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## Iran and Brazil Can Do It. So Can We.

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When the founding fathers declared our independence, they could not have imagined that, 232 years later, the United States would be so spectacularly dependent on foreign countries. It would be roughly eight more decades before oil gushed from a well in Titusville, Pa., marking the beginning of the global oil economy; it took eight decades more for the United States to become a net oil importer. But the republic's disastrous dependence on foreign oil has increased by leaps and bounds ever since.

In 1973, when [OPEC](#) imposed its oil embargo, U.S. oil imports composed 30 percent of our needs; today, they make up more than 60 percent, with a growing proportion of that crude coming from the world's least stable regions. At around \$145 a barrel, the United States, by my calculations, will spend more on imported oil this year than it will spend on its own defense budget, and much of that money will flow into the coffers of those who wish us ill.

Since oil dependence is so unappealing, you'd think that energy independence would be an easy sell, especially on this Fourth of July weekend. But in fact, very few policy ideas have been so ridiculed. A 2007 report by the National Petroleum Council, a privately funded group that offers advice from the oil and gas industries to the federal government, calls energy independence "unrealistic"; a recent book, "Gusher of Lies," by Robert Bryce, a former fellow at a think tank funded in part by energy interests, described energy independence as a "dangerous delusion"; and a 2006 [Council on Foreign Relations](#) task force went so far as to accuse those promoting energy independence of "doing the nation a disservice by focusing on a goal that is unachievable over the foreseeable future."

Ignore them. Energy independence does not mean that the United States must be entirely self-sufficient. It simply means reducing the role of oil in world politics -- turning it from a strategic commodity into merely another thing to sell.

Is energy independence a pipe dream? Hardly. In the electricity sector, the mission has already been accomplished. Remember President [Jimmy Carter](#) in his cardigan during the oil crises of the 1970s, urging Americans to save electricity? It took us just one decade to wean the electricity sector from oil. Today, only 2 percent of U.S. electricity comes from oil, according to the [Energy Department](#). Could we do something similar with transportation, where American cars and trucks still gulp oil-based fuel greedily? At least four very different countries -- dictatorships and democracies alike -- are already making serious headway toward that goal. It's past time to pay attention to their example.

The first country, surprisingly enough, is Iran. The Islamic republic has lots of crude but little capacity to refine it, leaving Tehran heavily dependent on gasoline imports. The country's blustery president, [Mahmoud Ahmadinejad](#), is fully aware that this is Iran's Achilles' heel and worries that a comprehensive gasoline embargo could cause enough social unrest to undermine his regime.

So Ahmadinejad has launched an energy-independence program designed to shift Iran's transportation system from gasoline to natural gas, which Iran has plenty of. "If we can change our automobiles' fuel from gasoline to [natural] gas during the next three-four years," he said last July, "we won't need gasoline anymore." His plan includes a mandate for domestic automakers to make "dual-fuel" cars that can run on both gasoline and natural gas, a crash program to convert used vehicles to run on natural gas

and a program to convert Iranian gas stations to serve both kinds of fuel. According to the International Association of Natural Gas Vehicles, more than 100 conversion centers have been built throughout the country: Iranians can drive in with their gasoline-only cars, pay a subsidized fee equivalent to \$50 and collect their newly dual-fuelled cars several hours later. Ahmadinejad's plan, which has been largely ignored by the West, means that within five years or so, Iran could be virtually immune to international sanctions.

While Iran is moving quickly toward energy independence, Brazil is already there. It's a striking turnaround; three decades ago, the country imported 80 percent of its oil supply. But since the 1973 Arab oil embargo, the Brazilians have invested massively in their sugar-based ethanol industry and created a fleet of vehicles that can run on the resulting fuel. According to the Sugar Cane Industry Union (Unica), 90 percent of the new cars sold this year in Brazil will be flexible-fuel vehicles that cost an extra \$100 to make but can run on any combination of gasoline and ethanol.

Lest anyone think that can't be done in the United States, many of those new cars are made by [General Motors](#) and Ford. All it really takes to turn a regular car into a flex-fuel one is a fuel sensor and a corrosion-resistant fuel line.

Discovering how to make hydrocarbons and carbohydrates happily cohabit in the same fuel tank isn't all that Brazil has done; it has also increased domestic oil production. Its efforts have not only broken the yoke of Brazil's oil dependence but also insulated the country's economy from the pain of the current spike in global oil prices. Gasoline prices have nearly doubled elsewhere since 2005, but in Brazil, they have been almost frozen. This year, more ethanol will be sold in Brazil than gasoline. Sounds pretty good, doesn't it?

Like Brazil, China has decided to replace gasoline with alternative fuels. But unlike the United States and Brazil, where the favorite substitute is ethanol, China has embraced a different alcohol: methanol. Several provinces in China already blend their gasoline with methanol, a clear, colorless liquid also known as wood alcohol, and scores of methanol plants are currently under construction there. The Chinese auto industry has already begun to produce flex-fuel models that can run on methanol. Shanxi, a province in central China that produces much of the country's coal, has even issued stickers granting cars that use pure methanol free passage on the province's toll roads.

The distinction between methanol and ethanol is just one letter (but then, so is the difference between Iran and Iraq). Both biofuels should be in our basket of options. True, ethanol packs more energy per gallon and is less corrosive than methanol. But methanol is cheaper and far easier to produce in bulk. While ethanol can be made only from agricultural products such as corn and sugar cane, methanol can be made from natural gas, coal, industrial garbage and even recycled carbon dioxide captured from power stations' smokestacks -- an elegant way to reduce greenhouse gas emissions.

Israel offers a fourth testament to what leadership, ingenuity and audacity can achieve. Last year, it launched an electric-car venture designed to turn Israel -- which obviously has some tensions with the region's big oil producers -- into an oil-free economy. Israelis will soon be able to replace their gasoline-fueled cars with battery-operated ones, which they'll plug into the hundreds of thousands of recharging points planned to be erected throughout the country. Israeli motorists, the government hopes, will be able to swap their batteries in a matter of minutes at dedicated stations or recharge them at home or at work. "Oil is the greatest problem of all time -- the great polluter and promoter of terror," said Israeli President [Shimon Peres](#), the project's political patron. "We should get rid of it."

For each of the four countries, knocking oil off its pedestal is no longer a theoretical proposition but a

reality in the making. But despite the lip service our own politicians pay to the need to reduce our oil dependence, none of the solutions offered by Iran, Brazil, China and Israel are even under consideration in the land of the free and the home of the brave.

Just go down the list. Natural-gas vehicles are nowhere to be seen. Brazilian sugar-cane ethanol is barred from the country by a steep 54-cent-per-gallon import tariff, courtesy of ethanol protectionists and their representatives in Congress. (No tariff is imposed on imported oil, of course.) For similar reasons, flex-fuel cars sold in the United States are certified to run only on ethanol, keeping methanol and other viable biofuels off the market -- even though they are cheaper and can be made from a wealth of coal and biomass resources. The kind of electric cars deployed in Israel have never returned to U.S. showrooms since General Motors' mass crushing of its EV1 -- the subject of the documentary "Who Killed the Electric Car?"

It's time to get serious. Policies such as "drill more" and "drive smaller cars" all keep us running on petroleum. At best, they buy us a few more years of complacency, while ensuring a much worse dependence down the road when America's conventional oil reserves are even more depleted -- whether or not we drill in the [Arctic National Wildlife Refuge](#).

The hard truth is that real energy independence can be achieved only through fuel choice and competition. That competition cannot take place as long as (according to the [Department of Transportation](#)) we continue to put 16 million new cars that run only on petroleum on our roads every year, each with an average street life of 16.8 years -- thereby locking ourselves into decades more of petroleum dependence.

So let's remember the old saying: When in a hole, stop digging. If every new car sold in the United States were a flex-fuel vehicle and if millions of Americans could plug in their electric cars, gasoline would be facing fierce competition at the pump and the socket. Moreover, our money would have migrated from [Exxon](#) to Pepco, from the Middle East to the Midwest -- as well as to scores of poor, biomass-producing countries in Africa, Latin America and South Asia, including the few countries that don't yet hate our guts. This, and no other, is the road to independence.

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