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Does The Future Of Oil Hold A Repeat Of The 1980s?

By George S. Littell

HOUSTON—In 1973 and 1980, volatile oil prices were the result of major changes in the industry. Obviously, 1980 did not turn out to be peak oil because increases in production outside the Organization of Petroleum Exporting Countries resulted in the price collapse of 1985. Whether 2006 turns out to be peak oil remains to be seen. As before, the future of oil depends a lot on decisions by the government of Saudi Arabia.

Figure 1 is a record, beginning in 1945, of world production of crude oil, condensate and natural gas liquids (ethane, propane, butanes and natural gasoline). For nearly 30 years after World War II, the oil industry grew at annual rates from 3 to 10 percent. Prices were stable because the Texas Railroad Commission—which was given the job after the federal government began regulating railroads—prorated production in Texas. In 1945, when the United States was still a net exporter of crude oil, Texas was nearly one-third of the entire world industry.

In the period of rapid growth (1960-1972), demand was met by increasing production in the United States as well as the Middle East, North Africa and Latin America. To the extent it was considered at all, the future of oil was assumed to be

continued expansion for as far ahead as anyone cared to look (e.g., the year 2000).

The important challenge to that view was the pioneering work of M. King Hubbert in the 1950s. Hubbert's prediction that U.S. production would peak in 1970 was controversial until it was proved correct.

In 1958, the U.S. government imposed quotas on crude oil imports. For the next 15 years, crude oil prices in the United States were 50-100 percent above those in other markets. Critics of the oil import program described it as a policy to "drain America first."

In 1970, a task force was convened to consider whether the quotas, which produced no revenue for the U.S. government, should be replaced by tariffs. Its recommendation—that tariffs were the more efficient way to control U.S. imports—was rejected by President Nixon. The task force never considered the idea that, because of declining domestic production, the U.S. government could control oil imports only by limiting oil consumption.

Then, as now, the most effective way to reduce consumption was by taxes on gasoline and diesel fuel, which was the method used by the governments of other industrial-

ized countries. OPEC was organized in 1960 in response to the U.S. government's restraint of trade through its oil import program.

1970s Price Rise

The third Middle East war and accompanying embargo against the U.S. government are commonly associated with the price increases during 1973. Prices actually began rising after prorationing in Texas, for practical purposes, ended in August 1972. The embargo that began in October 1973 was brief and ineffective because it cost Arab governments a lot of their export revenues.

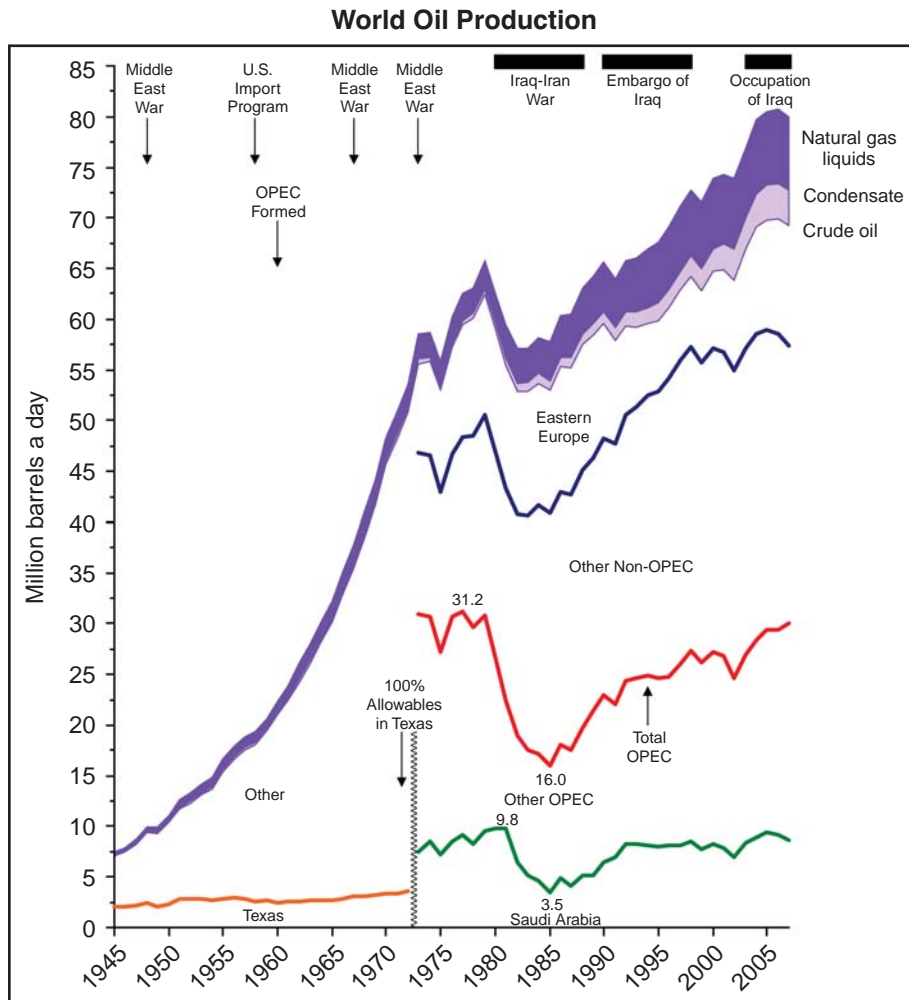
The fundamental reason for the 1973 price increase was the inability, amid declining U.S. production, to supply the increasing demand. Had pre-1973 rates of growth continued, the oil industry of 2007 would be around 170 million barrels a day—a physical impossibility. Optimists today think it may eventually be 110 MMbbl/d-130 MMbbl/d.

The brief decline in production after 1973 was primarily the result of lower demand caused by recession. Production from the North Sea began in 1973, followed by the Prudhoe Bay Field in Alaska in 1976. By the time of the November 1979 revolution in Iran, the industry had re-



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FIGURE 1



turned to “business as usual,” except for the wave of nationalizations after 1973. OPEC members nationalizing their oil assets was important because it changed depletion policy. Both Venezuela and Kuwait deliberately reduced production after 1973, and the revolution in Iran had the same effect.

Go Somewhere Else

As a rule, companies answer the question, “What happens when the oil runs out?” with, “We will go somewhere else.”

Discounted present value is maximized—at constant prices—by rapid depletion. As it turned out, “drain America first” did not maximize the value of the U.S. oil resource over time. The United States has lots of

other resources, as do the nations of Europe, who could afford to “drain the North Sea second.” Before oil, poverty was the condition of many OPEC members. It could be so again.

The 1980 peak was followed by a drop in production of nearly 7 MMbbl/d. It began with reduced demand in the recession of 1981, but the driving force was reduced demand for oil as stationary fuel.

The total demand for oil by end use largely corresponds to the range of products. Oil is uniquely suited for transportation—gasoline, and diesel and jet fuel—because of its high ratio of energy to weight. Its chemistry makes it an important source of materials: chemical feedstocks, asphalt, lubricants, wax and carbon black.

As a stationary fuel—to generate electricity, produce steam, or for space heating, cooking and heating water—oil is only one of many sources of heat. Residual fuel, heating oil, liquefied petroleum gas, and petroleum coke all have potential or actual competition from other fossil fuels (coal to natural gas) as well as other energy sources such as nuclear fission, hydro, geothermal, wind, etc.

Table 1 contains oil balances in the United States for the years 1978, 1998 and 2006. In 1978, residual fuel deliveries of 2.98 MMbbl/d were nearly 16 percent of the total consumption of 18.87 MMbbl/d. Total use of stationary fuels, 5.72 MMbbl/d, was a little over 30 percent.

With the subsequent decline in stationary fuel use, it took 20 years for total U.S. consumption to exceed that of 1978. In 1998, residual deliveries of only 780,000 bbl/d were a little more than 4 percent of the total consumption of 18.75 MMbbl/d, and stationary fuel use of 2.70 MMbbl/d, was slightly over 14 percent.

Since 1998, U.S. oil consumption has increased more than 9 percent as growth in gasoline and diesel fuel has more than offset continued attrition in stationary fuel. Most of the industrialized nations of Europe and Asia,

TABLE 1

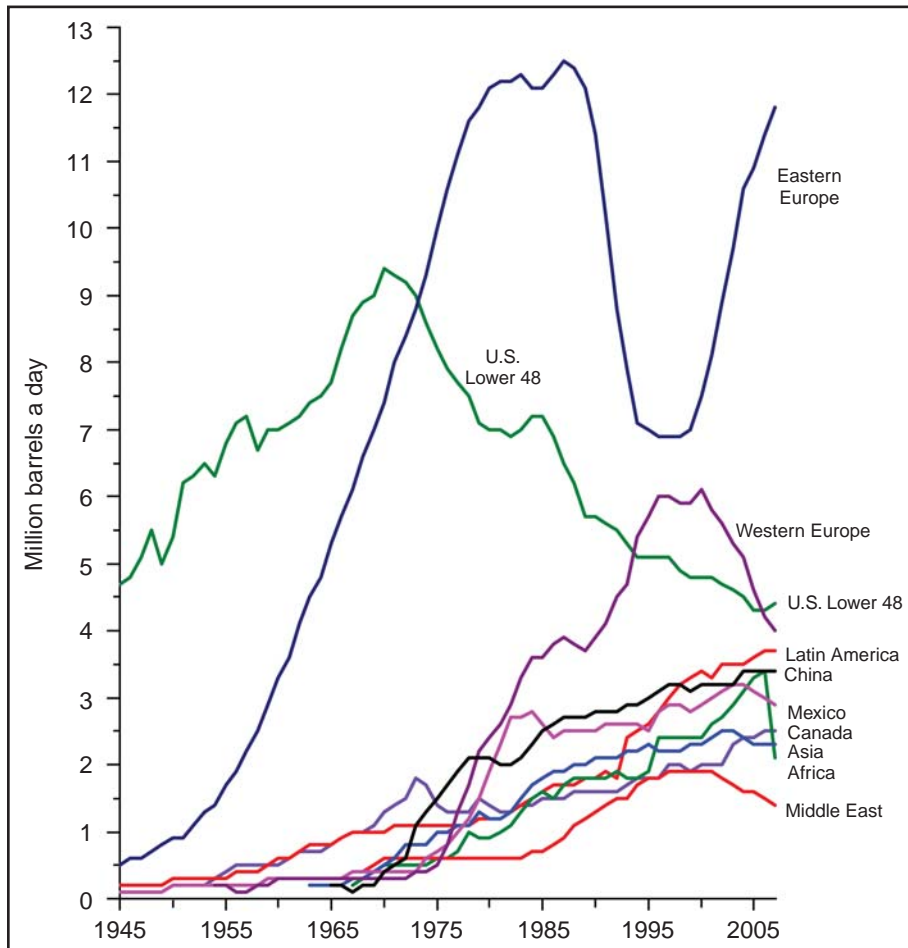
U.S. Oil Balances (MMbbl/d)			
	1978	1998	2006
Residual Fuel	2.98	0.78	0.67
Gasoline	7.62	8.25	9.14
Distillates	3.61	3.40	4.14
Kerosene Jet Fuel	0.85	1.62	1.63
Other	3.81	4.70	4.95
Deliveries	18.87	18.75	20.53
Supply			
Crude Oil	8.71	6.18	5.06
Condensate/NGLs	1.57	1.86	1.81
Alcohols	-	0.19	0.40
Net Imports	8.00	9.87	12.33
Processing Gain	0.50	0.89	0.99
Supply	18.78	18.99	20.59
Stocks Up or (Down)	(0.09)	0.24	0.06



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FIGURE 2

Non-OPEC Crude Oil Production



by contrast, still do not use as much oil as they did in 1978. The difference is their taxation of motor fuels.

Amid declining demand, the reduced total global production after 1980 was the combination of increasing non-OPEC production (Prudhoe Bay, North Sea, etc.) offset by a large decline in OPEC crude oil production, which fell from 31.0 MMbbl/d in 1980 to 16.0 MMbbl/d in 1985.

Saudi Arabia's attempt to support the prices reached in 1980 had two effects. The first was to create a huge incentive to reduce the amount of oil used as stationary fuel. The second was a drop in the kingdom's crude oil production from 9.8 MMbbl/d in 1980 to an average of 3.5 MMbbl/d in 1985. During the summer of 1985, Saudi production dropped as low as 2.5 MMbbl/d.

It is a fascinating episode of business history. Almost any company, or even a government, can figure out something is wrong when it loses nearly 75 percent of its business in five years.

War In Iraq

In retrospect, the price collapse that began in October 1985 was inevitable because of increasing non-OPEC production. Absent the war between Iran and Iraq, it would have come much sooner.

After 1985, the industry resumed its growth, although at much lower annual rates of increase and with several retreats. When Iraq invaded Kuwait in August 1990, OPEC still had over 5.0 MMbbl/d of excess capacity.

Initially, an embargo on Iraq's 2.5

MMbbl/d of exports was feasible without affecting prices. But by 1996, the embargo began to be inconvenient for oil consumers. Its sudden end in May 1998 was more effective in reducing oil prices than anything the governments of oil importing countries have done before or since. When the embargo ended, Iraq was the emerging oil power with a clear potential to produce 5.0 MMbbl/d-7.0 MMbbl/d.

Figure 2 plots non-OPEC production since 1945 by countries and areas. "Hubbert's pimple" for the U.S. lower-48 states was followed by another in the North Sea, which had its peak in 2000. The latter might have been viewed with alarm had it not occurred at the beginning of a large increase in production in Eastern Europe, as the nations there began to recover from the demise of the Soviet Union. The rest of the non-OPEC countries and areas are small in comparison with Eastern Europe, the United States, and the North Sea.

When oil prices rose above \$40 a barrel in 2004, all the other stationary fuels became economic. The expansion of natural gas is particularly important because, in addition to cutting into oil demand, it brings with it more production of condensate and natural gas liquids.

At \$90 a barrel—roughly equivalent to the early 1980s when adjusted for inflation—substituting for oil becomes a matter of some urgency in China, India, or anywhere else. With a lag of two years, the other energy sources began to affect oil demand in late 2006. Last year's 0.6 percent growth in oil demand was quite a change from 5.5 percent in 2004.

OPEC members agreed to production cuts at their October and December meetings in 2006, then stuck with them for most of 2007. OPEC production (crude oil, condensate, and NGLs) was 1.0 MMbbl/d less in 2007 than 2006.



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As depicted in Figure 1, total OPEC and non-OPEC production was down 600,000 bbl/d. The reasons for the OPEC cuts were concern about demand and a predicted 1.3 MMbbl/d increase in non-OPEC production in 2007. Demand held up better than expected, and the increase in non-OPEC production was only 400,000 bbl/d. The result was \$100 a barrel oil, by mistake rather than design.

Future Directions

There are three general scenarios for the future of oil:

- Saudi Arabia and other OPEC members keep cutting production to support \$90-\$100 a barrel crude oil prices. Demand destruction is extensive. When OPEC cannot

stand it any more, the price drops to \$40 a barrel and the 1980s are repeated.

- Saudi Arabia and other OPEC members maintain production at about the 2006 volume, and demand destruction brings prices down to about \$60 a barrel. Further slow declines in demand are roughly matched by declines in non-OPEC production.

- Saudi Arabia and other OPEC members increase production and non-OPEC production increases as well. The price reverts quickly to \$40 a barrel, demand destruction is minimal, and 2007 is regarded as “a bump in the road.”

Eastern Europe is approaching its 1990 peak in oil production. With two of the three other major non-

OPEC producing areas in decline, it is hard to imagine (although some people do) that non-OPEC production will increase. That is a major difference from the early 1980s and a good argument against scenario one. Another difference is that the government of Saudi Arabia is making major investments to expand its producing capacity.

In addition to requiring optimism about non-OPEC production, scenario three moves up the time when OPEC oil runs out. It benefits oil consumers, not Saudi Arabia and other OPEC members.

Consequently, scenario two is best as the future of oil. If so, 2006 was peak oil, but it will be a long time before oil is gone. □



**GEORGE S.
LITTELL**

George S. Littell is a partner in Houston-based Groppe, Long & Littell, which provides analytical, forecasting and consulting services to the petroleum, natural gas, refining and petrochemical industries. Littell joined Groppe, Long & Littell in 1975 after nine years with Mobil Oil Corporation that were interrupted by service as an artillery officer in the Americal Division in Viet Nam. He graduated summa cum laude from Yale University in 1966, and is a member of Phi Beta Kappa. He earned an M.B.A. from New York University and a law degree from La Salle Extension University.