

Learning from OPEC

After a decade's bonanza, the Saudis found their cartel losing its power; its soaring prices had shrunk demand.

—William Safire, January 1986

OPEC MEETS TWO OR THREE TIMES a year to set the amount of oil each of its fourteen member countries will produce. The cartel does not keep secret its market manipulations; you can find its “Crude Oil Production Allocations” right here on the Web:

www.opec.org/home/Production/productionLevels.pdf

OPEC, the Organization of Petroleum Exporting Countries, controls the world price of oil by controlling its production. Were OPEC to cut production 10 percent, the resulting shortage would send the world price of oil higher than we have ever seen. The organization doesn't do this for two reasons. First, its members find it hard to agree on which of them will cut back and by how much. They also know that the world would take one look at such high prices and begin to cut oil use, just as it did once before. Let's take a look back at this history to understand better the process of conserving oil and energy and why it frightens OPEC.

OPEC tripled the price of oil in 1974, then doubled the resulting price in 1979. By 1981, a worldwide reaction forced Saudi Arabia, OPEC's leading supplier, to cut production in order to keep the price from falling below

OPEC's target level. By the end of 1985, Saudi Arabia had cut its production 75 percent and could afford no more cuts. It abandoned the cartel rules, stole business from other cartel members, and let the price collapse. This ended a twelve-year price shock that is by far the largest experiment in energy policy ever conducted. The experiment did much harm and, quite by accident, much good as well. The results surprised people in three ways:

- ▶ The high prices triggered more conservation than most experts had thought possible.
- ▶ This conservation brought down the price of oil for eighteen years.
- ▶ High energy prices led to reductions in carbon dioxide emissions.

The importance of the carbon dioxide reduction did not become apparent until later.

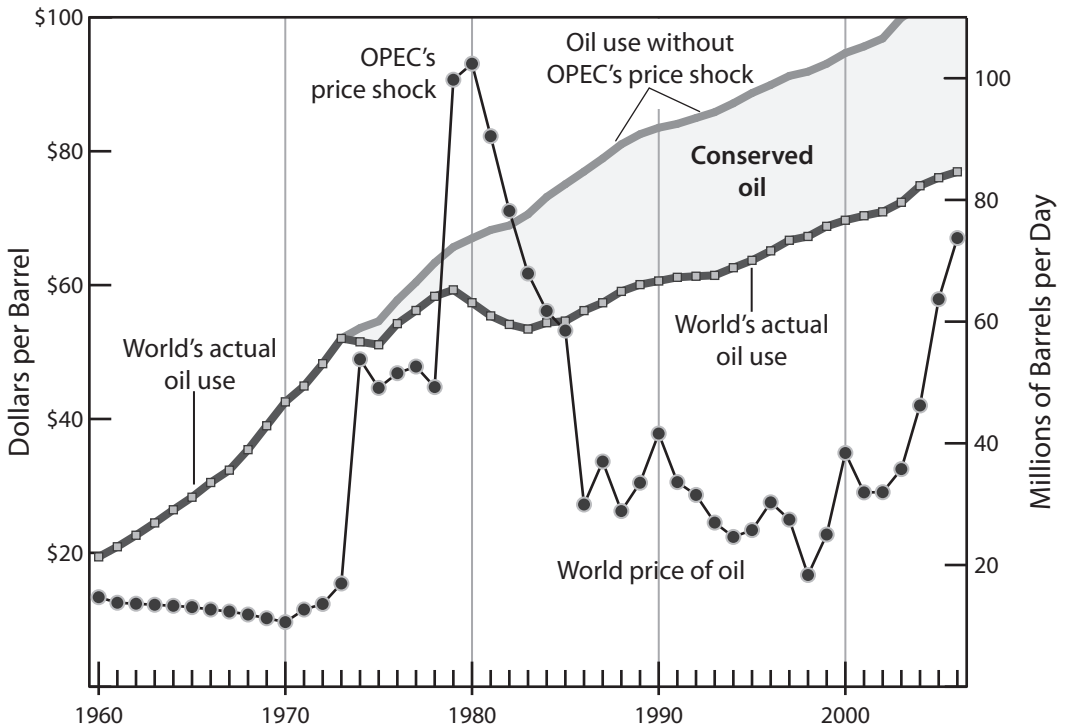
High Oil Prices Drive Conservation

By 1986, “the Saudis found their cartel losing its power; its soaring prices had shrunk demand.” William Safire, the well-known *New York Times* columnist and a self-described “right-winger,” provides this analysis in the chapter’s opening quote and goes on to make clear he’s talking about conservation. Safire’s remark demonstrates that in 1986, conservation was not a partisan concept. Conservation, with a little help from non-OPEC supplies of oil, defeated the mighty OPEC cartel. Conservation is the main way the world responds to high market prices. When price goes up, consumption comes down—but it takes a while for the full price effect to play out.

Market-driven conservation is a slow process—slow to get going and even slower to stop. Looking at recent high oil prices, people noticed that gasoline use was slightly higher in 2006 than in 2005, and many concluded that higher prices were not working to curb gas consumption. People thought the same in 1974, when the price of oil tripled and world oil consumption fell only 1 percent.

Market-driven conservation starts slowly because the best way to conserve is to switch to better technology. People don’t buy cars and refrigerators until they need new ones, and companies take years to design new, more efficient models. It takes a while for changes in technology to pay off. But starting in 1980, with new technology in place and oil prices spiking, Figure 1 shows world oil use taking an unprecedented four-year nosedive. Figure 1 also shows that people kept conserving after the oil price collapse. In fact, changes made in 1980 are still saving us oil, otherwise the price of oil would have hit \$100 a barrel years ago.

The Department of Energy (DOE) documented the unexpected size of the OPEC conservation effect back in 1980, and William Nordhaus, a respected Yale economist, discussed it in the *New York Times* that same year. Dale W.

Figure 1. OPEC Raised the Price, and the World Conserved Oil

The top line is estimated world oil use without the two OPEC crises. The line that branches off below it in 1974 is actual world oil use. The difference is the amount of oil conserved because of OPEC's high prices. Notice that changes made because of OPEC—things like fuel-economy standards and better insulation—are still saving an enormous amount of oil worldwide. Oil prices are in 2007 dollars.*

Jorgenson, whom I cited in Chapter 2, and Peter J. Wilcoxon are two of the country's best applied economists. They intensively studied the impact of the oil shocks on the United States and concluded that “over the period 1972–1987 U.S. emissions of carbon dioxide were stabilized by *price-induced energy conservation* [emphasis added].” Although carbon dioxide emissions worldwide did not stop increasing, they did stop increasing in the United States—for fifteen years. And during the crisis, global emissions also increased more slowly.

The Power of Price

The power of price lies in its ability to act in a million ways at once, many unexpected. Even when price directly affects people, they don't always recognize it. For example, consumers upset with high gas prices in 1975 lobbied for

Corporate Average Fuel Economy (CAFE) standards, federal regulations that require improved fuel efficiency in vehicles. These mileage standards continue to affect car buyers to the present day, but few recognize the role of OPEC's high prices in bringing about these energy-saving measures. Many people also failed to notice that the collapse of OPEC's price caused the freeze in mileage standards from 1985 until 2007. Lawmakers have revived increases in mileage standards only because oil prices have again risen for several years running. Even the energy gurus of the physics camp, who now push for stricter standards and ignore energy prices, owe their careers to OPEC's high prices. I say this not to belittle their work, but to point out how fundamental and varied the price effect is. Price changes everything. And the whole world responded to OPEC's high prices.

As Figure 2 shows, high prices also lead to increased supply. New oil supply generally requires new wells, and these take time to develop. As you can see in the graph, it took about five years after the first major price increase for supply to increase noticeably, and it took about seven years after prices declined, until 1993, for the extra supply to evaporate. The extra non-OPEC oil supply over the years did not total up to even one extra year of oil supply measured at the 2006 level. On the other hand, conservation provided us with the equivalent of eight or more years' worth of extra oil (see Figure 1). Conservation gave us ten times more bang for the OPEC buck than increased supply. Even today, the leftover conservation measures from the 1974 to 1985 OPEC crisis are doing more for us than the extra supply did at its peak in 1985.

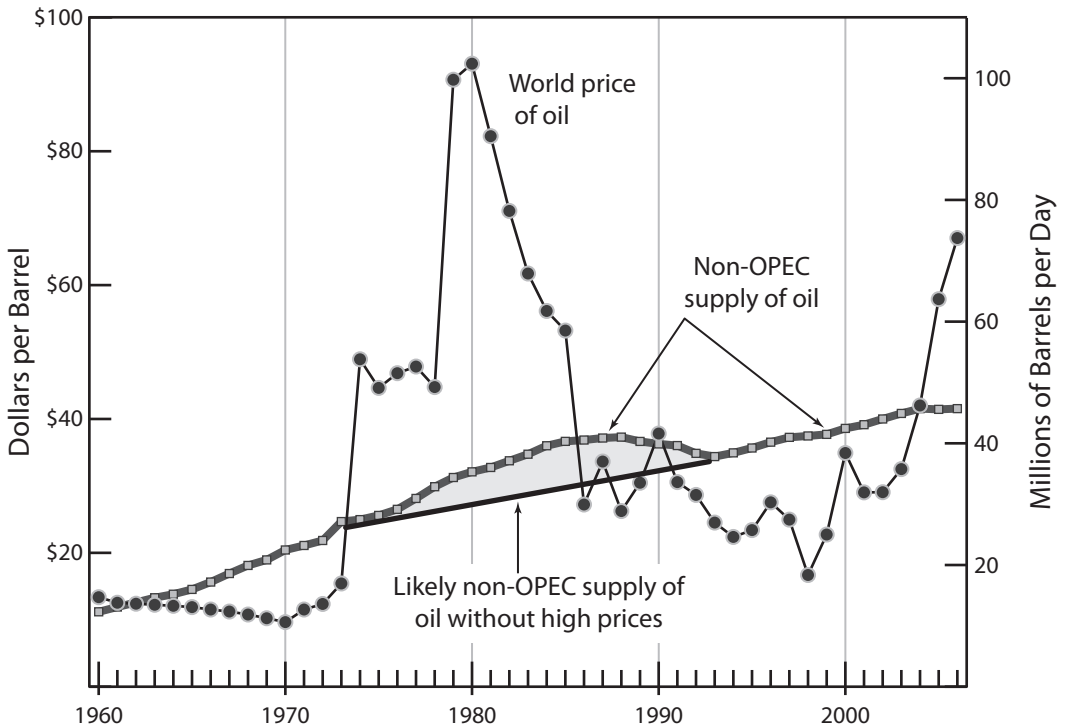
Did an Oil Glut Cause Prices to Fall?

The most dramatic change shown in Figures 1 and 2 is not the enormous conservation effort or the rise in non-OPEC oil production, but the rise and fall of the oil price itself. The price increased to six times its 1973 level, then plunged to less than a third of that new high. What caused these changes?

The oil embargo of 1973 and the Iranian revolution in 1979 sparked the price increases. But these two events do not explain the bulk of what happened. They only triggered OPEC's quest to increase profits by raising prices and cutting production. The upswings are just normal price gouging. But the price decrease is more puzzling.

Markets have a way of getting even. When some suppliers push the price up, the high price motivates consumers and other suppliers to take actions that push it back down. As we have just seen, OPEC's massive price hikes caused the two standard reactions—increased supply and reduced demand. Both changes happened slowly, so OPEC was able to hang on to its profits for several years.

Both increased supply and decreased demand lead toward a glut of unsold oil, which frustrates suppliers trying to sell their product. The most

Figure 2. High Prices Increase Supply but by Less than the Conservation Effect Shown in Figure 1

High oil prices lead to more exploration for oil and a greater supply of oil from non-OPEC countries. This is the cause of the “bump” in the non-OPEC oil supply line between 1976 and 1993. The extra supply shown here in gray is much less than the supply saved by conservation, shown in Figure 1. The two figures use the same scale to facilitate comparisons.*

effective way to sell is to cut the price, which OPEC did. But was an oil glut really why OPEC cut the price? It is important to be sure, especially if our national goal is to force such price cuts again. When OPEC cuts prices, it often gives a reason for the price reduction, such as a concern for the world economy. However, this is just part of the game. It is best to check what was actually happening when OPEC cut the price. The DOE maintains records of events in the world oil market, and this is part of the department’s history of that period:

- ▶ “1982. Indications of a world oil glut lead to a rapid decline in world oil prices early in the year. OPEC appears to lose control over world oil prices.
- ▶ 1983. Oil glut takes hold. Demand for oil falls as a result of conservation, use of other fuels, and recession.

- ▶ 1985. OPEC loses customers to cheaper North Sea oil. More OPEC price cuts.”

History confirms that an oil glut is what put pressure on OPEC’s price. When demand decreases or supply increases, suppliers cannot sell a portion of their oil until the price falls.

Although most of the story is just this straightforward, an unusual event occurred when the oil price first peaked:

- ▶ “1981. Saudi Arabia, a member of OPEC, floods the market with inexpensive oil, forcing unprecedented price cuts by other OPEC members. In October, all thirteen OPEC members align on a compromise [lower] \$32-per-barrel benchmark (in 1981 dollars).”

Why would a near monopolist flood the market? Saudi officials of the time would tell us they did so to set a lower, more reasonable price. Obviously they knew flooding the market would bring the price down, just as it did, but why did they want a lower price? Periodically, OPEC has lowered prices, and its members always make a fuss about how responsible they are being and how we all want a “stable” price.

The reality is different. The Saudis, in particular Ahmed Zaki Yamani, Saudi Arabia’s oil minister from 1962 to 1986, wanted a lower price because he was afraid OPEC’s extremely high price would soon bring a market response strong enough to crush that price. Yamani was right. Unfortunately for him, he could not get the other members of OPEC to lower the price to a level that was sustainable. Six years later, he was losing so much money from the oil glut caused by high prices that he started taking business away from other cartel members. This caused a complete price collapse, which disciplined the other cartel members, and the cartel is stronger for it now. Yamani, however, lost his job in the process.

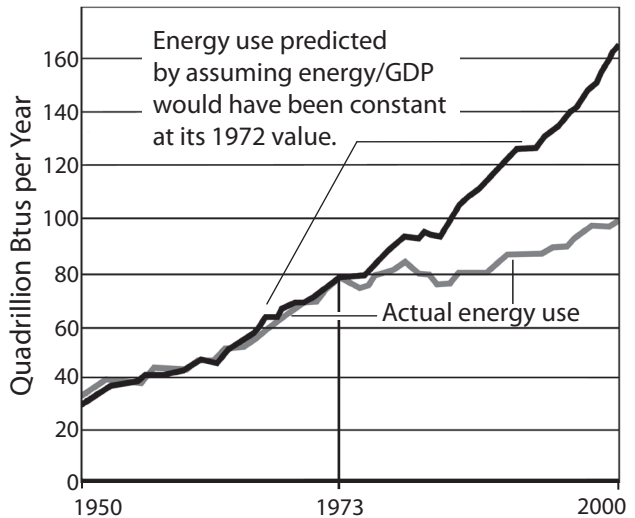
OPEC’s motives are simple. Its members want to make as much money as possible over the long run. This means they want the price of oil as high as possible without causing a market response strong enough to force the price back down. When OPEC overreaches, consuming nations react with strong conservation measures that push the price down again. OPEC has learned the hard way that this destroys long-term profits. Notice in Figure 2 the eighteen years of low prices OPEC suffered the last time it overreached. This time it is being more cautious, but has it been cautious enough? In a world richer than it used to be, with demand booming in developing countries, OPEC is betting it can keep the price high indefinitely.

Figure 3. Dick Cheney's Graph of OPEC-Induced U.S. Energy Conservation

This graph is Figure 8.1 from the 2001 report by Dick Cheney's National Energy Policy Development Group. It shows OPEC's enormous and enduring influence on conservation.

From 1950 through 1973, energy use is almost perfectly predicted by GDP. But starting in 1974, the first full year of the OPEC crisis, actual oil use falls increasingly behind the historical trend. The difference between the two lines is due to conservation.

By 2000, conservation is saving about 65 quadrillion Btu, and U.S. energy use is about 100 quadrillion Btu. Forty of the 100 "quads" of energy we use comes from oil, so 65 quads of conservation is far more energy than comes from the oil we use every year. This conservation is a response to OPEC's high prices from November 1973 through 1985.*



A Consumers' Cartel: Do-It-Yourself Conservation

High prices prompted the world's consumers to act as if they were part of a consumers' cartel. Consumers "cooperated" by reducing consumption to bring down OPEC's prices. Non-OPEC suppliers "cooperated" as well, though to less effect. But this pseudocooperation was just a reaction to the cost of paying tribute to OPEC, Big Oil and all other oil suppliers.

In six years, this "cooperation" brought the world's demand for oil back down to a level at which the world was safe from OPEC for another eighteen years. But the cost of this victory was enormous—as high as \$4 billion per day, or \$1.4 trillion dollars per year, in 1980.

Long before costs reached such extravagant levels, the world began searching for a way to cut costs. Former Secretary of State Henry Kissinger came close to finding it. In early February 1974, at a conference of thirteen oil-consuming nations, Kissinger proposed a "truly massive effort" of cooperation, according to the *New York Times*. "The United States will join with other consumer nations in a study of joint conservation policies in an effort to hold down the use of energy," reported the *Times*. By the end of the year, the International Energy Agency (IEA) had been organized, with the intention that it act as a consumers' cartel.

Had the IEA been effective, it could have prevented the second energy crisis, which doubled of prices starting in 1979. Although the IEA failed as a consumers' cartel, conditions are now more favorable for cooperation, as I will

discuss in later chapters. But that early OPEC experiment can teach us how effective a cartel could be—how much conservation it takes to reduce OPEC’s price of oil.

Figures 1 and 2 show that, from 1979 through 1985, a 35 percent change in *net* demand (demand reduction plus non-OPEC supply increase) caused the price of oil to drop from about \$90 to about \$30 a barrel (in 2007 dollars). That’s a 200 percent drop if you compare it to \$30, but that method exaggerates a bit. The correct method uses a compound interest type of formula, which I won’t go into because the only point I wish to make is rather modest. For every 1 percent cut in world demand for oil, we should be rewarded, on average, with more—perhaps much more—than a 1 percent drop in the price of oil.

As we will see later, this is consistent with estimates that the IEA uses, the DOE uses, and other economic models also use. Cutting demand has a powerful effect on price.



In the chapter’s opening quote, William Safire explains that OPEC lost power because “its soaring prices had shrunk demand.” In the same 1986 column, he goes on to make a recommendation: “What we should do to help oil prices continue moving down to the mid-teens, and stay there, is no secret: ... impose a \$12-a-barrel oil import fee.” (The fee would be \$20 in 2007 dollars.) He points out that one virtue of the import fee would be to “encourage the continued conservation of fuel by the U.S. consumer.”

High energy prices have proved themselves as the most effective tool for achieving our twin goals of climate stability and energy security. When price rises, the demand side of the market responds more quickly and more vigorously than the supply side—and its response lasts longer. Put simply, conservation is about ten times more potent than supply increases.

OPEC’s great energy experiment proved it could raise prices—for a while. But we should learn a different lesson. High prices can stimulate enough conservation to bring world oil prices back down. Since that experiment cost us around a trillion dollars, we should learn what it had to teach us. It looks like we’ll be needing it again.