

# MYTHS AND FACTS OF ETHANOL

1

## MYTH: Ethanol is the Way to US Energy Independence

### FACTS

- Record ethanol production in 2006 was able to displace only 3.5 percent of gasoline demand,<sup>1</sup> while using 20 percent of the US corn crop for that year.<sup>2</sup> In fact, the Congressional Research Service estimated that even if the entire US corn harvest was dedicated to ethanol, it would displace less than 15 percent of gasoline consumption.<sup>3</sup>
- Even the most favorable estimates, which include cellulosic ethanol, indicate that ethanol can replace merely 30 percent of gasoline demand in the US.<sup>4</sup>
- The US imports almost 60 percent of the 20 million barrels of oil it consumes daily.<sup>5</sup>
- Demand in the transportation sector is expected to increase by 5.8 Mbd (million barrels per day) every year through 2030,<sup>6</sup> making it clear that ethanol will not be able to meaningfully impact dependency on foreign oil.<sup>7</sup>

Ethanol does not stand up as a solution for oil dependency. Replacing the oil fields of the Mideast with the corn fields of the Midwest is simply not feasible. It is not possible to produce enough feedstocks to provide for an ever growing demand for transportation fuel. Demand reduction through transportation reform and improvements to fuel economy could make much more significant contributions to true energy independence.

2

## MYTH: Ethanol is a Green Fuel

### FACTS

- Ethanol can reduce some harmful environmental impacts of the transport sector compared to petroleum, but it can also exacerbate others. For example, ethanol combustion in car engines produces less greenhouse gases, but can increase emission of other harmful gases.<sup>8</sup> When coal is used to power ethanol refineries, the end result will be more global warming pollution than is generated by the dirty fuels ethanol is replacing.<sup>9</sup>
- Industrial corn production results in extremely negative environmental impacts, including excessive fertilizer runoff from fields in the Corn Belt, depletion of water resources, soil erosion, and chemical contamination of water and soil. A Dead Zone the size of Connecticut and Rhode Island together at the mouth of the Mississippi River is the world's second-largest hypoxic area and has had serious consequences for the marine health and economy of the Gulf region.<sup>10</sup>
- Lands currently in conservation programs are more and more under pressure from the ethanol frenzy to be put into agricultural production. Internationally, tropical forests are being clear-cut to make room for energy crops.
- Almost completely unknown are the economic and food-security repercussions, both national and global, of diverting massive amounts of corn and other agricultural products into gas tanks.

With so many environmental hazards and an ambiguous record on polluting emissions, ethanol is not a green fuel. A green energy future through a robust combination of renewable sources, efficiency gains and conservation is technically feasible and economically viable.

# 3

## **MYTH: Ethanol Will Revitalize Rural America**

### **FACT:**

- While corn prices have increased, providing much needed revenues for farmers, the current ethanol boom is intensifying the concentration of ownership and the industrialization of agricultural lands, resulting in a revenue drain from rural communities. Land prices have moved steadily upward and small farmers are being pushed aside by big farmers and outside investors.
- Family farmers are not the main recipients of subsidies for ethanol production. In fact, the top one percent of corn growers received 19 percent of all federal farm program payments from 1995-2005.<sup>11</sup>
- At the same time, industrial-scale livestock operations, or factory farms, are taking advantage of the booming ethanol sector as a potential source for cheap feed. Synergies between large ethanol refineries and factory farms may be good for business, but could also increase harm to the environment, public health and animals.

The ethanol boom is resulting in a rural landscape driven by energy production, where the winners are big agri-business corporations and distant investors, not small family farmers.

# 4

## **MYTH: Cellulosic Feedstocks Are the Perfect Solution for Ethanol Production**

### **FACT:**

- Cellulosic feedstocks have superior efficiency and greenhouse gas reduction potential over corn, but there are other significant environmental consequences of large scale cultivation of these energy crops.
- If cellulosic feedstocks are planted and harvested in unsustainable ways, inherent environmental benefits could easily become moot. Clearing farmlands of nutrient-rich, protective residues, such as corn stover, could exacerbate soil erosion and decrease overall soil quality. Also, loss of protected acres to energy crop production would be a major setback for water, soil, plant, and wildlife conservation efforts.
- The ways in which cellulosic feedstock production could challenge environmental sustainability are less well known and merit discussion, especially considering the proposed scale of cellulosic production.
- Chemical application is less and percentage runoff lower than for corn, but are by no means negligible.
- Improving the cost of producing cellulosic ethanol depends largely on processes that involve the widespread use of genetically modified organisms (GMOs).
- The refining process for cellulosic feedstocks is potentially more water and energy intensive than for starchy crops, and there are no legislative safeguards to ensure that clean fuel will power refineries.

The potential environmental benefits of cellulosic over corn for ethanol production can be nullified if cellulosic feedstocks are planted and harvest in unsustainable ways.

# 5

## **MYTH: Ethanol is a Transition Fuel and Better Alternatives can be Implemented Later**

### **FACT:**

- Utilizing biofuels to any significant degree in our transport system would require substantial changes and additions to infrastructure. Because ethanol can't be transported through the pipeline distribution system that is currently in place, huge investments would be required for dedicated pipelines. Indeed, the ethanol industry has called for government incentives to build a pipeline from the Midwest, where most refineries are located, to the east and west coasts.
- Rail and road capacity, already stretched to its current capacity, would be needed to move corn from fields to refinery sites and ethanol to fueling stations.
- There are currently 76 new refineries under construction, which will double production capacity as soon as next year. Dozens of other refineries are in different stages of planning.

These investments in the ethanol production and distribution infrastructure represent opportunity costs that displace other possible investment choices. Once these structures are in place, it will be very hard to displace them, even for better available alternatives.

# 6

## **MYTH: Efficiency and Conservation Cannot Play a Leading Role**

### **FACT**

- Current internal combustion engines are highly inefficient — most of the energy content in gasoline is lost to noise, heat, vibration, and wasted braking energy. Only one percent of the energy is actually used to move the driver.<sup>12</sup>
- Traffic congestion is responsible for tremendous fuel waste. In 2003, US drivers in the 85 most congested urban areas of the country experienced 3.7 billion hours of travel delay and wasted 2.3 billion gallons of fuel, with a total cost of \$63 billion.<sup>13</sup>
- The Corporate Average Fuel Economy (CAFE) program has been effective in increasing the fuel economy of the US passenger fleet. According to the National Academy of Sciences, if fuel economy had not improved, gasoline consumption would be about 2.8 million barrels per day higher than it is, or about 14 percent of today's consumption.<sup>14</sup>
- CAFE standards have not been significantly improved in the last two decades and the US now has the lowest standards in fleet average fuel efficiency compared to most of the developed world.<sup>15</sup>
- According to the Congressional Research Service, an increase in fuel economy of one mile per gallon across all passenger vehicles in the US has been estimated to cut petroleum consumption by more than all alternative fuels and replacement fuels combined.<sup>16</sup>

Whether the goal is energy independence or decreasing oil use, the easiest and fastest solution—the proverbial “low hanging fruit”— is fuel demand reduction and energy efficiency. The best source of clean energy is the energy we don't use. We have the technical ability to use less fuel, what we have lacked is the political will.

## ENDNOTES

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- 2 Statement of Keith Collins, Chief Economist, U.S. Department of Agriculture before the U.S. Senate Committee on Agriculture, Nutrition and Forestry. January 10, 2007. Available at: [www.usda.gov/oce/newsroom/congressional\\_testimony/Collins\\_011007.pdf](http://www.usda.gov/oce/newsroom/congressional_testimony/Collins_011007.pdf)
- 3 Schnepf, Randy. "Agriculture Based Renewable Energy Production." Congressional Research Service. May 2006. Available at: <http://fpc.state.gov/documents/organization/68294.pdf>

Data based on 2005 corn production and gasoline consumption levels. Entire U.S. corn production in 2005 was 11.1 billion bushels. If all of this harvested corn was used to produce ethanol, the resultant 30 billion gallons of ethanol (a bushel of corn produces some 2.7 gallons of ethanol) would represent 14.5% of the 139 billion gallons of gasoline demand. Thirty billion gallons are 21.5% of 139 gallons, but due to ethanol's reduced energy content this amount would in fact replace only 14.5% of gasoline consumption.
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### THE NETWORK FOR NEW ENERGY CHOICES

promotes safe, clean, and environmentally responsible energy options. We advocate for energy conservation, energy efficiency and renewable energy as the solutions to our energy crisis and we work to transform the public consciousness about the way we produce, distribute and consume energy.

To get involved with our campaign, please contact

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Our full length report

"**The Rush to Ethanol: Not All Biofuels Are Created Equal**"

is available online at [www.newenergychoices.org](http://www.newenergychoices.org)