

150 years ago, world entered the age of oil

On this anniversary, let's consider whether it's time for new strategy

By **GAL LUFT**

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One hundred and fifty years ago last Thursday, in the sleepy lumber town of Titusville, Pa., “Colonel” Edwin Drake was persistently hammering a pipe into the ground in search of a replacement for depleting whale oil as a fuel for lamps. At a depth of 69 feet below ground he finally struck oil, and the world changed forever. Over a century and a half his 25 barrels per day well would give rise to a global industry of 85 million barrels per day, making oil the world's most strategic commodity, one that supplies 40 percent of the world's energy.

Just like in Drake's own life — he died two decades later penniless — oil has been both a curse and a blessing for humanity. It has been a driver of seminal events and a backdrop behind great powers' foreign policy. During World War I, “the Allies had floated to victory upon a wave of oil,” as the British statesman Lord Curzon noted. The post-war contention between Turkey and Britain in the early 1920s over Iraq's oil-rich Mosul, Imperial Japan's expansionist policy of the 1930s that led to a four-year war in the Pacific, Adolf Hitler's invasion of Russia, America's repeated military interventions in the Middle East and the “New Great Game” currently taking place in Central Asia have all been tied to oil dependence.

On the other side of the balance sheet, petroleum has enabled the production of industrial chemicals, medicines, plastics, asphalt and lubricants, all of them critical to our modern society (contrary to popular belief, the U.S. uses very little oil today to make electricity. At present, only 2 percent of U.S. electricity is generated from oil.) Most importantly, it has enabled mobility, and hence a rapid flow of goods and services, perhaps the key contributor to the impressive global economic growth of the modern era. Today, roughly two-thirds of the world's oil is used for transportation. More importantly, most of the world's cars, trucks, planes and ships can run on nothing but oil.

Oil's 150th birthday is a somber one. It has only been one year since oil prices were at their historic high of \$147 a barrel and gasoline reached more than \$4 a gallon. Since then, on the heels of a painful global recession, prices have dropped sharply and motorists are again indulging on cheap gas. But as James Schlesinger, America's first energy secretary, once said, when it comes to energy “we have only two modes — complacency and panic.” And panic will inevitably resurface once the economy zooms out of the recession and demand for liquid fuel surges. The reason is that the current economic conditions have thwarted the much needed investment in new production. Within OPEC alone, 35 major exploration projects have been shelved since last year.

Failure by producers to prepare the ground for the post-recession era could send oil prices to much higher levels than those we saw last summer. This could, in turn, drive the world into a new round of economic turmoil, leading to a W-shaped, double dipped, recovery instead of a traditional V-shaped recovery in which economic growth bounces back quickly from a slump.

In the more distant future, even darker clouds loom on the horizon. After recently examining the status of the world's 800 top oil fields, the International Energy Agency (IEA) concluded that the world is heading for a severe oil shock because most of those fields have passed their peak production and are declining at a rate twice as rapid as previously thought. The agency stated that in order to meet future demand for oil, four new Saudi Arabias will have to be added to the global oil market between now and 2030. But this year's warning of Ali al Naimi, the Saudi oil minister, of a coming "catastrophic" shortfall in petroleum production raises doubts whether we can count on the one Saudi Arabia that exists, not to mention the four that don't.

And yet, despite the multiple warnings that, in the words of the IEA's chief economist, "We have to leave oil before oil leaves us" and despite our politicians' proclamations about the need to "break our oil addiction," we do the exact opposite: Every year more than 50 million new petroleum-only cars roll onto the planet's roads, each with an average street lifespan of 15 years, hence locking our future to petroleum for many years to come.

To prevent price volatility and meet the staggering need of our economy for oil, we must first understand that the much touted policies that aim to either increase oil supply through domestic drilling or decrease its use by boosting fuel efficiency, while helpful, are insufficient as they do not address the factor that gives oil its strategic status: the petroleum-only vehicle.

In fact, experience of the past three decades shows that whenever oil producers like the U.S. increase their production, OPEC, a cartel that owns 78 percent of world oil reserves but remarkably produces today fewer barrels per day than it did 35 years ago, decreases supply accordingly, keeping the overall amount of oil in the market the same. Similarly, when demand for oil drops, as was the case over the past year, OPEC quickly responds with production cuts. In other words, when we drill more, OPEC drills less; when we use less, OPEC drills less. Changing this vexing dynamic requires game-changing strategy — competition and fuel choice in the transportation sector that can only be achieved if every new vehicle is built as a platform on which fuels can compete.

A few types of vehicle technologies already offer such a possibility. The first, and most affordable, is the flex-fuel vehicle that can run on any combination of gasoline and alcohol (alcohol does not mean just ethanol, and ethanol does not mean just corn). It costs an extra \$100 per new car to make a regular car flex-fuel. All it takes is a fuel sensor and a corrosion-resistant fuel line, since alcohol is more corrosive than gasoline. An open fuel standard requiring that every new car sold in the U.S. be flex-fuel would not only give rise to an industry of alternative fuels and the associated refueling infrastructure, but it would also drive foreign automakers to add fuel flexibility to all of their models, effectively making it an international standard.

Electricity is another springboard to the post-petroleum era. It is cheap, largely clean, domestically produced and can be made from multiple sources. Its refueling infrastructure is widely available. All that is needed for an electric car to connect to the grid is an extension cord. Most automakers have already committed to produce models of limited range pure electric vehicles (EV) or plug-in hybrid electric vehicles (PHEV). The latter allow drivers to travel on stored electric power for the first 20-40 miles after which the car keeps running on the liquid fuel in the tank, providing the standard 300 mile to 400 mile range. For the 50 percent of Americans who drive 25 miles per day or less, shifting from barrels to electrons would make the visit to the local gas station a rarity. If all of those Americans owned PHEVs, a population the size of New York, Florida and Pennsylvania combined would be off oil most days of the year. A PHEV would normally drive 100-150 miles per gallon of gasoline. If it is also made as flex-fuel and fueled with a blend of 80 percent alcohol and 20 percent gasoline, oil economy could reach more than 500 miles per gallon of gasoline.

As former Saudi oil minister Sheikh Ahmed Zaki Yamani once observed, “Technology is a real enemy for OPEC.”

Skeptics of this vision hold that oil is not likely to easily vacate its pedestal and that the world may no longer be awash with conventional oil, but the amount of reserves offshore and in the universe of nonconventional sources like oil shale and tar sands can extend oil's play for decades to come, albeit at a great cost to the environment. Additionally, they explain, alternative fuels and advanced automotive technologies will no doubt face nontrivial challenges on their way to mass-market penetration. But even those skeptics would shudder at the prospects of a nuclear Middle East, with its massive youth bulges and lurking social discontent. The obvious advantage to having the key to global mobility should be enough of an impetus to ensure that in the 200th anniversary of Drake's discovery, oil be far less central to the world economy than it is today.

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