growth energy
America's Ethanol Producers

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GrowthEnergy.org

March 6, 2009

The Honorable Lisa Jackson
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington D.C. 20460

Ms. Margo T. Oge, Director
U.S. Environmental Protection Agency
Office of Transportation and Air Quality (6401A)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Administrator Jackson and Director Oge,

As automotive fuel systems experts with over 100 years of experience, we are writing to express our support of Growth Energy's 211(F) waiver request for the use of 15 percent ethanol in gasoline.

President Obama has laid out a significant agenda to grow the U.S. economy and expand the use of renewable energy, while reducing our dependence on foreign oil and addressing the very serious challenge of global climate change. For more than 30 years ethanol, while limited to 10% of the marketplace, has changed the energy landscape of America. The ultimate impact of ethanol use in the United States will be much farther-reaching when the government implements higher blend standards in which to comply with the Energy Independence and Security Act of 2007. Moreover, ethanol and biofuels in general, stand ready to not only create jobs and stimulate domestic investment, but ethanol has scientifically proven that it will ease our environmental impact.

Today's ethanol offers a sustainable solution to powering our country while addressing the serious challenge of global warming. Ethanol results in fewer greenhouse gas emissions than gasoline, is fully biodegradable and meets stringent tailpipe emission standards. The U.S. Department of Energy estimates that 13 million tons of greenhouse gases were avoided in 2007 due to biofuels production and use. Researchers at the University of Nebraska-Lincoln have recently found that ethanol produced from corn can reduce GHG emissions by as much as 59 percent relative to gasoline. Continued innovation in the ethanol industry, including the use of renewable energy sources in production, will further reduce emissions by as much as 67 percent.

The commercialization of advanced biofuels such as cellulosic ethanol promises to reduce GHG emissions by 86 percent relative to gasoline.

Sustainable ethanol production remains a top priority of the ethanol industry. Agricultural and technical innovations are constantly increasing crop yields, reducing the intensity of pesticide and fertilizer use, improving water productivity, and promoting conservation tillage that reduces erosion and sequesters carbon. Since 2001, ethanol plants have decreased energy use by 21.8 percent, while corn ethanol production increased almost 30-fold between 1980 and 2006 the number of farm acres remained the same. There are few, if any, liquid fuel competitors willing or able to do or say the same.

The government renewed its embrace of this bright future through passage of the Energy Independence and Security Act of 2007, which, among other things, mandated 36 billion gallons of ethanol be blended into our domestic fuel supply by 2022. But this mandate to secure America's future will not be realized unless artificial restrictions that limit the use of ethanol are removed. This can only be done with approval of higher blends of ethanol for use in America's vehicles.

Extensive experience with use of ethanol, and multiple recent independent studies involving a range of higher ethanol blends support that E-15 will not only work well in existing automobiles, it will result in lower emissions of greenhouse gases and other key pollutants. The industry must have government approval to implement what our country needs and what science shows will work: fuel blends of up to fifteen percent ethanol.

Removing the 10 Percent "Blend Barrier"

Under current regulation, the potential for development and growth of the ethanol industry cannot be realized and the increased ethanol production mandates of the EISA 2007 are effectively unreachable. This is because EPA long-ago elected to limit the base blend of ethanol in gasoline to only ten percent. Theoretically, that translates to 14 billion gallons of the 140 billion gallons of gasoline currently used in the United States. But due to logistical and infrastructure limitations, it is impossible to blend ethanol into every single gallon and the ethanol market is essentially capped at 12.5 billion gallons. At current production rates, the ethanol industry will reach this "blend barrier" in early 2009, not 2012 as some reports have suggested. Scientifically speaking, there is no reason for the "blend wall" to exist, given the data and information available today.

EPA's 30-year-old determination to limit the base blend of ethanol in gasoline to ten percent—a decision that was based on 1970s vehicle fuel system designs and technology and made at a time when ethanol production capacity was a fraction of what it is today—is no longer tenable. As set forth below and in the attached 211(f) Waiver Application, current science more than justifies immediately raising the ethanol blend limit to 15 percent.

The Benefits of Higher Ethanol Blends

The environmental benefits of allowing higher ethanol blends are impressive. The introduction of E-15 will significantly reduce emissions of non-methane hydrocarbons and carbon monoxide, according to recent studies conducted by the U.S. Department of Energy. Additionally, ethanol producers are increasingly powering their plants with renewable sources of energy, such as wood waste and landfill gas, further reducing the environmental footprint of the industry. The potential environmental benefits are even more dramatic with cellulosic ethanol, which can reduce greenhouse gas emissions by 86 percent compared to gasoline. However, a market for cellulosic ethanol currently does not exist given the E-10 regulatory cap.

Multiple peer-reviewed studies have found that higher blends of ethanol do not increase vehicle emissions. For example, a recent study by Oak Ridge National Laboratory for DOE, Effects of Intermediate Ethanol Blends on Legacy Vehicles and Non-Road Engines, Report 1, concluded that when E-15 and E-20 were compared to traditional gasoline, there are no significant changes in vehicle tailpipe emissions, vehicle drivability, or small non-road engine emissions as ethanol content increased. Further, a report from by the Energy & Environmental Research Center and Minnesota Center for Automotive Research, located at Minnesota State University, Mankato, found that exhaust emissions levels for all vehicles at all levels of ethanol blend showed no significant differences from the Oak Ridge National Laboratory. Indeed, more science exists today, in support of an immediate move to E-15, than has existed in the history of the EPA waiver process.

All this can be accomplished with no harm done to America's automobiles.

Experience and Current Science Support the Introduction of E-15

E-10 ethanol-gasoline blends have been used in America for more than 30 years and more than 40 billion gallons of ethanol has been successfully used in all types of vehicles and engines. Recent, extensive and peer-reviewed research by the U.S. Government, state governments, and private and public groups makes clear that ethanol blends of 15 percent are immediately viable for use in non-flex fuel vehicles. These recent and independent studies involved more than 100 vehicles, 85 vehicle types, 33 fuel dispensing units, extended driveablity tests, and thousands of hours of emissions and materials compatibility tests. These studies thoroughly evaluated the impact of E-15 and higher ethanol-gasoline blends on emissions, materials compatibility, durability and driveabilty. As set forth in detail in the attached Waiver Application, these studies compel the conclusion that the effects of E-15 are no different than, and possibly superior to, the effects of the E-10 blend we have used for over 30 years. The major studies and findings supporting this conclusion include the following:

- *Effects of Intermediate Ethanol Blends on Legacy Vehicles and Small Non-Road Engines, Report 1*, prepared by Oak Ridge National Laboratory for the U.S. Department of Energy (October 2008) (peer-reviewed study regarding the effects of E-15 and E-20 on motor vehicles and small non-road engines concludes that when E-15 and E-20 were compared to traditional gasoline, there are no significant changes in vehicle tailpipe

emissions, vehicle driveability, or small non-road engine emissions as ethanol content increased);

- *Optimal Ethanol Blend-Level Investigation, Final Report*, prepared by Energy & Environmental Research Center and Minnesota Center for Automotive Research for American Coalition for Ethanol (October 2007) (report studied the effects of ethanol blends ranging from E-10 to E-85 on motor vehicles and found that exhaust emissions levels for all vehicles at all levels of ethanol blend were within the applicable Clean Air Act standards);

- *The Feasibility of 20 Percent Ethanol Blends by Volume as a Motor Fuel*, Results of Materials Compatibility and Driveability Testing, prepared by the State of Minnesota and the Renewable Fuels Association (March 2008):
    a. *The Effects of E20 on Metals Used in Automotive Fuel System Components* (study compared the effects of E-0, E-10 and E-20 on nineteen metals and found that the metals tested were compatible with all three fuels);
    b. *The Effects of E20 on Elastomers Used in Automotive Fuel System Components* (study compared the effects of E-0, E-10 and E-20 on eight elastomers and found that E-20 caused no greater change in properties than E-0 or E-10);
    c. *The Effects of E20 on Plastic Automotive System Components* (study compared the effects of E-0, E-10 and E-20 on eight plastics and found that there was no significant difference in the properties of the samples exposed to E-20 and E-10);
    d. *The Effects of E20 on Automotive Fuel Pumps and Sending Units* (study compared the effects of E-0, E-10 and E-20 on the performance of twenty-four fuel pumps and nine sending units and found that E-20 has similar effect as E-10 and E-0 on fuel pumps and sending units);
    e. *Demonstration and Driveability Project to Determine the Feasibility of Using E20 as a Motor Fuel* (study tested forty pairs of vehicles on E-0 and E-20 and found no driveability or operational issues with either fuel)

- *Fuel Permeation from Automotive Systems: E-0, E-6, E-10, E-20 and E-85*, prepared by the Coordinating Research Council, Inc. (CRC Report No. E-65-3) (December 2006) (study evaluated effects of E-0, E-6, E-20 and E-85 on the evaporative emissions rates from permeation in five newer California vehicles and found that there was no statistically significant increase in diurnal permeation rates between E-6 and E-20);

- *Report to the US Senate on E-20 Ethanol Research*, prepared by the Rochester Institute of Technology (October 2008) (study evaluated effects of E-20 on ten legacy vehicles; initial results after 75,000 collective miles driven found no fuel-related failures or significant vehicle problems and documented reductions in regulated tailpipe emissions when using E-20 compared to E-0);

- *Use of Mid-Range Ethanol/Gasoline Blends in Unmodified Passenger Cars and Light Duty Trucks*, prepared by Minnesota Center for Automotive Research (July 1999) (one-year study evaluated the effects of E-10 and E-30 in fifteen older vehicles in "real world"

driving conditions; found no effect on driveability or component compatibility from either fuel and found that regulated exhaust emissions from both fuels were well below federal standards);

- *Blending of Ethanol in Gasoline for Spark Ignition Engines: Problem Inventory and Evaporative Measurements*, prepared by Stockholm University et. al. (2004-05) (study tested and compared evaporative emissions from E-0, E-5, E-10, and E-15 and found lower total hydrocarbon emissions and lower evaporative emissions from E-15 than from E-10 and E-5).

Conclusions

Changing current regulations to allow the immediate use of E-15 is supported by scientific evidence

- ***E-15 will not cause or contribute to the failure of any emission control devices or systems***
- ***Vehicles operated on E-15 can meet all emission control regulations***
- ***There is no discernable difference in vehicle operation between E-15 and E-10.***

Changing current regulations to lift the 10% limit on ethanol blends is required if the mandate in the Energy Independence and Security Act of 2007 to use 36 billion gallons of ethanol is to be met

We, the undersigned, implore the EPA to update their regulatory limitation on ethanol to E-15. Doing so will not only increase domestic, economic activity but also, reduce GHG emissions and our reliance on foreign sources of oil. Moreover, E-15 will not harm the existing vehicle fleet.

Sincerely,

Jim Balzer
Transportation Markets Manager, Daikin America, Inc.

Michael Harrigan
Former Ford Motor Company Engineer and Independent Automotive Consultant

Dr. Bruce Jones
Director, Minnesota Center for Automotive Research
Minnesota State University, Mankato

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