

# Ethanol – America’s Safety Net?

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## ABSTRACT

*No matter how you look at it, the subject of Ethanol is going into two separate directions; one is that of clear support and the other is that of opposition. Both are maintaining their own areas of study and analysis for validity. There is little middle ground between the groups. Much like today’s developing polarization in American Society.*

## ETHANOL IS THE ANSWER

The Arab oil embargoes of the 1970’s resulted in record high oil prices and widespread gasoline shortages, wreaking havoc on the U.S. economy. At the same time, a U.S. imposed grain embargo on the former Soviet Union following its invasion of Afghanistan, resulted in the loss of a valuable export market and caused grain prices to plummet. To address these problems, Congress passed the Energy Security Act of 1979. The law created a federal Ethanol tax incentive to reduce our nation’s alarming dependence on imported oil and created an important value-added market for U.S. grain through the production of a domestic renewable fuel.<sup>1</sup>

The Ethanol tax breaks have persisted and were recently renewed through 2010. The current tax credit is 52 cents for each gallon of pure Ethanol. Thus, a blend of ten (10%) percent Ethanol and ninety (90%) percent gasoline receives a 5.2 cent reduction from the 18.4 cent per gallon federal gas tax. This tax credit helps offset Ethanol’s higher cost relative to gasoline.<sup>2</sup>

The Council for Biotechnology Information, states that “Two of the greatest environmental benefits from Ethanol are cleaner air and water. Ethanol has shown to reduce the emission of harmful pollutants, including greenhouse gasses linked to global warming.”<sup>3</sup> They go on to say that Ethanol increasingly is being derived from biotech corn varieties, which would yield other environmental benefits.

One study conducted by the Argonne National Laboratory, a U.S. Department of Energy laboratory operated by the University of Chicago, found that gas with ten (10%) percent Ethanol produced a twelve (12%) percent to nineteen (19%) percent reduction in greenhouse gas emissions linked to global warming.

Arguably, the biotech corn varieties harvested for Ethanol production leave a soft environmental “footprint” that further contributes to air and water quality, benefits wildlife and helps to conserve fuel. Eventually, advances in biotechnology could make clean burning fuel from all sorts of organic refuse – including lawn clippings, leaves, sawdust, wood pulp and other waste generated every year in the United States.

The demand for Ethanol has boosted corn consumption. Again, illustrating the simple concept of supply and demand, corn is the main ingredient for Ethanol, which is mixed with gasoline. A bushel of corn produces 2.8 gallons of Ethanol. By 2010, United States Ethanol plants will need 2.6 billion bushels of corn per year.<sup>4</sup>

From just over 10 million gallons of production in 1979, the United States Ethanol industry has grown to 4.0 billion gallons of annual production capacity in 2005. By late 2005, approximately thirty (30%) percent of the nation’s gasoline was blended with Ethanol.<sup>5</sup>

<sup>1</sup> Renewable Fuels Association, Position Paper, “The Federal Ethanol Program: A Backgrounder,” October 3, 2005.

<sup>2</sup> The Heritage Foundation, “Keep Ethanol Out of the Energy Bill,” Ben Liberman, Web Memo #713, April 8, 2005.

<sup>3</sup> Council for Biotechnology Information, “Green Ethanol Provides Environmental Advantages.”

<sup>4</sup> Milwaukee Journal Sentinel, “Ethanol Pushing Up Corn Prices,” Rick Barrett, June 11, 2006.

Another potential benefit of an Ethanol Plant is something economists call “economics of agglomeration.” That is, if an Ethanol Plant is built and operated in a community, other businesses might be attracted to the area as a result of the Ethanol Plant.<sup>6</sup>

Anyone still doubting the potential for Ethanol need only go to Brazil. In Brazil, by law, all gasoline contains a minimum of twenty-five (25%) percent alcohol. Yet, Ethanol is so popular, it actually accounts for forty (40%) percent of all vehicle fuel.<sup>7</sup> The success of biofuel is so much so that by 2007, one hundred (100%) percent of all new Brazilian cars may be able to run on one hundred (100%) percent Ethanol.<sup>8</sup> Bio-refineries using Brazilian sugar cane will be able to produce enough Ethanol for every car, both new and old. To that end, Brazil has shown that Ethanol can be used as a primary fuel, rather than a gasoline additive.

### **NOT EVERYONE AGREES**

However, the critics also have something to say about Ethanol. Many say that it is not the problem solver that it is made out to be. “Some studies contend that the cost of making it outweighs its benefits. At least one economist says the diversion of corn from livestock could result in higher meat prices at the grocery. Others point out that Ethanol gets poorer mileage than gasoline and that a limited number of service stations carry it.”<sup>9</sup>

Other critics question whether additional downsides make further pursuit worthwhile. Water is definitely the enemy of Ethanol. As much as four inches of water was acceptable with MTBE-blended gasoline, but even an inch of water in the tank could ruin a batch of Ethanol-gasoline blend.<sup>10</sup> Because of its corrosive properties, Ethanol cannot be shipped by pipeline from one region of the country to another, requiring trucking and thus increasing transportation costs. The cost of transporting 5.1 billion gallons of Ethanol will be about eight cents per gallon compared with 1.5 cents per gasoline shipped by pipeline or two to four cents for gas shipped by tanker.”<sup>11</sup>

Still others suggest that Ethanol is not cost effective to make. David Pimental, a researcher at Cornell University, has conducted three studies that show it takes more units of energy to make Ethanol than the fuel provides. Five other researchers have done studies that agree.<sup>12</sup>

Then too, there is the issue of subsidies. A large portion of that goes directly to a single multi-billion dollar corporation. The Archer Daniels Midland Corporation of Decatur, Illinois, better known as ADM. The world’s largest grain producer, ADM produces forty (\$40%) of the Ethanol used to make gasoline. It relies on a 54 cent per gallon federal subsidy, and is the biggest beneficiary of the government handouts.<sup>13</sup> However, Ethanol contains only about two-thirds as much energy per gallon as gasoline, so cars using Ethanol blends get lower mileage.<sup>14</sup> The final claim is that it takes more energy to make a gallon of Ethanol than you get by burning it.

In a nutshell, the critics claim, while Ethanol does reduce some tailpipe emissions, it increases others and contributes to ground level ozone and smog. Ethanol Plants are environmental nightmares, emitting such pollutants as volatile organic compounds and particulate matter, in addition to a particularly strong and unpleasant odor. Given the

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<sup>5</sup> Renewable Fuels Association, Position Paper, “The Federal Ethanol Program: A Backgrounder,” October 3, 2005

<sup>6</sup> University of Missouri, “Federal Ethanol Subsidies: Status and Benefits,” Donald L. VanDyne, Research Associate Professor, 1997.

<sup>7</sup> Star Tribune, “The Future of Ethanol,” David Morris, April 17, 2005.

<sup>8</sup> Id.

<sup>9</sup> Toledo Blade, “Critics Doubt Benefit of Ethanol Gas Blend,” Jon Chavez, May 7, 2006.

<sup>10</sup> The Virginia-Pilot, “Ethanol Coming to Hampton Roads as Octane Booster in Gasoline,” Jeremiah McWilliams, April 16, 2006.

<sup>11</sup> Toledo Blade, “Critics Doubt Benefit of Ethanol Gas Blend,” Jon Chavez, May 7, 2006.

<sup>12</sup> Id.

<sup>13</sup> Fighting Bob.com, “The Smell of Spin,” Christa Westerberg, March 8, 2003.

<sup>14</sup> The Straight Dope, “What’s the True Story on Ethanol?,” Cecil Adams, November 28, 2003.

vast amount of water, natural gas and other resources it takes to generate Ethanol, the fuel is essentially a net energy loser.<sup>15</sup>

First used in America 180 years ago, subject to tax during the Civil War, and filling out gas tanks as early as 1896, ethyl alcohol is the new rising star and investment buzzword for a nation gone cranky over expensive foreign oil and rising gas pump prices.<sup>16</sup>

## **DOMESTIC ENERGY POLICY AND ENERGY INDEPENDENCE**

As U.S. dependence on foreign oil increased, energy policies began to focus on encouraging new domestic energy production, including renewable energy.<sup>17</sup>

Policymakers began to look to agriculture as a source of energy supply, and federal and state legislation was passed to encourage renewable fuel production and fund research on developing Ethanol. President George W. Bush's National Energy Policy Group advocated the use of federal programs to promote alternative fuels, including Ethanol and bio-diesel, to help reduce U.S. reliance on petroleum-based fuels.<sup>18</sup>

The U.S. Congress responded to the energy situation and President Bush's energy strategy by enacting the Energy Policy Act of 2005. The 2005 Act reflects President Bush's general approach by creating programs and policies aimed at increasing and diversifying domestic energy production. It includes key provisions to help diversify domestic energy production through the development of renewable fuels.<sup>19</sup>

In his talk before the Center for National Policy on January 31, 2006, Iowa's Governor Tom Vilsack had this to say: "If you want to talk about national security, energy independence and a budget that doesn't rely on as much foreign debt, are a pretty significant piece of being a secure country."

"Ethanol is a renewable fuel. You never have to worry whether you need to drill in one part of the country or not. You certainly don't have to depend on some other country for your oil supply. It is a cleaner burning fuel, preventing toxins from going into the air, thereby providing a strategy to communities that have to comply with clean air requirements. And it's a great economic boost to rural communities because you not only create a market for crops you do it locally so you don't have to ship it halfway across the world."

"Ethanol is a template for what the American economy has to become."

"As the largest consumer of petroleum fuel in the country, the federal government is in a unique position to reduce our dependence on foreign oil. The federal government used more than two billion gallons of fuel in 2004, but just three million gallons of E85 and bio-diesel combine."

In fact, the United States Government is the largest consumer of energy in the world. That is why our efforts to become energy dependent should start with the federal agencies.<sup>20</sup>

The growth boom in the United States fuel Ethanol industry continues to take the nation by storm. In 2004, Hawaii joined Minnesota in approving a state Ethanol requirement, and Minnesota is seeking to expend its Ethanol use from ten to twenty percent.<sup>21</sup>

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<sup>15</sup> Fighting Bob.com, "The Smell of Spin," Christa Westerberg, March 8, 2003

<sup>16</sup> Toledo Blade, "Critics Doubt Benefit of Ethanol Gas Blend," Jon Chavez, May 7, 2006

<sup>17</sup> Choices Magazine, 1<sup>st</sup> Quarter, 2006

<sup>18</sup> Choices Magazine, 1<sup>st</sup> Quarter, 2006.

<sup>19</sup> Choices Magazine, 1<sup>st</sup> Quarter, 2006.

<sup>20</sup> Speech by Iowa's Governor Tom Vilsack before the Center of National Policy on January 31, 2006.

<sup>21</sup> Release from the office of Minnesota Senator Mark Dayton, 2005.

President Bush has stated that, “Renewable fuels, such as Ethanol and bio-diesel, play an important role in a comprehensive energy plan that promotes conservation and reduces dependence on foreign sources of energy.” As far back as November 29, 2001, when speaking to the Farm Journal Forum in Washington, D.C., President George W. Bush highlighted Ethanol’s ability to enhance homeland security, improve the farm economy, and protect the environment. The remarks came as President Bush was encouraging the U.S. Senate to pass the Energy Bill. He had this to say, “I also want to improve our homeland security and our economy by having a national energy plan. I want to thank the Farm Journal Forum for emphasizing the importance of Ethanol and bio-fuels. These fuels are gentle on the environment. They are fuels that can be renewed year after year, and fuels that can expand our farm economy. These fuels are made right here in America, so they can’t be threatened by any foreign power.”<sup>22</sup>

Renewable fuels produced from homegrown resources ensure a safe, reliable source of energy for the homeland, while at the same time generating significant economic and environmental benefits to the nation. As concerns in the United States continue to grow regarding global terrorism, and energy dependence on unstable regions of the world, particularly the Middle East, the expanded production and use of domestically produced renewable fuels in the nation’s energy mix, is a public policy imperative.<sup>23</sup>

In 2004, sixty-four percent (64%) of all U.S. oil consumption was imported. It is estimated that by the year 2025, seventy-seven percent (77%) of all oil consumption in the United States will be imported.<sup>24</sup> Not surprisingly, in August, 2004, Vice President Dick Cheney opined that “We will continue to move forward on a comprehensive energy policy that supports alternative sources of fuel like Ethanol and bio-diesel, so we can make this nation less dependent on foreign sources.”<sup>25</sup>

Over the last three years, the Department of Homeland Security has assumed primary responsibility for the security of domestic infrastructure. Both the Federal Energy and Transportation Departments also have key roles for guaranteeing energy assurance.

In that time, government inspectors have examined refineries and other key energy production assets and conducted cyber-attack vulnerability tests on critical oil and gas facilities. Oil and gas operations are now safer and more secure as a result of the public-private partnerships and numerous new federal security requirements.<sup>26</sup>

## **JOB CREATION THRU EXPANSION**

As the Ethanol industry continues to expand, it becomes an increasingly important market for American agricultural products. In 2004, the U.S. Ethanol industry processed a record 1.26 billion bushel of corn into Ethanol, eleven percent (11%) of the nation’s total corn crop. The record 11.8 billion bushel corn crop in 2004 alone highlights the importance of the growing Ethanol industry for corn growing seeking markets for their products. Accordingly, the U.S.D.A., Ethanol production increases the price a farmer receives for corn by 25 to 50 cents per bushel, or much as \$5.5 billion over the entire nation’s corn crop.<sup>27</sup>

“The Ethanol market is the single most successful and fastest growing value-added market for farmers—it is a rural economic development engine in the form of jobs and farm income. Last year, eleven percent (11%) of the corn crop went to Ethanol. This year, it is expected to reach nearly thirteen percent (13%). As the Ethanol industry continues to grow, opportunities for corn growers will expand as well.”<sup>28</sup>

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<sup>22</sup> Renewable Fuel Association Publication, February, 2005.

<sup>23</sup> Address of George W. Bush to the Farm Journal Forum, Washington, DC, November 1, 2001.

<sup>24</sup> U.S. Energy Information Administration Annual Energy Outlook, 2005.

<sup>25</sup> Vice President Dick Cheney, August, 2004.

<sup>26</sup> Homeland Security Policy Paper, API, August 29, 2006.

<sup>27</sup> USDA ERS, Fuel Outlook, December, 2004.

<sup>28</sup> Leon Corzine, President, National Corn Growers Association, 2004.

The production of Ethanol sparks capital investment, economic development and job creation in communities across America while providing value-added markets for farmers. By raising the price of agricultural commodities, Ethanol also helps to lower federal farm program costs. The USDA reduced farm programs costs by \$3.2 billion dollars in 2004 by increasing the demand and price of corn.<sup>29</sup>

### **RURAL ECONOMIC ENGINE**

The Ethanol industry powered the U.S. economy in 2004 by:

- Adding more than \$25.1 billion dollars to gross output through the combination of spending for annual operations and capital spending for new plants under construction;
- Supporting the creation of more than 147,000 jobs in all sectors of the economy;
- Boosting U.S. household income by \$4.4 billion dollars through increased economic activity and new jobs;
- Adding \$1.3 billion dollars of tax revenue the federal government and \$1.2 billion for state and local governments; and
- Reducing the U.S. Trade deficit by \$5.1 billion dollars by eliminating the need to import 143.3 million barrels of oil.<sup>30</sup>

### **ETHANOL AND THE LOCAL COMMUNITY**

Ethanol plants serve as a local economic powerhouse. A forty million gallon per year Ethanol plant will have the following beneficial impacts on its local community:

- Provide a one-time boost of \$142 million dollars to the local economy during construction.
- Expand the local economic base by \$110.2 million dollars each year through the direct spending of \$56 million dollars.
- Create 41 full-time jobs at the plant and a total of 694 jobs throughout the entire economy.
- Increase the local price of corn by an average of 5-10 cents a bushel, adding significantly to farm income in the general area surrounding the plant.
- Increase household income for the community by a \$19.6 million dollars annually.
- Boost state and local sales tax receipts by an average of \$1.2 million dollars (varies depending on local rates).
- Provide an average 13.3% annual return on investment over ten years to a farmer who invests \$20.00 in an Ethanol production facility.<sup>31</sup>

### **CONCLUSION**

“Expanding the nation’s production and use of renewable fuels, like Ethanol, will not only improve the environment, lessen dependence on oil imports, but will also contribute to the economy, especially in our rural, agricultural communities.”<sup>32</sup>

The Ethanol industry is on the move, growing rapidly to provide homegrown fuel to meet the challenges of homeland energy security.<sup>33</sup>

Where we go from here with Ethanol, - only time will tell.

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<sup>29</sup> USDA Release, 2004.

<sup>30</sup> “Contribution of Ethanol Industry to the Economy of the United States,” LECG, LLC, January, 2005.

<sup>31</sup> “Ethanol and the Local Community,” Aus Consultants and SJH Company, June, 2002

<sup>32</sup> William McNary, President, U.S. Action, (3 million member consumer organization)

<sup>33</sup> Renewal Fuel Association, Ethanol Industry Outlook, 2002.

**BIOGRAPHY**

1. Associate Professor Benjamin A. Neil has practiced law since 1978, and is the co-coordinator of the Legal Studies Program at Towson University, located in Baltimore, MD.

**NOTES**