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The Fossil-Fuel-Free Future: 5 ways to get on board

Three alternative fuels experts on the top 5 ways you can make a difference in weaning America off dinosaur fuels.

:: By *Jeb Tilly*

Alternative fuels are more diverse and widely available today than at any point in history. They're also more compelling. "We've used half of the world's oil reserves – a resource it took billions of years to create – in just 100 years," says Steve Heckerth, chairman of the Renewable Fuels and Transportation Division of the American Solar Energy Society. Jon Thompson, President of ExxonMobil, says the oil industry will need to find, develop and produce a volume of new oil and gas equal to eight out of every 10 barrels being produced today to meet projected demand in 2015. That's almost 22 billion additional barrels per year. While that volume of oil may exist, the cost of extracting it will eventually be cost-prohibitive.

The transition to fossil-free fuel is imminent. Today, alternative fuels comprise just a fraction of America's 400-million-gallon-per-day fuel habit. "We're subsidizing old fossil fuel technology when America needs a more diverse energy portfolio," says Greg Reitman, producer of the upcoming documentary Fields of Fuel. Here's a look at how that portfolio might be structured, and where to put your energy and money to help develop it.

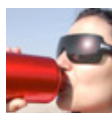
1. Understand peak oil.

The world's oil reserves are going to run out, and we need to make a major paradigm shift to a non fossil-fuel dependent society. Everyone knows that driving less and lobbying for better mass transit systems and using those busses and trains – as well as riding bicycles – is a major step we can all take to help

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solve the problem. Enough said.

2. Fill up with alternative fuels.

If you're going to be driving, consider using alternative fuels. Today's ethanol offering is small – about 5 billion gallons per year – and only about 700 of the 170,000 gasoline stations in the U.S. offer E85, a fuel blend of 85-percent ethanol and 15-percent gasoline. If you drive one of the 5 million E85-compatible flex-fuel vehicles currently on the road, chances are you still fill up with regular gas most of the time. Automotive executives claim that if all those flex-fuel vehicles were running on E85 they'd displace more than 3.5 billion gallons of gasoline a year.

But is growing our way to energy independence realistic? "If we used 100 percent of our corn crop, we'd make 12 percent of the fuel we need," says Heckerroth. "It's a losing proposition." Nonetheless, last year's Energy Policy Act requires refiners to increase biofuel use, guaranteeing ethanol distillers a market for the first time. Reitman thinks that's a step in the right direction. "Biofuels are part of a larger solution," he says.

"They aren't going to save planet Earth; they're one component of that broader energy portfolio."

3. Buy a hybrid.

Heckerroth is bullish on gas-electric hybrids, which are roughly twice as efficient as regular cars, and plug-in hybrid-electric vehicles (PHEVs), which are twice as efficient as regular hybrids. "They offer a way to instantly cut fuel consumption and CO2 emissions while using the existing fueling system," he says. You can get a government tax credit of up to \$3,400 if you buy one, and contrary to myth, you don't have to plug them in; energy captured during braking charges the battery automatically. (PHEVs can be plugged in if you wish, and can go all electric for up to 60 miles, at which point a downsized gas engine kicks in and the car drives like a regular hybrid.) Despite the benefits, hybrids represented just 1.2-percent of all vehicles sold in 2005. Toyota's Prius and Honda's Civic hybrids are the market leaders, but there are 11 different models available now (ranging in price from \$19,000 to \$53,000) and 11 more slated for production in the next few years – including a 408-horsepower sportster from Toyota that's reported to leap from zero to 60 miles per hour in four seconds.

4. Understand hydrogen – from hype to reality.

"As our transportation fuels have transitioned from clunky, awkward solids to easy-to-store liquids during the past two hundred years," says RMI founder Amory Lovins, "they are likely to transition again, from liquids to gases." Heckerroth disagrees. "Batteries are four times as efficient as hydrogen," he says, "and hydrogen storage problems are insurmountable." It's hard to know who's right, but one thing is certain: large-scale hydrogen use is a ways off.

Only a handful of fuel-cell vehicles, or FCVs, are on the road today, and they're experimental models. As technology advances, renewable energy sources may enable efficient and affordable hydrogen production, and

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infrastructure may develop to make the fuel more readily available.

5. Support carbon offset programs.

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America is still a long way from wholesale adoption of alternative fuels, but they are more established than they've ever been. "In the short run it's a horse race between electricity and biofuels," says Heckerth. Reitman adds, "We're on the way to a world where we're acting responsibly.

"There's a way out of fossil-fuel dependence, and we're the first generation that's beginning to realize it. How cool is that?"



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