

# Oil and Gasoline



Christopher Furlong/Getty Images

Updated: Mar. 9, 2011

## Overview

More than a century and a half after its discovery, oil continues to play an essential role in the global economy, despite fears that reliance on petroleum is fueling rapid climate change. Over the last decade, the price of oil has taken a roller coaster ride, rising steadily from 2002 to 2007, soaring in 2008 to a peak of \$147 a barrel before plummeting to \$33 just five months later as the global economic meltdown suppressed demand. In 2010, after a year of less wild fluctuations signs of economic recovery and worries over vulnerabilities in supplies helped push prices up over \$80 a barrel.

In 2011, the increase in energy prices resembles the rise in 2008. Gasoline prices have risen by nearly a third in 2010, and oil costs more than \$100 a barrel for the first time in more than two years, driven by fears of extended Middle East supply disruptions and increased demand from an improving global economy. While the latest surge in energy prices is likely to cause some pain and slow the recovery from the [recession](#), economists say the spike is unlikely to derail the rebound unless prices rise a lot further.

This time, the American economy may be better prepared for higher fuel costs. One big reason is that consumers and businesses have learned lessons from the last oil shock. Many drivers, for example, have given up their gas-guzzling sport utility vehicles. Automakers, which are selling more [fuel-efficient](#) cars than five years ago, reported higher sales in February 2011 even as gas prices rose.

Industries like airlines and trucking, which are most severely affected by fuel prices, have passed on their higher costs almost immediately instead of waiting for the price increases to hammer profits.

And much of the rest of the United States economy is far less dependent on oil than it used to be. Oil consumption has dropped more than 5 percent since 2005, while [natural gas](#) use has risen 10 percent. A glut of domestic natural gas has kept prices

low, providing a lift to industries like chemicals and pharmaceuticals and tempering the price of electricity, much of which is generated from natural gas.

While it remains the top source of energy, oil has fallen off its pedestal since the energy shocks of the 1970s and 1980s, which proved how reliant the developed world had become on petroleum products, and how vulnerable it was to shortfalls in supplies.

In 1973, oil accounted for 46 percent of the world's total energy consumption; by 2005, its share had declined to 35 percent. But oil remains well ahead of other energy sources: coal meets 25 percent of the world's energy needs, natural gas is next with a market share of 20 percent, and nuclear power meets 6 percent of the planet's energy needs.

It is unclear how long energy prices will stay high. Most oil exports from Libya have stopped amid the fighting there. But Kuwait's oil minister, Sheik Ahmad al-Abdullah al-Sabah, said that the Organization of the Petroleum Exporting Countries was discussing whether to hold an emergency meeting to increase oil production. Saudi Arabia has also said it would pump more oil to make up for the shortfall in Libyan exports.

Some economists say that the increase in oil prices over the last year, well before the wave of protests in the Middle East and mostly caused by higher demand, may already have cost the United States economy hundreds of thousands of jobs. One rule of thumb is that each \$10 increase in the price of a barrel of oil knocks 0.2 to 0.3 percentage points off the growth rate of the economy.

Besides price volatility, concerns about energy security, as well as the environment and the threat of global warming, have once again put oil's position under pressure.

An explosion on April 20, 2010 aboard the Deepwater Horizon, a drilling rig working one mile below the surface of the Gulf of Mexico, led to the accidental release of nearly five million barrels of oil, the world's largest spill by far. BP, the rig's operator, failed repeatedly to plug the leak but the catastrophe did not lead to widespread efforts to reduce oil use.

It did, however, lead to a wave of new regulation and legislation that promises to fundamentally remake an industry that has operated hand-in-glove with its government overseers for decades.

## **Historical Background**

The existence of oil seeps has been known since the dawn of civilization. But the industrial revolution created the need for better lighting.

The first commercial oil well was struck by Colonel Edwin L. Drake in Titusville, Pennsylvania, in 1859, igniting an oil rush that quickly spread to Texas and California. At the time, oil in the form of kerosene was used as fuel for lamps.

Spurred by the automobile revolution at the beginning of the new century, which brought on a huge demand for gasoline, the nascent industry quickly expanded around the world, with geologists fanning the globe and striking oil from Russia to Indonesia. By the 1950s, most of the big fields of the Middle East, including Saudi Arabia's giants, had been discovered.

After the Second World War, the business was dominated by a small group of very powerful and mostly American companies, which were dubbed the Seven Sisters: Standard Oil of New Jersey, which later became Exxon; Royal Dutch Shell, an Anglo-Dutch company; British Petroleum, which eventually shortened its name to BP; Standard Oil of New York, or Socony, which became Mobil; Standard Oil of California, or Socal, later Chevron; Gulf Oil; and Texaco.

At the height of their power, these companies dominated the petroleum trade, and set international oil prices.

### **OPEC and the Birth of Oil Nationalism**

The turning point in the politics of oil came in the 1960s and 1970s, when new governments formed after the independence movement that swept through Africa and the Middle East began demanding a bigger share of the natural resources lying under their country. These demands led to the creation of the Organization of the Petroleum Exporting Countries, in 1960, in Baghdad.

Within a few decades, these governments nationalized their oil industries, formed national companies, and, in many places, kicked out foreign companies.

In the 1970s, international companies had unrestricted access to 85 percent of the world's known oil reserves at the time. The former Soviet bloc controlled 14 percent, and national oil companies only restricted access to one percent of the globe's known oil pool.

By the middle of this decade, the picture had changed dramatically. International oil companies only have full access to seven percent of the world's oil reserves today, mostly in the United States and the North Sea. The rest is either controlled by Russian companies or by national oil companies that offer limited access to foreign investments. Saudi Arabia, which holds a quarter of the world's known oil reserves, does not allow any foreign investments; its oil industry is controlled by Saudi Aramco.

Oil has unique features that make it hard to replace: Few other fuels pack as much punch in such a small volume, and can be so easily moved around. It also dominates the transportation sector, which accounts for 64 percent of all the oil used around the world. The rest is used in the petrochemical and plastics industry, as well as in construction and in some industries.

The various components that make crude oil can be separated by distillation. By increasing the heat, refiners can obtain various products, ranging from light fuels, like gasoline, to kerosene, gas oil, lubricating oil, and then to heavier products such as fuel oil, bitumen, and paraffin.

### **Oil Shocks**

The Arab-Israeli conflict of 1973, some Arab producers led by Saudi Arabia set up an oil embargo against the United States to protest against their support of Israel. While the embargo was short-lived, it drove up prices and showed how potent a weapon oil could be.

But for producers, the weapon turned out to be a doubled-edged one. Consuming countries began to establish energy policies that aimed at reducing their dependency on oil, encouraged conservation, and boosted the development of other sources of energy, including nuclear power.

The second oil shock of the late 1970s and early 1980s, which followed the Iranian Revolution, precipitated that movement. It also spurred a new wave of exploration in the North Sea and Alaska, where massive new reserves were discovered.

By the mid-1980s, however, with oil prices falling, energy policy in the United States took a backseat for the next two decades.

### The Rise of China

Since the beginning of the 2000s, the industry has undergone another major shift. The rise of China's economy meant that the developing world was becoming an increasingly important consumer of oil.

Between 1998 and 2008, China accounted for a third of the growth in global oil demand. Its consumption, which reached 8 million barrels a day, rose more than five times faster than the rest of the world.

Still, the United States remains the world's top consumer, accounting for roughly one in four barrels of oil. In 2008, it consumed 19.4 million barrels a day in 2008, out of a total of 84.4 million barrels a day.

### The Third "Oil Shock"

The inability of oil producers to crank up their production fast enough, and fears that demand might overtake supplies, helped fuel the run-up in prices of 2008. Investors piled into the commodity markets, which became increasingly viewed as a one-way street, while some market analysts and pundits talked about the prospect of oil at \$200 per barrel.

Over the summer, the surge in prices turned into a stampede. By July 2008, prices had surged to a record of \$147 a barrel, driving gasoline prices in the United States well above \$4 a gallon.

But as the global economy faltered, so did oil demand, and prices tumbled to \$34 a barrel by December. However, the respite was short-lived. By the middle of 2009, oil prices had again rebounded to \$70 a barrel. In March 2010, the price reached \$82 a barrel.

Gasoline prices hit a two-year high heading into the 2010 Christmas holiday, tracking crude [oil](#) prices, which rose on surging imports by China and a weakening of the dollar. Several Wall Street analysts predicted \$100 a barrel oil in 2011.

## Unrest in the Arab World

In 2011, events unfolding in the Arab world, the epicenter of global oil production, have been a sobering reminder that trading in oil, that mother of all commodities, is at heart a political game. Not since Iraq invaded Kuwait in 1990 have the politics of crude loomed so large. Like much of the Arab world, this market seems like a pocket full of firecrackers, just waiting for a match.

Few oil experts are surprised that the unrest has so unnerved the market. The world is thirsty for oil, and supply and demand are in delicate balance. There is little room for more disruptions in supplies. Indeed, spare capacity — essentially that amount of extra oil that OPEC members are able to produce in a pinch — is now about five million barrels a day. That is about 6 percent of the oil that the world consumes every day. That cushion is greater than in 2008, when it equaled about 2 percent of daily consumption, but it remains worryingly thin. And that is not even taking into account the loss of about one million barrels a day exported from [Libya](#), where an incipient civil war has stalled production..

The price of oil had been rising steadily even before the wave of pro-democracy protests swept much of the Middle East and North Africa. A recovering global economy had convinced traders that demand for oil was going to rise by about 2 percent in 2011. Some industry experts and Wall Street seers were predicting a gradual march back to \$120 and even \$150. The thinking was that investors would pour money into the commodity markets.

If prices keep climbing, consumers will in all likelihood tighten their belts. If prices stay high for long, the impact could be severe: every oil shock of the past 40 years has helped push the global economy into [recession](#).

Much now hinges on what happens next in the Middle East. The price spikes that accompanied the two Persian Gulf wars did not have deep impacts because of they did not last long enough. But several oil price increases have preceded economic downturns.

## Running Out of Oil?

As long as the world has relied on oil, it has feared running out of it.

In recent years, the theory of peak oil has resurfaced, claiming that the world's ability to increase production had reached its high-water mark, and that producers would not be able to maintain their output at current levels.

But thanks to new technologies, such as three-dimensional seismic imaging, horizontal drilling, or the ability to drill in ever-greater water depths, the industry has so far managed to raise its output. Many executives argue that the limits today are not to be found underground but in geopolitical factors above ground which limits access to oil reserves.

Still, policymakers are striving for ways to reduce oil consumption and reduce greenhouse gas emissions. In the United States, Congress has adopted very

aggressive mandates to spur the development of biofuels, while encouraging the growth in hybrid and eventually electric vehicles.

It's a daunting challenge. The world's population is expected to grow by 50 percent over the next four decades, and with it, the need for fuel.