



How We Got Addicted to Oil

150 years after oil was first struck in Pennsylvania, the world is scrambling to find new—and less problematic—sources of energy

By Peter Edidin

It's hard to imagine modern life without oil. And yet, as the Oil Age turns 150 this year, it's becoming clearer and clearer that this natural resource is both a blessing and a curse. Refined into gasoline and jet fuel, oil has brought mobility to people everywhere and raised the standard of living around the globe. It also powers factories and is an ingredient in countless products, from cellphones and medicines to asphalt, plastics, and cosmetics.

But on the downside, carbon dioxide emissions from gas engines are a major cause of global warming; oil revenues have helped fund autocratic regimes as well as terrorist groups bent on killing Americans and other Westerners; and the earth's known oil reserves are starting to run thin.

A race is now on to end, or at least lessen, the world's dependence on oil. Indeed, finding alternative sources of energy was one of President Obama's campaign themes. "Breaking our oil addiction is one of the greatest challenges our generation will ever face," he said. "It's going to take nothing less than a complete transformation of our economy."

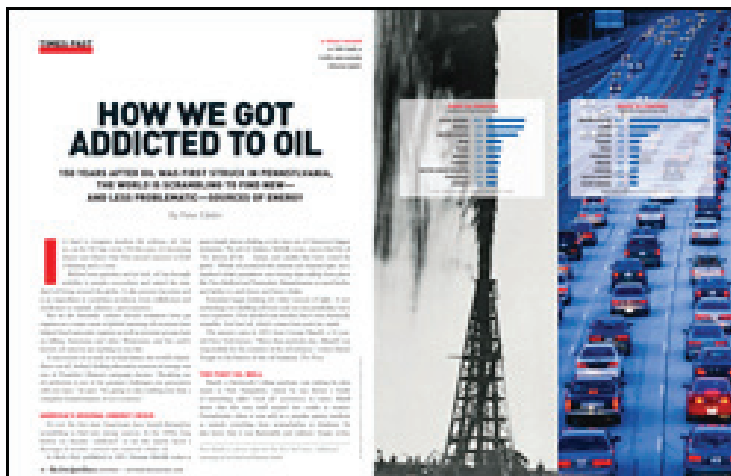
America's Original Energy Crisis

It's not the first time Americans have found themselves scrambling to find new energy sources. In the 1850s, long before we became "addicted" to oil, the nation faced a shortage of another critical raw material: whale oil.

In *Moby Dick*, published in 1851, Herman Melville writes at great length about whaling, at the time one of America's biggest industries. The job of whalers, Melville wrote, was to find the oil "for almost all the É lamps, and candles that burn round the globe." Whale oil produced the clearest and cleanest light, but a depleted whale population was forcing ships sailing from places like New Bedford and Nantucket, Massachusetts, to travel farther and farther to catch fewer and fewer whales.

Scientists began looking for other sources of light. A new technology for distilling oil from coal was one possibility, but it was expensive. Pure alcohol was another, but it was chemically unstable. And lard oil, which comes from pork fat, stank.

The answer came in 1853 from George Bissell, a 32-year-old New York lawyer. "More than anybody else, [Bissell] was responsible for the creation of the oil industry," writes Daniel Yergin in his history of the oil business, *The Prize*.



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The First Oil Well

Bissell, a Dartmouth College graduate, was visiting his alma mater in New Hampshire, where he was shown a bottle of something called "rock oil" (petroleum, in Latin). Bissell knew that this oozy stuff seeped into creeks in western Pennsylvania, where it was sold as a popular patent medicine to remedy everything from stomachaches to deafness. He also knew that it was flammable and realized, Yergin writes, "that it could be used not as a medicine but as an illuminant."

Bissell found a few investors and sold shares in a company that would drill for oil in Pennsylvania. The company bought land near Titusville, a small town 100 miles north of Pittsburgh, and in 1857 it sent "Colonel" Edwin Drake, a former railroad conductor, to oversee the venture. (The investors invented Drake's rank to impress the 100 or so residents of Titusville.)

Within two years, Drake had failed to produce any oil, most investors had given up on the project, and the company had sent a letter to Drake to cease operations. But the mails were slow, and on August 28, 1859, oil began seeping into the bottom of the drill pipe. (The letter arrived later that day.)

Drake's well pumped only 25 gallons a day, but it was enough to set off a speculative stampede. By the end of 1860, 74 wells in the area had pumped 200,000 barrels of oil, which was refined into kerosene, replacing whale oil in lamps.

Rockefeller and Standard Oil

The industry grew rapidly and oil was soon being pumped in New York, West Virginia, Ohio, Kentucky, Tennessee, California, Colorado, Indiana, and Kansas. (Not until 1901, when a gusher came in at Spindletop, Texas, was Pennsylvania supplanted as America's oil capital.) In those early days, the U.S. was a major exporter of oil. An 1863 article in *The New York Times* said that petroleum "had probably contributed more than any other source to swell our national commerce. American rock-oil is now exported to almost every quarter of the globe."

That same year, John D. Rockefeller founded an oil-refining firm in Cleveland, Ohio, that would become Standard Oil. Within 15 years, by mergers and putting competitors out of business, the Standard Oil trust controlled more than 90 percent of the nation's refining capacity. (President Theodore Roosevelt accused Standard Oil of being a monopoly and violating the Sherman Antitrust Act. In 1911, the Supreme Court agreed, ordering its breakup into companies that later became ExxonMobil and Chevron, among many others.)

Thomas Edison's demonstration in 1882 of a commercially viable electric lightbulb that would render oil lamps unnecessary briefly posed a challenge to the oil business. But an engineer working for Edison in Detroit named Henry Ford had been experimenting with gasoline engines in his spare time, and in 1886 he built his first automobile. A little more than a decade later, Ford introduced the Model T, which was built on a highly efficient assembly line and priced affordably for the masses.

By 1920, there were 8.5 million cars and trucks in the U.S., and gasoline had supplanted kerosene as the leading product made from oil.

But America's domination of the world's oil industry wouldn't last much longer. Early in the 20th century, oil was discovered in some of today's biggest-producing nations, including Canada, Russia, Venezuela, and Mexico.

(“How We Got Addicted...” continued)

The first oil discovery in the Middle East—which has proved to have earth's greatest oil riches, with powerful consequences for America and the world—was made by the British in Persia (now Iran) in 1908. Saudi Arabia, today the world's top oil producer, came on line when Standard Oil of California struck oil there in 1938 after five years of exploration.

During World War II, when American access to oil was critical to the defeat of Germany and Japan, President Franklin D. Roosevelt met with the Saudi king to discuss the importance of that country's oil to the West. "The immense oil deposits in Saudi Arabia alone make that country more important to American diplomacy than almost any other smaller nation," The Times reported in 1945.

Western governments and oil companies controlled most of the world's reserves for the first half of the 20th century, so there was rarely a question about having a ready oil supply. But in 1960, Iraq, Iran, Kuwait, Saudi Arabia, and Venezuela formed the Organization of Petroleum Exporting Countries (OPEC) to assert greater control over—and get higher prices for—their oil.

Arab Oil Embargo

Today, the oil cartel's 12 members control about two thirds of the world's known reserves. Meanwhile, American oil production peaked around 1970, making the U.S. and its two- and three-car families sprawled across the suburbs increasingly dependent on uncertain, and in some cases, hostile sources of foreign oil.

In 1973, the Arab members of OPEC instituted a five-month embargo to punish the West for its support of Israel during that year's Yom Kippur War between Israel and neighboring Arab nations. Oil prices quadrupled, leading to gas shortages, long lines at the pump, and rationing in the U.S. and Europe. (In the U.S., drivers with license plates ending in an odd number were allowed to buy gas on odd-number days, and those with even numbers on even-number days.)

The 1979 Iranian revolution, which turned Iran into an Islamic theocracy, led to a disruption of Iranian oil exports and new gas rationing and lines in the U.S. The takeover of the U.S. embassy by Iranian students in Tehran later that year, and the 455-day hostage crisis that resulted, stemmed in part from lingering Iranian anger at longstanding U.S. and British policies to protect the flow of Iran's oil to the West.

Eleven years later, in 1990, Iraq invaded neighboring Kuwait, partly because Saddam Hussein coveted Kuwait's vast oil fields. An American-led international military force drove Iraq out of Kuwait, but Saddam remained in power, setting the stage for the U.S.-led invasion in 2003 that toppled his regime.

In recent years, oil wealth has helped Iran fund Islamic militant groups like Hamas and Hezbollah, while Al Qaeda has found major funding sources in Saudi Arabia.

'A Herculean Project'

Today, the increasing demand for oil from the booming economies of countries like China and India has helped make oil prices increasingly volatile. (Gas topped an average of \$4 per gallon at the pump in the U.S. in the summer of 2008; it's currently around \$2.50.) The high price of oil was one of the factors that tipped the U.S. and world economy into the current recession.

Aside from oil's impact on politics and terrorism, its effect on the environment as a leading cause of global warming has spurred efforts to reduce the reliance on oil.

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Even without these issues, some oil experts say there is little choice but to look for alternatives because world oil production will peak in the coming decades—if it hasn't already.

President Obama has pledged billions for research into alternative energy and in May announced higher fuel-efficiency standards for American cars—an increase of 40 percent by 2016.

Ending America's dependence on oil is going to be "almost a Herculean project," says Tyler Priest, an energy expert at the University of Houston.

But, he adds, "I think people are beginning to see the downsides and make changes. It takes \$140-a-barrel crude oil and conflict in the Middle East and climate change to force us to reorient our priorities a little bit."

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