



South Belridge Oil Field California (Image by Antandrus)

Petroleum: A Magnificent Material Much Maligned

By Steve Goreham

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The use of petroleum is under attack as never before in today's society. But contrary to the cries of critics, petroleum and the things people can do with petroleum are a modern miracle and a foundation of modern society.

Last year, the Intergovernmental Panel on Climate Change of the United Nations [called](#) for the world to move to "near zero emissions" of carbon dioxide by the year 2100. President Obama has threatened to veto the Keystone XL pipeline bill. Activist Bill McKibben has [launched](#) a national effort to persuade universities and colleges to divest financial holdings in oil companies. These efforts target the oil industry with the aim of eliminating the societal use of petroleum.

But have you ever stopped to consider what petroleum products do for people each and every day?

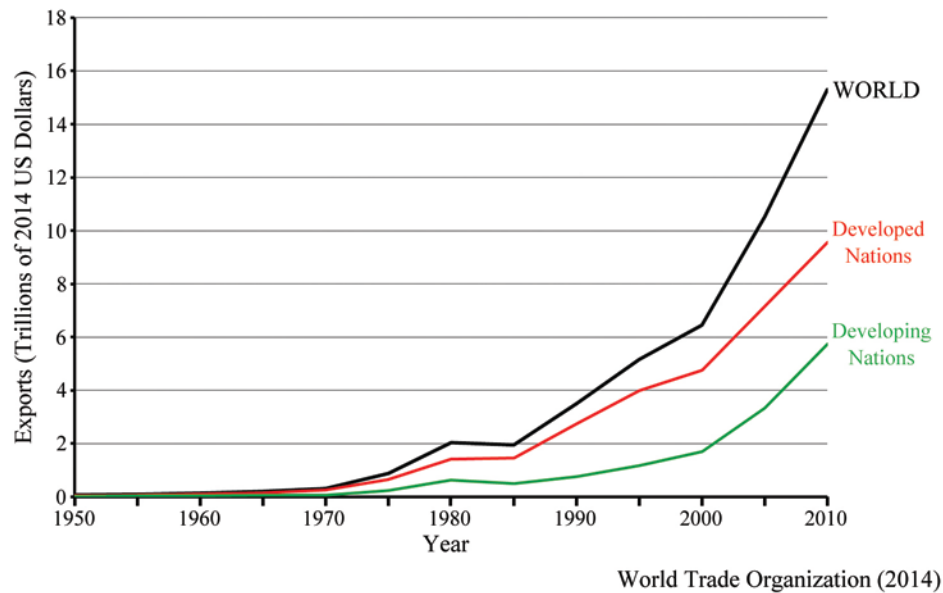
Back in 1620, it took the 120 passengers and crew of the [Mayflower](#) 25 days to travel from England to what was to become America. Two passengers died on the voyage. Today, a jumbo jet safely carries more than 300 passengers the same distance in less than seven hours. Each day, 25,000 commercial aircraft transport 9 million passengers a combined total of 10 billion miles, all powered by aviation fuel from petroleum.

Back in the late 1800s, the horse-drawn [carriage](#) became a preferred mode of transportation in major cities. By 1890, the average New York citizen took 297 horse car rides per year. The 200,000 horses of New York deposited three to six million pounds of manure in stables and on streets each day. When the "horseless carriage" replaced the mess and smell of the horse-drawn carriage, many regarded the car as a pollution-control invention. Each day today, fuel from petroleum powers more than one billion automobiles across the world.

Historically, goods traded between societies were transported by camel, wagon, and sail. While trade has grown throughout history, the value of total world exports amounted to only

about \$10 billion per year in 1900, measured in today's dollars. Since 1900, world [exports](#) have exploded, increasing 1,800 times to a total of \$18 trillion per year in 2013. Each day, more than 100 million tons of freight is carried by ship, train, truck, and plane, with more than 90 percent powered by fuel from petroleum.

World Trade 1950-2010



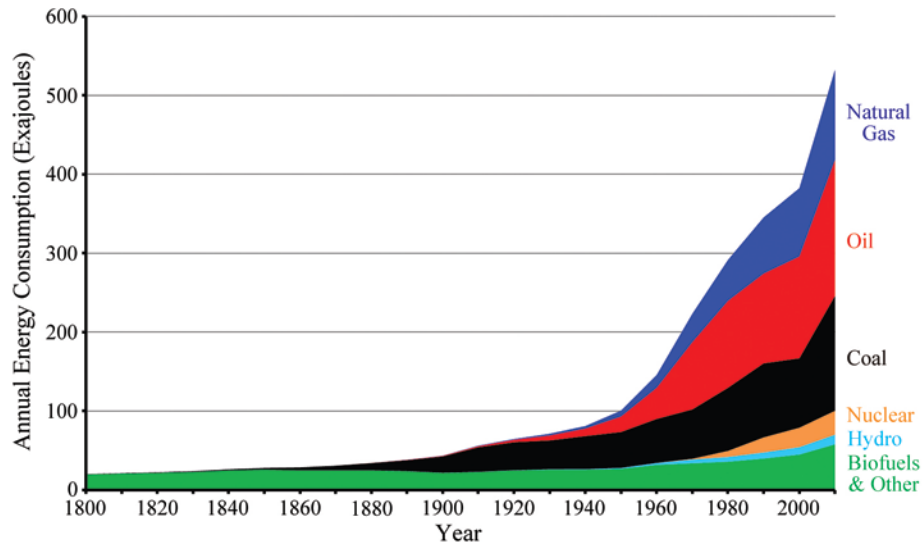
Back in 1809, Emperor Napoleon Bonaparte of France had a problem. When his armies marched across Europe, food supplies for his troops quickly spoiled. He offered a [reward](#) of 12,000 francs for a solution, which led to the invention of sterilized food sealed in tin cans. Historically, food was “packaged” in animal skins, glass, paper, metal cans, and wooden crates. Today, plastics from petroleum and other hydrocarbons provide safe, convenient, and inexpensive packaging for food and other products. More than two million plastic bottles and 1.3 billion plastic bags are consumed each day globally.

Each day, one-half million in-patient surgeries are performed across the world. Plastics from oil and natural gas play an essential role in modern medicine. Thousands of items, such as disposable catheters, surgical gloves, pharmaceutical drugs, hip implants and heart valves, bandages, and various parts of lab equipment are plastic, made from petroleum and other hydrocarbons.

Today we live in a golden age of low-cost energy. Just two hundred years ago, wood burning and human- and animal-muscle power provided more than 90 percent of society's energy. Since 1800, global energy usage has [increased](#) by 26 times. Today, more than 30 percent of the world's energy is provided by petroleum and more than 80 percent is provided by coal, natural gas, and oil.

Since 1800, global Gross Domestic Product has [increased](#) by a factor of 10, human life [expectancy](#) has more than doubled, and infant [mortality](#) is down by a factor of six. Since 1950, the years of education for world populations have more than doubled. In our golden age of hydrocarbon energy, people are wealthier, healthier, better educated, and enjoy more consumer goods and leisure time than any era in history.

World Energy Consumption 1800-2010



Smil (2010), International Energy Agency (2012)

Despite climate change warnings by the Obama administration and the United Nations, there is no evidence that carbon dioxide emissions from the petroleum industry have harmed a single person on Earth. Senior citizens continue to retire to southern states, disregarding foolish US government claims that warm climates are “dangerous.”

Satellite data shows global temperatures have been [flat](#) for the last 18 years, that storms are neither stronger nor more numerous than those of history, and that global sea ice extent [remains](#) at the 30-year average. Satellites further show that world vegetation has [increased](#) over the last 20 years, nourished by rising atmospheric CO₂. And today's polar bear [populations](#) are double the levels of 1960.

Nor is there evidence that petroleum use is causing increasing pollution of Earth's environment. Today, air and water pollution is declining in all major industrialized nations. Nations that use the most energy and petroleum have the best air and water quality and the best methods for handling disposal of wastes. Trends indicate that developing nations will also achieve declining pollution levels as their national incomes rise.

We're fortunate to be living in a golden age of energy, fueled by petroleum.

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