

**TESTIMONY OF BRIAN JENNINGS, EXECUTIVE VICE PRESIDENT**

**AMERICAN COALITION FOR ETHANOL (ACE)**



**HEARING OF THE ENERGY AND NATURAL RESOURCES COMMITTEE  
UNITED STATES SENATE**

**THE RENEWABLE FUELS STANDARD (RFS) IN H.R. 6, THE ENERGY  
INDEPENDENCE AND SECURITY ACT OF 2007**

**ENERGY MARKET EFFECTS AND IMPLEMENTATION ISSUES**

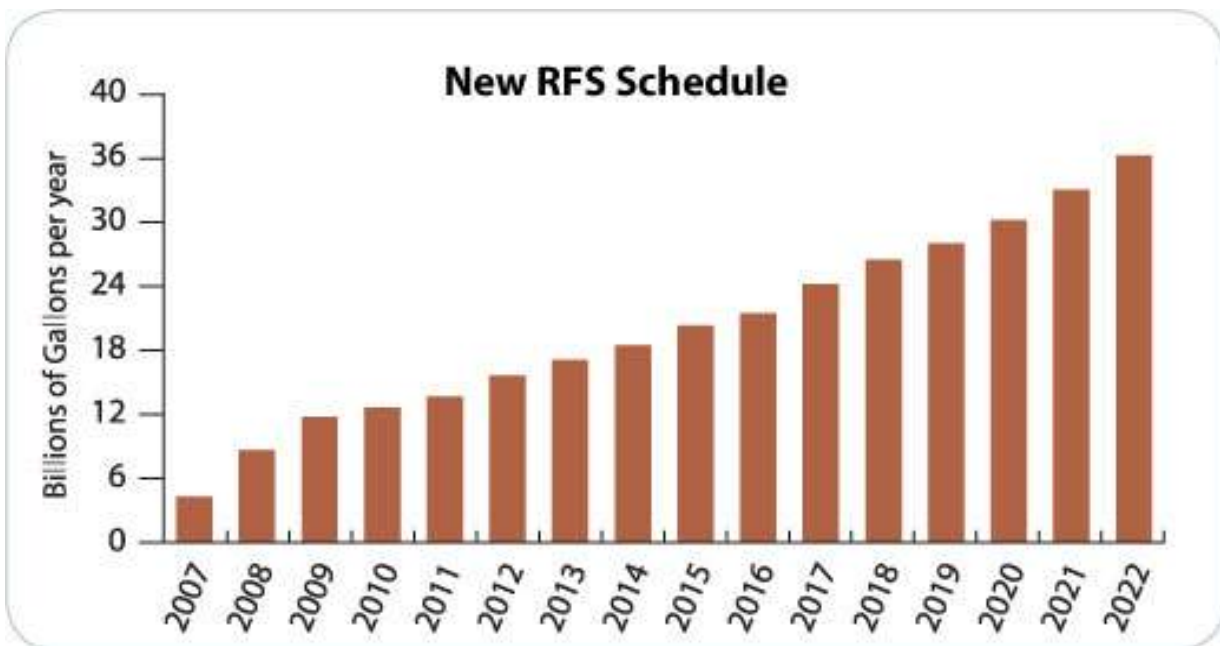
**FEBRUARY 7, 2008**

Thank you Chairman Bingaman, Ranking Member Domenici, and Members of the Committee. My name is Brian Jennings and I am Executive Vice President of the American Coalition for Ethanol (ACE). ACE is the largest organization in the U.S., uniting businesses, organizations and individuals that support ethanol production and use. Nearly 1600 ethanol producers, prospective ethanol producers, commodity and farm organizations, farmers and ranchers, investors, and businesses that supply goods and services to the U.S. ethanol industry comprise the grassroots membership of ACE.

I am honored with this opportunity to address the committee today on an issue of critical significance to the U.S. biofuels industry: implementing the new renewable fuels standard (RFS) provisions of H.R. 6, the Energy Independence and Security Act (EISA) of 2007 (P.L. 110-140). The RFS program set forth in the bill is historic and should help catalyze dramatic growth in the U.S. biofuels industry in general and the cellulosic biofuels industry in particular.

ACE is grateful for the leadership of Senators Bingaman and Domenici and their staffs in 2007 to establish a new, more ambitious RFS schedule. The course you charted in writing, introducing, and approving the Senate RFS of 36 billion gallons by 2022 in June of last year established the framework that was eventually included in the EISA 2007. Enactment of this bill may be the most profoundly important shift toward renewable fuels and away from our risky and expensive reliance on fossil fuels ever taken in the U.S.

The passage of the original RFS as part of the Energy Policy Act of 2005 helped to propel the ethanol industry to extraordinary growth. At the conclusion of 2007, 137 plants were in operation in the U.S. producing more than 6.5 billion gallons of ethanol, far exceeding the 4.7 bgy expected last year from the original RFS. Moreover, ethanol is now blended with more than one-half of the nation's fuel supply. EISA 2007 amended and increased the RFS, requiring 9 billion gallons of renewable fuel use in 2008, stepping up to 36 billion gallons by 2022.



Under the modified RFS, corn-based ethanol (conventional biofuel) is capped at 15 billion gallons by 2015 (approximately 5 billion bushels of corn for ethanol), while 21 of the 36 billion gallons in

2022 must be derived from advanced biofuel such as cellulosic and non-corn-based ethanol. This ambitious 36 bgy RFS will unleash the promise of ethanol as the principal alternative to gasoline in the U.S. and provide the nation with a stable supply of clean-burning, homegrown, renewable fuel for years to come.

### **Implications of EISA of 2007**

According to the National Commission on Energy Policy, the combination of the new RFS schedule and landmark corporate average fuel economy (CAFE) requirements in EISA 2007 will achieve numerous economic and environmental benefits:

- Reduction of transfer of wealth abroad of \$73 billion per year in 2020 and \$129 billion in 2030, using current prices (\$90 per barrel oil, \$3 per gallon gasoline)
- Reduction in U.S. oil use of 2.8 million barrels a day by 2020, and 5 mbd by 2030.
- U.S. consumer fuel savings of \$71 billion per year in 2020, and \$161 billion in 2030, using approximate current prices.
- Reduction in U.S. CO2 emissions by 320 million metric tons in 2020, and 675 mmt in 2030.
- Reduction in passenger vehicle emissions by 15 and 30 percent, respectively, under what they otherwise would be.
- Reduction in 2020 of approximately 4 percent of projected total net U.S. CO2 emissions versus what they would otherwise be.

Numerous additional positive effects will result from the 36 bgy RFS in EISA 2007. It will attract additional investment in the production of corn-based ethanol. Furthermore, it will drive private and public research entities and entrepreneurs to partner and rapidly scale-up cellulosic ethanol production technologies. And finally, it will give confidence to the petroleum industry that ethanol will be a more consequential component of the U.S. fuel supply, encouraging terminal operators and others to make the infrastructure investments to off-load, store and blend more ethanol. These infrastructure investments will compliment the progress already made by petroleum marketers due to ethanol's recent favorable blending economics, which have made it profitable for petroleum marketers to make infrastructure investments for storing and distributing ethanol.

Since the new RFS was enacted we have reviewed it thoroughly and compared its requirements with the on-the-ground practical reality of producing biofuels to meet its goals. The timing of today's hearing is pivotal because EPA is beginning to consider how it will implement the RFS, and this hearing will help inform that process.

There are a few provisions in the final bill that merit scrutiny, as they may inadvertently undermine efforts of the industry to meet the new RFS schedule. I wanted to take this opportunity to address one significant issue that we have identified which, unless addressed, will make it nearly impossible to achieve the full economic and environmental potential of this new biofuels program: concerns about penalizing corn-based ethanol for so-called "indirect land use changes" during implementation of the lifecycle analysis (LCA) provisions of the RFS. Following a comprehensive discussion of this primary concern, I will also note other issues of importance to ACE members.

### **Lifecycle Analysis of Greenhouse Gas Emissions – Indirect Land Use Changes**

The new RFS schedule provides various carve-outs for renewable fuels based on their ability to reduce lifecycle greenhouse gas (GHG) emissions:

Conventional Biofuel – is ethanol from corn starch, and conventional ethanol facilities that commence construction after the date of enactment of EISA 2007 must achieve a 20 percent reduction in lifecycle GHG emissions compared to gasoline.

Advanced Biofuel – is renewable fuel (other than from corn starch) from biomass that reduces GHG emissions by 50 percent compared to gasoline. Cellulosic ethanol and biomass-based diesel qualify as advanced biofuel under the RFS.

Cellulosic Biofuel – is renewable fuel derived from cellulose, hemicellulose, and lignin, and achieves a 60 percent reduction in GHG emissions compared to gasoline.

We are concerned that the definition of lifecycle GHG emissions in the bill may be construed by EPA in a manner that unfairly penalizes domestic grain-based ethanol, based on dubious linkages made to land clearing and agricultural practices in developing countries. There is a growing effort on the part of some interests, including EPA, to argue that the use of grain in the U.S. to produce ethanol is contributing to land use changes in developing countries and that the resulting GHG emissions should be counted against ethanol in determining its lifecycle emissions.

The theory behind this indirect land use link goes as follows: First, a flawed presumption is made that the rise in U.S. corn prices is caused *entirely* by the demand for corn-based ethanol. Then, it is assumed that increased demand for corn in the U.S. is causing previously uncultivated land in developing nations, for instance rainforest in Brazil, to be cleared for agricultural production. This is referred to as an “indirect land use change.” It calculates the GHG emissions resulting from indirect land clearing and then assigns those estimated emissions to the LCA of corn-based ethanol in the U.S. There is no logical cause and effect relationship between these events. Moreover, it is inappropriate and impractical to use indirect land use changes to penalize grain-based ethanol in favor of other forms of biofuel. The purpose of EISA 2007 is to substantially reduce our risky and expensive reliance on petroleum and fossil fuel, not to drive a wedge between various beneficial forms of biofuel. Today, corn-based ethanol is the most important alternative available to accomplish the objective of the legislation. In the future, advanced and cellulosic biofuel will make more dramatic reductions in GHGs. But in the final analysis, our nation’s effort to reduce petroleum use and GHG emissions will require both grain and cellulosic based biofuels.

We recognize that in order to conduct a thorough LCA of GHG emissions from biofuel crops, *direct* land use changes may be considered. Market-driven factors which signal U.S. farmers to devote more acres to corn for ethanol and away from other crops are referred to as direct land use changes. While these direct land use changes may be calculated in LCA, it needs to be noted that corn and other biofuel crops reduce, recycle, and reuse GHGs as those crops grow.

The Greenhouse gases, Regulated Emissions, and Energy use in Transportation (GREET) model developed by Dr. Wang of the U.S. Department of Energy, Argonne National Laboratory, establishes an objective and reliable framework for comparing the lifecycle GHG emissions from various fuels and feedstocks. GREET examines direct land use changes, and recognizes that biofuel feedstock crops such as corn recycle carbon emissions. On a per-gallon basis, GREET indicates that dry-mill corn-based ethanol (from natural gas powered facilities) reduces GHG emissions by 18 to 29 percent over gasoline. It is estimated that biomass-fired dry-mill corn-based ethanol facilities can reduce GHG emissions by as much as 54 percent compared to gasoline. According to GREET, cellulosic ethanol can reduce GHG emissions by as much as 90 percent.

We recognize other models that can be used to analyze LCA GHG emissions of various fuels, but if EPA were to apply arbitrary indirect land use modeling and penalize grain-based ethanol in the RFS rulemaking, ACE will work to oppose the rule and encourage Congress to provide a common sense remedy. Further, ACE is going on record today to state it will vigorously work to oppose any proposed Low Carbon Fuels Standard (LCFS) legislation that attempts to use indirect land use changes in foreign countries in determining the LCA GHG emissions of grain-based ethanol.

We strongly oppose the application of indirect land use changes as the basis for determining GHG emissions for domestic, grain-based ethanol because that method has many shortcomings.

First, land clearing has been going on in developing countries for centuries, driven by population growth and the economic aspirations of farmers and consumers living in those countries. Land clearing occurred long before biofuels were a meaningful part of the energy supply.

Today, agricultural markets are affected by global factors, and land use changes continue as a result of a wide variety of reasons, including but not limited to:

- Global economic growth - especially in nations such as China and India where citizens are acquiring wealth and desiring the lifestyle of Americans, eating more protein, and demanding higher quality foods;
- Population growth;
- Internal land use and land tenure policies; and
- Weather factors

According to the Food and Agricultural Policy Research Institute (FAPRI), the main factor driving crop prices (and as a result land use) in any given year is weather. This is perhaps most clear today in the recent case of wheat, where poor weather reduced yields in Europe, Australia, and North America, caused world wheat prices to rise, and resulted in great interest around the world to increase planted acreage for wheat. Given all these factors that affect crop markets and land use decisions, to base the GHG emissions of a fuel derived from a crop such as corn upon volatile global economics and weather conditions is bizarre, unworkable, and unfair. It is impossible to link with confidence land clearing in any particular country to the use of grain in the U.S. to produce ethanol.

Furthermore, ascribing GHG emissions from land clearing in developing countries to biofuels production in the U.S. would hold the domestic ethanol industry to a uniquely punitive standard, one that no other U.S. industry would face under a national cap and trade program to limit GHG emissions. Under existing cap and trade proposals pending in Congress, including those introduced by Senators Bingaman and Specter and Senators Lieberman and Warner, certain U.S. industries such as oil companies will be responsible for obtaining permits for the fossil fuels that they introduce into commerce. Users of fossil fuels and products derived from the use of fossil fuels will be indirectly affected by such regulation as costs for those fossil fuels increases in response to annual rationing of carbon credits under the cap. In no case would a U.S. industry be responsible for indirect effects of its activities on GHG emissions in other nations.

In a global economy, virtually all economic activity in the U.S. will have direct and indirect economic and environmental impacts around the world. Thus, to consistently apply the principle that U.S. entities should be accountable for GHGs emitted in foreign countries, one would need to hold U.S. businesses and individual consumers responsible for all direct and indirect GHG

emissions from foreign factories used to produce the goods consumed in the U.S., because those businesses or individuals create the market demand that leads to the foreign economic activity. Similarly, we would need to demand that foreign nations that import grain and other commodities from the U.S. be responsible for our domestic emissions generated in the cultivation or manufacture of those goods. This makes no sense.

In summary, ascribing indirect effects associated with land clearing in foreign countries not only singles out the U.S. biofuels industry for uniquely unfair treatment, it establishes an unworkable precedent for regulation of other U.S. industries under future GHG control programs. The consideration of land use effects in LCA of GHGs should be limited to domestic direct impacts associated with growing grains for ethanol production. ACE hopes that the committee will clarify in a technical corrections bill that the calculation of lifecycle GHG emissions is limited to domestic impacts.

### **Opportunities for Mid-level Blends of Ethanol**

Enactment of EISA 2007 with an ambitious new RFS guarantees that ethanol will comprise more than 10 percent of the U.S. fuel supply, creating opportunities for new blends of ethanol beyond those available to motorists today; E10 and E85.

To further the probability of new mid-level blends such as E15, E20, or E30, ACE and the U.S. Department of Energy cosponsored an Optimal Ethanol Blend Level Investigation, conducted by the Energy and Environment Research Center of the University of North Dakota in conjunction with the Minnesota Center for Automotive Research of Minnesota State University-Mankato. We released the findings of this scientific study in this very committee hearing room on December 5, 2007, with the assistance of Senators Dorgan and Thune, Assistant Secretary Karsner of the Department of Energy, Undersecretary Dorr of the Department of Agriculture, and key environmental and consumer advocates.

The purpose of the scientific investigation was to utilize EPA and automaker test procedures to identify if mid-level blends of ethanol could have a beneficial application in standard autos. The research indicates that we haven't begun to recognize the value of ethanol — in energy conservation and environmental terms. If the U.S. were to be able to use 20 or 30 percent ethanol, it would result in an extraordinary reduction in our reliance on fossil fuels and dramatically extend the nation's fuel supply.

The investigation revealed unprecedented data that E20 and E30 blends can provide better fuel economy than regular gasoline (even in standard, non-flex-fuel cars), with fewer harmful tailpipe emissions. That shatters the myth about ethanol's fuel economy "penalty" that has been based solely on the energy content of ethanol.

Even though this was a preliminary study we are encouraged that intermediate blends of ethanol could have positive implications for fuel efficiency, cleaner air, and energy security. ACE intends for our study to provide a catalyst for further analysis and research to support our results. Already, this additional research is underway with E20 in the State of Minnesota, providing further support to our findings and effort to make these blends a reality. Approving the use of blends such as E20 and E30 will be a top priority for ACE in the future, and we look forward to working with Members of the Committee on creating a pathway for the approval of these blends.

One way to help ensure the availability of mid-level blends of ethanol, is to guarantee the rapid implementation and funding of Title II, Section 244 of EISA 2007, which creates a new grant program within the Department of Energy to assist petroleum marketers by installing “blender pumps” that enable consumers to choose to fill up on blends such as E20 or E30. We encourage the committee to help ensure this program is implemented and funded.

### **Other Issues of Concern and Conclusion**

Another significant issue that I would like to raise is the need to provide incentives for the corn ethanol industry to become more efficient in terms of lifecycle GHG emissions in the future. Technology innovations are driving the future of the U.S. ethanol industry. Corn ethanol plants are becoming more efficient in their use of energy and water, in many cases cutting use of these inputs by half compared with rates only a few years ago. And there are dozens of new companies in the process of commercializing technology to convert a range of cellulosic feedstocks to ethanol and other cutting-edge biofuels. In the original Senate-passed version of the new RFS program, there was a 1.5 credit for every gallon of ethanol produced from plants that used at least ninety less fossil fuel inputs than conventional plants. That provision provided important encouragement to the ethanol industry to continue to seek innovative ways to reduce fossil fuel inputs and GHG emissions associated with those fuels. ACE recognizes the need for ethanol plants to become as efficient as possible in the coming years with respect to the use of both energy and water and we are proud of the work being undertaken currently to the develop technical advances necessary to achieve those goals. We hope that the committee would consider restoring this provision in a technical corrections bill.

Finally, we are concerned that the discretion granted to EPA in implementing the advanced biofuels portion of the RFS could be used liberally by the agency, thus undermining the achievement of the program milestones set by Congress. Inappropriate use of the waiver authority by the agency could create future market uncertainty and hinder efforts by this emerging segment of the industry to gain access to needed capital investment.

In conclusion, I would like once again to express my profound thanks to Senators Bingaman and Domenici and your staffs for your work to design and enact the new RFS. Thank you also for the opportunity to offer our views today, and, on behalf of the members of ACE, I commend your leadership on ethanol issues. This historic program has the potential to revolutionize the American biofuels industry, help reduce our dependence on foreign oil and dramatically reduce emissions of greenhouse gases from transportation sector. I look forward to your questions.

Thank you.