

Ethanol:

INDICTMENT FOR VIOLATION OF THE LAWS OF PHYSICS & ECONOMICS

By James Day[†]

FACTS

Henry Ford's 1908 Model T ran on 100% ethanol. In 1925, Ford proclaimed ethanol the "fuel of the future." Ethanol distilled from corn was used for illumination in America before the Civil War. It was replaced by kerosene in lamps because it was more expensive and could not be refined in sufficient quantities. (The same was true of "coal oil," which is also currently subsidized, but that must be the subject of another indictment.) Ethanol was displaced by gasoline because it was cheaper and, more plentiful and a far superior fuel.

In the 1970s, ethanol arose like a phoenix from the ashes as "Gasohol," particularly in Iowa and the rest of the Corn Belt after the Arab oil embargo caused oil prices to skyrocket. Ethanol received research and development grants in the mid-1970s, and the Energy Tax Act of 1978 endowed it with a \$0.40 per gallon subsidy and mandated that gasoline contain 10% ethanol or other oxygenates.

Methyl tertiary butyl ether ("MTBE"), a combination of methanol derived from natural gas and isobutane made from natural gas or crude oil, was a cheaper oxygenate, more effective as a fuel, and easier to handle by the oil companies, but earned it no subsidies because it was a fossil fuel. However, MTBE's high solubility contaminated groundwater from leaks in underground storage tanks at gasoline stations, resulting in it being banned from use in twenty-five states. When the Energy Policy Act of 2005 did not protect the refiners from water contamination lawsuits, it was the MTBE's death knell.

The Energy Security Act of 1980 granted loans to small ethanol producers. The same year, Congress levied a \$0.54 tariff on imported ethanol to stop the flow of the more efficiently produced and cheaper sugar-based ethanol from Brazil.

The Surface Transportation Assistance Act of 1983 increased the subsidy to \$0.50 per gallon. When that was not enough, Congress raised it to \$0.60 under the Tax Reform Act of 1984.

In his 2007 State of the Union Address, President George W. Bush announced that ethanol production must reach 17 billion gallons by 2017. Congress doubled his request in the Energy Independence and Security Act of 2007 and mandated 36 billion gallons be used to bolster the gasoline supply by 2022. The

next year there was an election and the first state to test the candidates was Iowa.

Senators Barack Obama, John McCain and Hillary Clinton, all of whom had opposed ethanol in the past, jumped on the ethanol bandwagon.

After gasoline prices hit over \$4.00 per gallon in July 2008 and our economy fell to its lowest depths since the Great Depression, Americans started driving cars less often.

The ethanol industry, crippled by high commodity prices in 2008, when the price of corn doubled to \$4.00 a bushel, has its hand out for another mandate. Retired general and former presidential candidate, Wesley Clark, now a representative for "Growth Energy," is lobbying for an increase in the use of ethanol from its current 10% as a gasoline blend to 15% or even 20%.³ Corn is still hovering a few cents below \$4.00 a bushel, forcing up food prices during a recession.

ISSUES

Neither the President nor Congress can alter the basic laws of physics or economics or rely on technological breakthroughs by mandating "change." After the 1973 Arab embargo, President Richard M. Nixon proclaimed "Energy Independence," and asked the nation, "Let us set our goal in the spirit of Apollo, with the determination of the Manhattan Project, that by the end of this decade we will have developed the potential to meet our own



energy needs without depending on any foreign energy source.”⁴ One cannot count the number of times one has heard presidential candidates paraphrase Nixon’s hollow promise almost verbatim in 2008. Nor can one count the billions of dollars spent on energy research since Nixon created the Energy Research and Development Administration, now part of the Department of Energy (“DOE”).

We must always perform research in the quest to make America stronger and independent, as well as provide for better living conditions for our citizens, protect our national security, reduce carbon dioxide in our atmosphere and many other valid causes. But we must be realistic in our hopes for breakthroughs in technology and not squander money by reinventing the wheel and ethanol. We must also determine if ethanol’s adherents failed to obey the laws of physics and economics.

GUILTY ON BOTH COUNTS

Ethanol is the alias of ethyl alcohol. It cannot compete with gasoline because it produces less energy, as measured in British thermal units. Notwithstanding, the ethanol industry and the government insist that it must replace gasoline as the primary energy source for cars. The DOE’s Energy Information Administration admits, “It takes approximately 1.5 gallons of ethanol to deliver the same energy and mileage as 1 gallon of gasoline.” The National Association of Fleet Administrators, representing companies operating fleets of trucks and automobiles, is more precise in comparing ethanol, diesel, and liquefied natural gas, using regular unleaded 87 octane gasoline required on a mile per gallon basis of 100%:

Fuel Type	Gallons
Gasoline, regular	1.00
Gasoline, 10% MTBE	1.02
Liquefied Natural Gas	1.52
Ethanol	1.50
Ethanol E-85	1.40
Diesel	.88

Only diesel fuel exceeds gasoline on a per gallon basis.

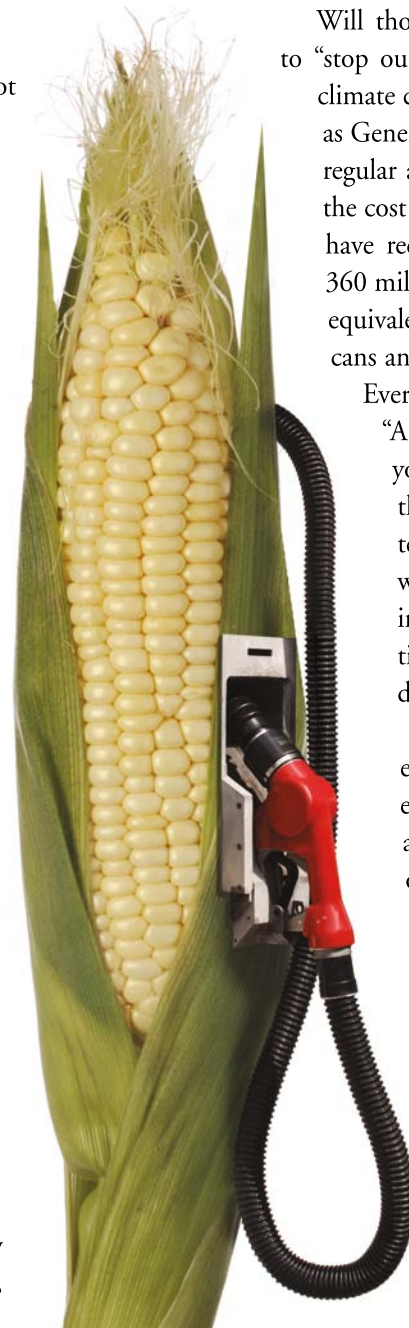
With 10% ethanol blended in gasoline, a vehicle’s miles per gallon efficiency is reduced by 5%, which translates into a 5% increase in the cost to drivers at the pump. It is no wonder that few drivers fill up with E-85, containing 85% ethanol, because it adds between \$3,000–\$5,000 to the auto-

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mobile’s cost of ownership. There are also costs between \$100,000 and \$200,000 to install new pumps and tanks at gasoline stations. There are only around 900 gasoline stations offering E-85 out of the roughly the 169,000 stations in the nation (0.05%), only three stations in “green” California, and none in our nation’s capital.

Will those who believe the 5% is worth the price to “stop our dependence on foreign oil and eliminate climate change,” agree to increase the blend to 15%, as General Clark proposes? Purchasing 10 gallons of regular at \$2.00 a gallon in March 2009, increased the cost by \$1.00. Even in this recession, Americans have reduced their driving, still consume roughly 360 million gallons of gasoline per day, which is the equivalent of a daily tax of \$18 million on Americans and \$6.57 billion per year. As the late Senator Everett McKinley Dirksen of Illinois remarked, “A billion here, a billion there, and pretty soon you’re talking real money.” Lawyers must put the numbers on a chart for the jury to contemplate the damages. The jury must be told what the costs will be if the ethanol blend is increased to 15% and when ethanol production reaches 36 billion gallons per year and driving increases.

The government is also abetting the ethanol producers to steal from the taxpayers by giving them subsidies in the form of a \$0.51 per gallon tax credit, which totaled over \$7 billion in 2007, and corn subsidies for growing corn. In 2006, corn subsidies amounted to \$9.4 billion. Not considering the corn subsidies, on March 25, 2009, the *Wall Street Journal* listed the spot price for regular gasoline in New York (wholesale) at \$1.47 per gallon and the New York Mercantile Exchange futures price for ethanol at \$1.60 per gallon. (Corn spot prices on the Chicago Board of Trade were \$3.85 a bushel, which increases food prices across the board, including beef, poultry and your



Corn Flakes.) The evidence is obvious that the ethanol industry cannot compete many small and medium ethanol refineries are in financial trouble and filing for bankruptcy.

Lawyers, like politicians, know it is unwise to attack American farmers. Ethanol refiners are co-conspirators, such as Archer Daniels Midland Co. (“ADM”), the giant agribusiness that controls between 25 % and 29% of the ethanol refining market (depending on what figures one uses), where no other player holds more than 5%. By comparison, ADM holds twice the share of the ethanol market than the largest refiner in the petroleum industry. The Antitrust Division of the Department of Justice would likely break up ExxonMobil if it had near to a 20% market share of petroleum refining.

contains. Of course, there are many who conclude the opposite, and many on both sides have a bias that destroys their credibility. The studies boil down to the amount of energy, some from fossil fuels, included in the manufacture of ethanol and the amount of energy in the end product and how the energy is calculated. For an oversimplified example, the fertilizer that is used to grow corn encompasses the energy to make it, the energy to mine the nitrates and the energy to ship it to the farmer. Most studies include the labor energy to spread the fertilizer. There appears to be a median view that the net energy value is positive by a factor of 1 to 1.2 (a DOE study found a factor of 1 to 1.25). If it takes ten energy units to make twelve energy units, it is a gain of only two, which is not very good. Also, scientists seldom calculate costs, which makes economists shudder.

We must always perform research in the quest to make America stronger and independent, as well as provide for better living conditions for our citizens, protect our national security, reduce carbon dioxide in our atmosphere and many other valid causes.

MISCELLANEOUS FELONIES AND MISDEMEANORS

The Congressional mandate to use 36 billion gallons of ethanol by 2022 is in tranches, and Americans are highly unlikely to consume the planned 13 billions of gallons mandated in 2010 at a 10% blend. This gives General Clark an argument to raise the blend to 15%. But his alibi has a big hole in it and is fallacious. Only a fraction of the cars and trucks on the road can operate with over 10% ethanol. And there are witnesses, including the automobile industry, motorcycle industry and the Outdoor Power Equipment Institute, who will testify it will ruin their motors.⁶

Other witnesses, such as the American Lung Association and the Union of Concerned Scientists, will testify that it will increase auto emissions; and the Sierra Club and Natural Resources Defense Council will testify that corn ethanol will not reduce carbon dioxide emissions more than the gasoline it displaces. The DOE will be called as a hostile witness and admit it has reported, “Ethanol use results in higher evaporative emissions of smog-forming violative organic compounds, requiring refiners to remove other gasoline components . . . to meet the Rvp limits set by the Environmental Protection Agency.”⁷ Ethanol also releases more nitrous oxides, which are another emission contaminant.

There are other complaints that should be brought before the jury that would take much more time and involve far greater detail, and a lawyer should never bore a jury or cause it to doze off. But several must be mentioned. Many scientists have concluded that it takes more energy to produce ethanol than it

Another factor to consider in the western United States is the water used to irrigate the corn. As Mark Twain said about water in the West, “Whiskey’s for drinking and water’s for fighting.” In Western law schools water law is taught, and every Western state has a water commission that allocates water rights to farmers and industry. And there is a valid fear that the increased use of farmland to grow corn for ethanol will cause severe water shortages.

Many scientists have concluded that it takes more energy to produce ethanol than it contains. Of course, there are many who conclude the opposite, and many on both sides have a bias that destroys their credibility. The studies boil down to the amount of energy, some from fossil fuels, included in the manufacture of ethanol and the amount of energy in the end product and how the energy is calculated.

Many will testify that it’s a crime to use corn for energy. Corn is a food. It has been proven that ethanol was a major factor

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in the rise in food prices in 2008. It is also used as feed for livestock such as cattle, hogs, and chicken, and can impact the prices of such other foods. Corn is a basic staple in the undeveloped nations around the world whose people are starving.

VERDICT

Unfortunately, there can be no actual trial. We face a political lynch mob rooted more in fantasy and self-interest (reelection) than scientific and economic laws. But then the laws of physics and economics always eventually win, it just may take longer to reach the inevitable correct verdict. Let us hope it is just not too late to prevent long-lasting damage and irreparable harm. **BLB**

ENDNOTES: *James Day*

† James Day is a professor at American University. He teaches Advanced Oil and Gas Law, The Regulation of Energy, and International Petroleum Transactions. He is also the author of several books relating to the subjects and a graduate of the Washington College.

¹ *Ford Predicts Fuel from Vegetation*, N.Y. TIMES, September 20, 1925, at p. 24.

² Robert Bryce, *GUSHER OF LIES: THE DANGEROUS DELUSIONS OF ENERGY INDEPENDENCE 197* (Public Affairs) (2008) (citing Energy Information Administration).

³ Stephen Power, *Industry Seeks to Raise Ethanol Levels in Fuel*, WALL ST. J., March 7, 2009, at A4, available at <http://online.wsj.com/article/SB123639034624359001.html>; Oil & Gas Journal (March 23, 2009).

⁴ Daniel Yergin, *THE PRIZE: THE EPIC QUEST FOR OIL, MONEY & POWER* 617 (Free Press) (1993).

⁵ See Press Release, Energy Information Administration, Biofuels in the U.S. Transport Sector (Feb. 2007), available at <http://www.eia.doe.gov/oiaf/analysispaper/biomass.html>.

⁶ *Labor's European Model*, WALL ST. J., March 16, 2009, at A18 available at <http://online.wsj.com/article/SB123716333620835923.html>.

⁷ See Press Release, Energy Information Administration, Biofuels in the U.S. Transport Sector (Feb. 2007), available at <http://www.eia.doe.gov/oiaf/analysispaper/biomass.html>.

