THE HISTORY OF ENERGY
Market Success and Government Failure

America has enjoyed 200 years of market success and endured 40 years of government policy folly on the energy issue. Is there reason to continue down the same path?

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Carter and the "energy crisis": President Jimmy Carter rode a wave of panic from the Arab oil embargo after the oil nations' disastrous Arab-Israeli war of 1973, but the reality is that there was plenty of oil in the ground for the world.

by Thomas R. Eddlem

The president announced in a nationally televised address that America stands on an energy precipice. The president warned:

> The energy crisis has not yet overwhelmed us, but it will if we do not act quickly. It's a problem that we will not be able to solve in the next few years, and it's likely to get progressively worse through the rest of this century.

President Obama?

No. It was President Jimmy Carter back on April 18, 1977. But even as Carter said those words, the "crisis" of the Arab oil boycott was already several years in the past. And it never reemerged. That didn't stop Carter from making apocalyptic-level predictions about what would happen if government did not set energy policy. "World oil production can probably keep going up for another 6 or 8 years. But sometime in the 1980s, it can't go up any more. Demand will overtake production. We have no choice about that," Carter told the nation, warning: "If we fail to act soon, we will face an economic, social, and political crisis that will threaten our free institutions."

Carter's plea included what can only be termed an alarmist rant about the end of the world as we know it: "But if we wait, we will constantly live in fear of embargoes. We could endanger our freedom as a sovereign nation to act in foreign affairs. Within 10 years, we would not be able to import enough oil from any country, at any acceptable price."

He also addressed his critics:

> Now, I know that some of you may doubt that we face real energy shortages.... The oil and natural gas that we rely on for 75 percent of our energy are simply running out. In spite of increased effort, domestic production has been dropping steadily at about 6 percent a year. Imports have doubled in the last 5

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> years. Our nation's economic and political independence is becoming increasingly vulnerable. Unless profound changes are made to lower oil consumption, we now believe that early in the 1980s the world will be demanding more oil than it can produce.... Because we are now running out of gas and oil, we must prepare quickly for a third change — to strict conservation and to the renewed use of coal and to permanent renewable energy sources like solar power.

None of those dire predictions came to pass, despite minimal federal action. World oil prices had fallen by two-fifths in real, inflation-adjusted prices by the end of the 1980s, averaging only $1.00 per gallon, and world production had reached new all-time highs. Though prices have risen since the late 1980s, in 2014, world oil production will see yet another all-time high. But Carter's fear-mongering about "rapidly shrinking resources" and claims that "we are running out of petroleum" generated a call for creation of a Cabinet-level U.S. Department of Energy to wage a conservation crusade that was the "moral equivalent of war."

Congress obliged Carter's request, but it wasn't the first time a president had called for creation of a new federal agency to promote conservation on the basis of an alleged oil shortage, nor was it the last.

The end of oil had been forecast as early as the dawn of the oil era, even before it supplanted coal as the chief fuel of the industrial age. As early as 1919, the popular magazine *Scientific American* posited that the United States would not make it past 1935 with any appreciable oil supply, in an article entitled "How Long the Oil Will Last." The editors of *Scientific American* suggested:

> And if anyone doesn't believe that we are now face to face with the time when the normal expansion of petroleum consumption must be curtailed, he is respectfully invited to contemplate one fact; all the oil that has been extracted from the earth since the beginning of the industry, as indicated in the last section of the diagram, would last, at the 1917 rate of consumption, less than 15 years."

The even more widely read *Saturday Evening Post* and various federal government officials with scientific-sounding titles followed up in subsequent years with similarly worded warnings about the end of oil within two decades, a massive fear-mongering campaign that led President Calvin Coolidge to convene a Federal Oil Conservation Board in 1924. The board came out with its first report in 1926 and rejected the idea of federal regulations, calling it "unwise" and beyond the constitutional powers of the federal government. While Oil Conservation Board members noted that oil was rapidly supplanting coal, then the dominant fuel of industry and transportation in America, they opposed granting new powers to the federal government without explicit constitutional authorization. In the 1920s, congressmen and other federal officials were sufficiently cognizant of the limitations of the federal government under the Constitution that when Americans were determined to ban possession of one drug — alcohol — they first passed a constitutional amendment to grant Congress the power. Today, Congress deems itself a constitutional convention in perpetual session empowered to ban whatever drugs it deems necessary — or institute whatever regulations it chooses — without quibbling over the text of the U.S. Constitution and its enumerated powers.

Federal Oil Conservation Board members also noted the dominant role of natural market forces in correcting shortages through the price mechanism. "I submit that it is infinitely better to allow eco-

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Fracking: New technology has made it practical to extract billions of barrels of oil that was previously uneconomical to obtain, and the United States is poised to become the world's largest oil producer in a few years as a result of this new technology.

Wood: Burning wood was the original method Americans used to stay warm in the winter. But as wood grew scarce, the free market found more efficient and cheaper substitutes, such as coal and oil, to power the industrial revolution.

nomic laws their play," Amos L. Beaty, president of the Texas Company (today known as Texaco), told the board at a May 27, 1926 public hearing. "I must decline the role of enthusiast on the results that can be obtained from lawmaking." Beaty stressed that market forces would solve any oil shortage by a combination of new research, better technology, more exploration, market-based conservation, and — if necessary — market-based substitutes.

Beaty's predictions have been corroborated, whereas alarmism by Carter and the *Scientific American* have been refuted, by the unfolding of historical events. According to the U.S. Energy Information Administration, proven U.S. oil reserves in the ground have grown over time. Proven U.S. reserves in 1899 were a mere 2.5 billion barrels, but had tripled to 7.5 billion barrels by 1924. Reserves tripled again by 1948, and peaked at 39 billion barrels in 1970, a time in which the United States was the third largest oil producer in the world. After 1970, U.S. oil reserves did shrink into the end of the 20th century. But since 2009, proven U.S. oil reserves have increased rapidly from 19.1 billion barrels back up to 30.5 billion barrels in 2012. Most experts expect U.S. proven reserves to continue to increase for at least the next decade.

Some have suggested U.S. oil reserves may increase exponentially. The U.S. Government Accountability Office reported on May 10, 2012 that "oil shale deposits in the Green River Formation are estimated to contain up to 3 trillion barrels of oil, half of which may be recoverable, which is about equal to the entire world's proven oil reserves." That's not just more than all of the oil in the Middle East, it's also more than all the oil consumed in all of human history. While the Green River Formation shale deposit has yet to be accurately measured, it's clear that huge new oil discoveries are within the realm of possibility.

World oil reserves have seen even greater increases. Proven world oil reserves have continuously increased throughout history, more than tripling since 1980 to the current level of 1.5 trillion barrels. Part of the reason is that the term "proven reserves" does not mean the total amount of oil in the ground, a figure that is not known by science, but the known amount of oil that can be commercially removed using current technology. Thus, much of the oil in the ground is not counted toward proven reserves because it is not removable under current market conditions or current technology.

Actual U.S. production of oil pumped from the ground — which indeed had lagged since 1970, as President Carter had observed — has seen a revival in recent years due to use of new technology such as fracking and tapping oil sands. U.S. production of oil increased from 9.1 million barrels/day in 2009 to 12.3 million barrels/day in 2013, a 35-percent increase in just four years. Most observers expect the United States to become the world's largest oil producer within just a few years. In 2013, U.S. production exceeded Russia's oil production, the second largest oil-producing nation, and approached Saudi Arabia's production levels. Meanwhile, U.S. oil consumption has decreased one million barrels in the same time period, to 18.5 million barrels per day.

The recent oil boom in the United States has quieted the alarmists for the time being, who just six years ago were in fever pitch. The July 2008 *GQ* magazine screeched at the time that "peak oil" was a buzzword signaling global production would inevitably sag in coming years: "According to a growing number of experts — and we're not just talking about conspiracy wackos here — we're on the brink of an economic crisis that could lead to, well, the end of life as we know it."

More recently, *Time* magazine fretted that the recent oil boom is "bad news for climate policy." *Time* Senior Editor Bryan Walsh noted on May 15, 2013, "Only the shock of being severed from the main fuel of modernity would be enough to make us get serious about tackling climate change and shifting to an economy powered by renewable energy and efficiency. We'd have to because we'd have no other choice, save a future that might look something like Mad Max. We'd lose oil but save the world." The fervent hope by leftist alarmists that the United States will undergo a major economic crisis to force an environmentalist agenda through Congress perhaps explains why some people have exaggerated the real challenges of the energy market in the future.

The real economics of energy revolve around prices and substitutes available with current technology. Steve Horwitz, Ph.D. of St. Lawrence University told the Institute for Humane Resources that the supposed end of oil is a "contemporary economic myth" because:

We are not really running out of oil.

In fact, as oil prices rise, what oil producers do is to begin to look for new sources of oil. The reason those proven reserves keep rising is because as the price goes up, it becomes profitable to search for oil in places that [were] previously too expensive. So as a result, we end up finding oil that we didn't know existed before the price began to rise.

1800s Energy Crisis: Wood Shortage

The oil "shortage" was not the first energy shortage in American history, as the American nation has undergone two major shifts in fuels over its more than 200-year history. Americans heated their homes with coal before oil, and with wood cut from hardwood trees before that. Before the dawn of coal as a widespread fuel in the late-1800s, wood was the primary means of heating American homes in the winter. While the nation has never lacked a sufficient quantity of coal to burn, in the mid-1800s much of the traditional forests of the eastern United States had been clear-cut for fuel and building construction, and to free land for agriculture. The U.S. Energy Information Administration explained, "Energy consumption patterns have changed significantly over the history of the United States as new energy sources have been developed and as uses of energy changed. A typical American family from the time our country was founded used wood (a renewable energy source) as its primary energy source until the mid- to late-1800s."

While some forest wood for heat was farmed — renewed over decades in planned harvests — much of New England and the rest of the country was heated through clear-cutting forest. Harvard University's "Harvard Forest" laboratory explained, "The peak of deforestation and agricultural activity across most of New England occurred from 1830 to 1880. Across much of New England, 60 to 80 percent of the land was cleared for pasture, tillage, orchards and buildings. Small remaining areas of woodland were subjected to frequent cuttings for lumber and fuel." Travelers on New England roads could observe in the late 1800s that they might travel the 100 miles from Boston to Hartford, Connecticut, and not see a single tree on the trip through the once-omnipresent forested land.

On the plus side, much of the brilliant colors in New England's fall foliage is due to the maple trees that grew up in the 1900s to replace the oak and chestnut trees cut down in the clear-cutting of the 1800s.

The same type of clear-cutting of forest wood was true across much of the rest of the country until coal became a mass-produced heating fuel for Americans in the mid-1800s. But Americans did not switch to coal because of federal government mandates or subsidies. Instead, they switched to coal because it was a more efficient heating agent, and it was cheaper to use. Poor American city dwellers chose coal over wood because heating homes with wood from tree farms had become more expensive than more efficient and less expensive coal.

Ironically, Jimmy Carter acknowledged this market change in his alarmist 1977 speech seeking government intervention: "Twice in the last several hundred years, there has been a transition in the way people use energy. The first was about 200 years ago, when we changed away from wood — which had provided about 90 percent of all fuel — to coal, which was much more efficient. This change became the basis of the Industrial Revolution. The second change took place in this century, with the growing use of oil and natural gas."

Coal reigned as the fuel of choice until a cheaper and more efficient substitute took its place: oil. According to the U.S. Energy Information Administration, "Coal became dominant in the late 19th century before being overtaken by petroleum products in the middle of the last century, a time when natural gas usage also rose quickly. Since the mid 20th century, use of coal has again increased (mainly as a primary energy source for electric power generation), and a new form of energy — nuclear electric power — emerged. After a pause in the 1970s, the use of petroleum and natural gas resumed growth, and the

America's most plentiful energy: Coal was the first energy source of the industrial revolution, and there is enough in the ground in the United States to last hundreds of years at current rates of consumption. Disfavored by environmentalists, coal is mainly used for production of electricity in America today.

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overall pattern of energy use since the late 20th century has remained fairly stable."

Oil "Crisis" to Promote Environmentalism Today

President Obama has taken over where Jimmy Carter left off, telling the nation that "oil is a finite resource" in a June 15, 2010 national address after the British Petroleum gulf oil spill. "For decades, we have known the days of cheap and easily accessible oil were numbered. For decades, we've talked and talked about the need to end America's century-long addiction to fossil fuels." But if there is a lesson to be learned from the past few years of renewed oil production in the wake of rising global oil prices, it's that consumers will choose substitutes when oil is no longer cheaper than the alternatives. For now, oil remains one of the cheaper energy options when compared with renewable biofuels or coal-based electrical heat.

Environmentalists may claim that federal mandates — such as CAFE standards for automobile efficiency and mandates to use ethanol — have curbed production, and it is possible this had a small impact. But actual reductions in oil demand — both in the United States and abroad — only occurred in the last few years as real oil prices have risen in the global market. While American consumption of oil peaked in 2005, CAFE regulations have been on the books since the 1970s, and the ethanol mandate didn't take effect until 2008 — three years after oil consumption began declining anyway in the wake of spiking prices on the global market.

Consumer Energy "Sacrifice"

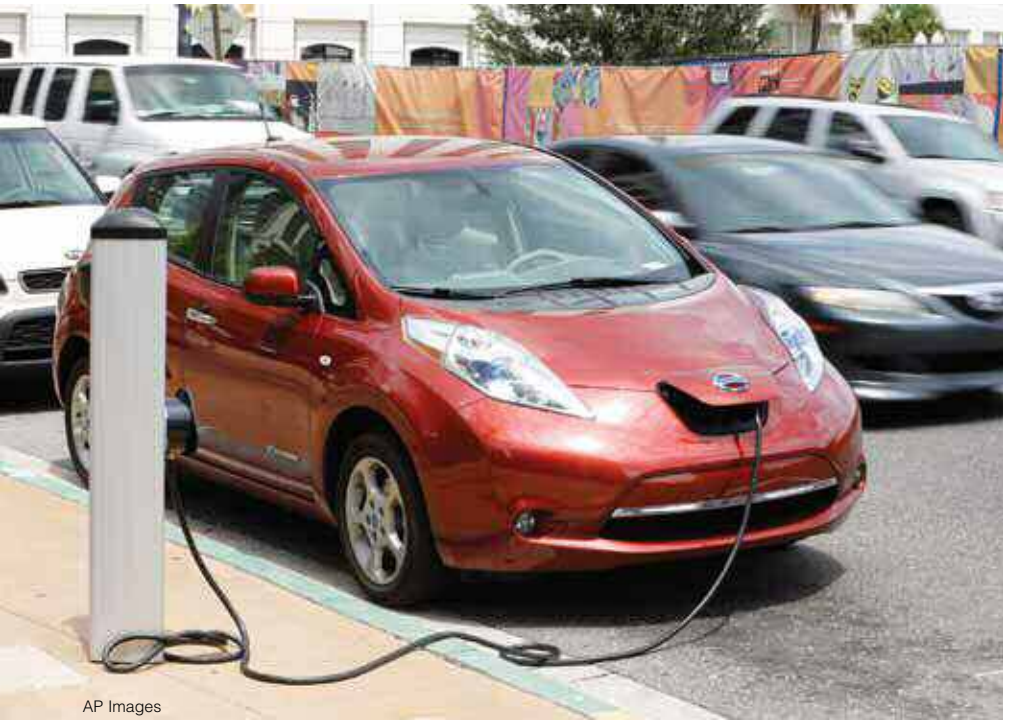
From the beginning, President Obama has embraced the government-mandate model to move Americans away from oil and other fossil fuels, usually under an environmentalist rubric. Obama said on the campaign trail in a January 2008 interview with the *San Francisco Chronicle*, "Under my plan of a cap and trade system, electricity rates would necessarily skyrocket."

Carter was equally explicit back in 1977: "Our solutions must ask equal sacrifices from every region, every class of people, and every interest group. Industry will have to do its part to conserve just as consumers will." After telling Americans that they must "sacrifice," Carter told the Americans that conservation is "the quickest, cheapest, most practical source of energy," which he described as "the cornerstone of our policy, ... to reduce demand through conservation."

The Real "Peak Oil"

Forcing Americans to conserve oil and other fossil fuels through government mandates is unnecessary, even if one accepts the proposition that we are running out of oil or other energy resources. After all, a dwindling supply of oil or anything else would cause upward pressure on prices, encouraging voluntary conservation or the development of alternatives. But the *Economist* observed a different type of "peak oil" in its August 3, 2013 article "Yesterday's fuel." The *Economist* postulated of oil-shortage alarmists: "We believe that they are wrong, and that oil is close to a peak. This is not the 'peak oil' widely discussed several years ago, when several theorists, who have since gone strangely quiet, reckoned that supply would flatten and then fall. We believe that demand, not supply, could decline. In the rich world oil demand has already peaked: it has fallen since 2005." Partly because of a rise in prices for oil at the pumps in recent years, consumers have demanded more efficient vehicles across the world's advanced economies. But advancing technology has also played a role, according to the *Economist*. "Analysts at Citi, a bank, calculate that if the fuel-efficiency of cars and trucks improves by an average of 2.5% a year it will be enough to constrain oil demand; they predict that a peak of less than 92m b/d will come in the next few years."

Reduction in demand by consumers using the free market price incentive has already hinted at how this "energy crisis" will be solved. The only question is: Will the market correct itself before inefficient politics injects itself ever more deeply into the mix, costing taxpayers billions in more bad loans for risky — and politically connected — "alternative" energy companies such as Solyndra ($570.4 million), Abound Solar ($494.3 million), Fisker Automotive ($160 million), Range Fuels ($163 million), A123 ($390.1 million), and Abengoa ($2.8 billion)? And will the market change take place before more costly political regulations inefficiently try to manipulate the market with more unnecessary federal mandates? ■



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Energy efficiency and price: As the price for oil goes up, consumers will choose electric power or other oil alternatives to power their automobiles, so there is no need for government regulations to reduce energy consumption.