Aberdeen example is the easy case. The British never discriminated against American oil services. Early on, they sought a level playing field for British firms, and after 1986 they sought to tilt it slightly in favor of British firms through the contracting process. However, they never sought to build a domestic oil service industry by requiring, for example, that the national oil company buy from domestic suppliers. This latter course was followed by the French and the Norwegians, and both nations have developed formidable competitors to American services. When oil fields are found in less-developed nations, these LDC's may lack the manufacturing base to follow this same route, but they still will impose domestic content and local employment restrictions on oil service firms. All of this indicates that the oil basins sought by the multinationals today will be tougher to enter for American oil services and equipment, and that situation puts Houston-based jobs at risk.

Any sign that a stronger national economy is helping Houston remains difficult to pinpoint. Retail sales have picked up, and regional lumber and paper markets are stronger. But improvements in oil field activity are largely based on tax breaks that expire on January 1, 1993, and refineries and petrochemical facilities are struggling, with some facilities shutting down. Local real estate markets are flat at best, with the office market very soft.

RETAIL SALES

Good economic news improved prospects for the holiday season. October sales were good and November's even better; the presidential election marked a turning point in the sales pattern. October auto sales were off very sharply, but the decline was attributed to lost fleet sales. A new agreement between automakers and rental car companies led to cars' being held in rental fleets longer.

OIL AND NATURAL GAS MARKETS

Futures prices for light sweet crude continued to drift downward through November, with prices for West Texas Intermediate dropping below \$19 per barrel. Prices had been expected to firm through November to perhaps \$22 per barrel, but the combination of a weak global economy and the highest OPEC monthly production levels in a decade contributed to the decline. Natural gas prices drifted downward, averaging about \$2.20 per thousand BTU's (British Thermal Units) in November. The January futures contract for gas is near \$2, down from a life-of-contract high of \$2.53. The consensus among respondents was that the market has remained much tighter than in recent years.

Domestic oil field activity continued to improve sharply through November. The October rig count exceeded the count of a year earlier for the first time in 18 months. Improvements continued to be led by drilling for Section 29 tax credits, with conventional gas drilling up only slightly outside the Gulf of Mexico. The offshore drilling fleet now has more than 70 percent of its rigs back at work. The outlook for next year is cautious as Section 29 credits expire, but tax relief in the recent energy bill and improved foreign demand are expected to fill part of the gap.

REFINING AND PETROCHEMICALS

Downstream operations continued to suffer from stagnant-to-declining demand, weak prices and margins that disappeared for some facilities. Gasoline prices remained weak, drifting downward over the past month to a level three to four cents per gallon below last year's price. Several Gulf Coast refineries temporarily curtailed operations until margins strengthen. Petrochemical markets also remained weak. Inventories have been building, and customers that produce derivative products such as propylene and synthetic rubber have shut down some plants for lack of demand.

LUMBER AND PAPER

Lumber and building products have been in good demand, and prices have risen quite sharply. Plywood is very scarce, and other lumber supplies from the West Coast have been constricted by environmental controversies. Paper for cardboard boxes has remained in strong demand, although prices have been weak. Other paper products, including lines that have been hurt by the national recession, are reported to have improved.

REAL ESTATE

The market for existing homes remained weak. Sales through the Multiple Listing Service were down sharply in November and down about 5 percent for the first 11 months of the year. Fewer listings have been coming into the pipeline, and the strongest sales have shifted from the starter-home market to move-up housing in the \$120,000 to \$160,000 range. New home sales have been flat-to-slightly up for the year, although October was a good month for both sales and starts. Apartment rents and the occupancy rate have remained flat in recent months; year-to-date rents have risen slightly, and occupancy has fallen slightly.

Office space under lease increased in September and October, but it wasn't enough to match the rate at which space was vacated. The decline in rents may have bottomed out, according to one respondent, but the market remains very soft. Downsizing, restructuring and consolidation of companies continue to hurt the office market, as do trends toward less office space per worker, working at home and shared office space.

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