



## Is it time to end ethanol vehicle fuel mandates?

By Steve Goreham

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Last week, Bob Goodlatte (R-Va.) and other lawmakers [introduced](#) legislation in the House of Representatives calling for major changes in the Renewable Fuel Standard (RFS). The RFS is the reason why most US automobile fuel contains ten percent ethanol. The bill would eliminate the current mandate to blend 15 billion gallons of corn ethanol into fuel by 2022 and ban ethanol fuel content over ten percent. But are ethanol mandates good public policy?

For decades, ethanol vehicle fuel was touted first as a solution to reduce oil imports and second as a solution for global warming. The Energy Tax Act of 1978 established the US “gasohol” industry, [providing](#) a subsidy of 40 cents per gallon for ethanol blended with gasoline. President George W. Bush promoted biofuels to reduce dependence on foreign oil, [stating](#), “I set a goal to replace oil from around the world. The best way and the fastest way to do so is to expand the use of ethanol.” Last year the Environmental Protection Agency [promoted](#) E15, a fifteen percent ethanol blend for cars and trucks, announcing, “Increased use of renewable fuels in the United States can reduce dependence upon foreign sources of crude oil and foster development of domestic energy sources, while at the same time providing important reductions in greenhouse gas emissions that contribute to climate change.” But it appears that these two reasons for promoting ethanol vehicle fuel have disappeared.

First, US dependence on oil imports is greatly reduced. Net imports of crude oil [peaked](#) in 2005, providing 60 percent of US consumption. In 2012, just six years later, oil imports dropped to 40 percent of consumption and continue to fall. Imports from the Organization of Petroleum Exporting Countries [declined](#) from half of US imports in 1993 to 40 percent of imports 2012. Canada is now the largest single-nation supplier of crude

to the US, rising from 14 percent in 1993 to 28 percent today. Construction of the Keystone pipeline would switch additional imports from OPEC to Canada.

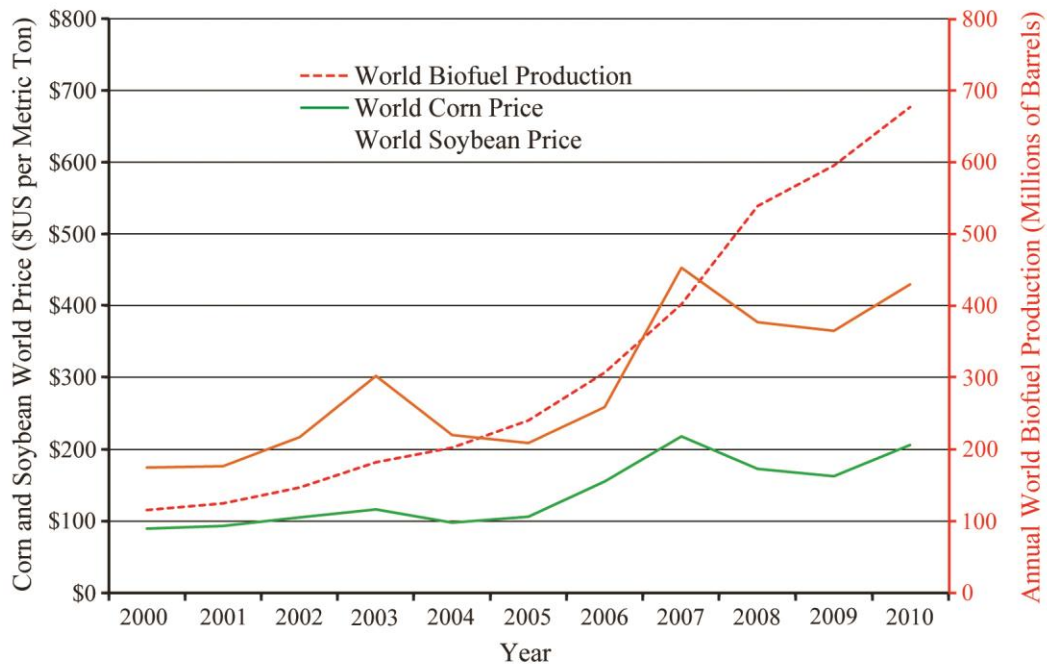
At the same time, US oil production is [ramping](#) due to the hydrofracturing revolution. Oil production from shale fields in North Dakota and Texas led to a boost in US oil production by 30 percent since 2006. Industry experts predict almost all US petroleum will come from domestic and Canadian sources by 2030. There's no longer a need to force ethanol use to reduce oil imports.

Second, recent studies show that the use of ethanol and biodiesel *does not reduce greenhouse gas emissions*. For many years, proponents of decarbonization assumed that the burning of biofuels would be "carbon neutral." The carbon neutral concept assumes that as plants grow they absorb carbon dioxide equal to the amount released when burned. If true, the substitution of ethanol for gasoline would reduce emissions.

But a 2011 [opinion](#) from the Science Committee of the European Environment Agency pointed out what it called a "serious accounting error." The carbon neutral concept does not consider vegetation that would naturally grow on land used for biofuel production. Since biofuels are less efficient than gasoline or diesel fuel, they actually emit more CO<sub>2</sub> per mile driven than hydrocarbon fuels, when proper accounting is used for carbon sequestered in natural vegetation. Further, a 2011 study for the National Academy of Sciences [found](#) that, "...production of ethanol as fuel to displace gasoline is likely to increase such air pollutants as particulate matter, ozone, and sulfur oxides."

Ethanol fuel is no bargain. For example, when gasoline is priced at \$3.40 per gallon, the 85 percent ethanol blend (E85) is priced at about \$3.00 per gallon. But since the [energy content](#) of ethanol is only 66 percent that of gasoline, a tank of E85 gets only about 71 percent of the mileage of a tank of pure gasoline. E85 fuel should be priced at \$2.41 per gallon for the driver to break even. According to the US Department of Agriculture, ethanol fuel [remains](#) about 25 percent more expensive than gasoline.

## Biofuel Production and Corn and Soybean Prices (2000-2010)

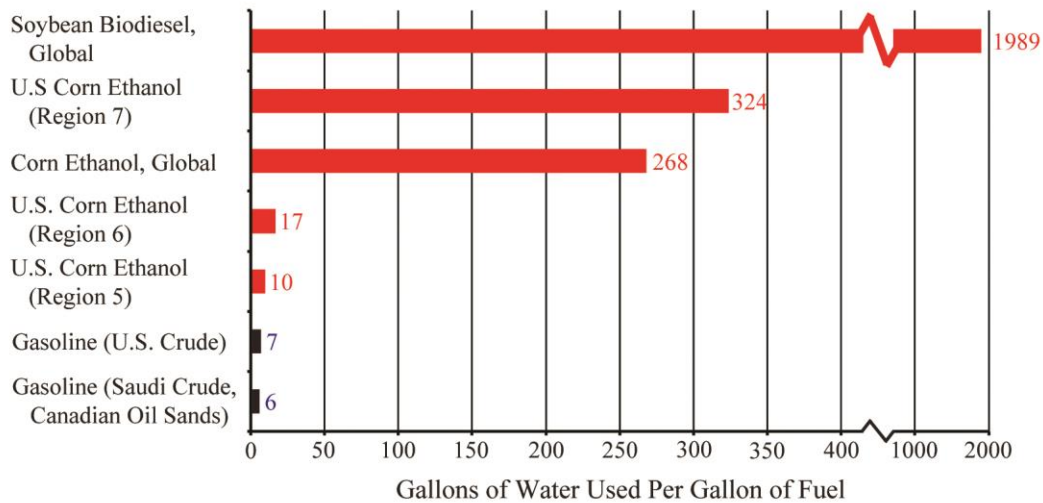


World biofuel production has increased by a factor of seven over the last ten years. Corn and soybean prices have doubled over the same period. (US Dept. of Energy, Food and Policy Research Institute, 2011)

Mandates for ethanol vehicle fuel are also boosting food prices. Forty percent of the US corn crop is [diverted](#) to produce about ten percent of US vehicle fuel. Global corn and soybean prices have doubled over the last ten years in concert with the growth in ethanol and biodiesel production. Anyone who drives a car or eats food is paying higher prices due to ethanol mandates.

But isn't ethanol fuel sustainable? Not in terms of water consumption. Studies by the [Argonne](#) National Laboratory and the Netherlands University of [Twente](#) found that ethanol production consumes twice to dozens of times more water than gasoline produced from petroleum, even from Canadian oil sands.

## Water Consumption for Biofuels and Petroleum Gasoline



Gallons of water consumed per gallon of fuel produced for gasoline, ethanol, and biodiesel from various sources, including irrigation and fuel production, but not including precipitation. Variations in water consumption for three US regions and global averages for ethanol and biodiesel are primarily due to amount of irrigation used and agricultural yield. (Argonne National Laboratory, 2009; University of Twente, 2009)

Suppose we return to using corn for food and gasoline to power our vehicles?

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