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**Before the**

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**Of the**

**House Committee on Energy and Commerce**

**On**

**Overview of the Renewable Fuel Standard: Stakeholder Perspectives**

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Thank you for the opportunity to testify. My name is Scott Faber and I am the Senior Vice President for Government Affairs at EWG.

EWG applauds the Subcommittee on Energy and Power of the House Committee on Energy and Commerce for reviewing the Renewable Fuel Standard.

To date, the RFS has failed to deliver the "good" biofuels that could help meet many of our environmental and energy challenges. Instead, the RFS has delivered too many "bad" biofuels that increase greenhouse gas emissions, pollute our air and water, destroy critical habitat for wildlife and increase food and fuel prices. Once promoted as a tool to combat climate change, the corn ethanol mandate of the RFS has instead increased greenhouse emissions, exacerbated our air and water pollution challenges, and driven up the price of staple foods.

Since it was expanded in 2007, the corn ethanol mandate has contributed to plowing up more than 23 million acres of US wetlands and grasslands to plant crops -- an area the size of Indiana. EWG recently analyzed the annually updated satellite data that the US Department of Agriculture uses to track land use and documented this rapid destruction of wetlands and grasslands.[1] Other studies have also documented this dramatic change to

[1] EWG, (2012) Plowed Under. http://static.ewg.org/pdf/plowed_under.pdf.

the American landscape.[2] By accelerating conversion of wetlands and grasslands to grow crops, the RFS has driven up greenhouse gas emissions by releasing carbon stored in the soil[3] and by increasing fertilizer applications.[4]

Although the RFS was promoted in 2005 and 2007 as a tool to address climate change, the Environmental Protection Agency's own analysis has since shown that the lifecycle greenhouse gas emissions of corn ethanol were higher than gasoline last year (2012) and will be higher in 2017.[5] All but three corn ethanol production pathways increased emissions in 2012, and only nine corn ethanol production pathways are expected to meet greenhouse gas reduction standards for corn ethanol in 2017.[6]

What's more, new research suggests that the RFS will not achieve long-term greenhouse gas reductions. Researchers found that the cumulative greenhouse gas emissions caused by corn ethanol for the period between 2015 and 2044 to be about 1.4 billion tons – or 300 million tons more than emissions from an energy-equivalent amount of gasoline.[7] In other words, the cumulative lifecycle greenhouse gas emissions from corn ethanol are forecast to be 28 percent higher than those from gasoline. A separate study found that full implementation of the RFS, including the development and use of second-generation biofuels, would "substantially increase the portion of agricultural land needed for biofuel production" and result in almost no change in greenhouse gas emissions.[8]

These studies contradict earlier EPA research – based on hypothetical corn ethanol production in 2022 – that suggested that the 30-year lifecycle greenhouse gas emissions from corn ethanol would be lower than the emissions from an energy-equivalent amount of gasoline.[9] EPA's earlier studies presumed investments and upgrades, such as fuel switching, that are speculative at best, as most corn ethanol is not subject to the greenhouse gas standards of the RFS.

In addition to increasing greenhouse gas emissions, corn ethanol also increases emissions of many other air pollutants, including sulfur dioxide, particulate matter, ammonia,

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[2] E.g. Wright and Wimberly (2012), *Recent Land Use Change in the Western Corn Belt threatens Grasslands and Wetlands.*

[3] Clearing forest, pasture or wetland for new cropland to produce biofuels results in decomposition of organic carbon and elevated GHG emissions, creating a "carbon debt" which may take many years for biofuel consumption to "pay down." See EPA (2011), Biofuels and the Environment: Triennial Report to Congress, at 5-9.

[4] Fertilizer applications increase emissions of nitrous oxide, a far more potent greenhouse gas than carbon dioxide. In 2011, nitrous oxide accounted for about 5% of all US GHG emissions, and nitrous oxide molecules stay in the atmosphere for an average of 120 years. http://epa.gov/climatechange/ghgemissions/gases/n2o.html.

[5] Environmental Protection Agency (2010) Renewable Fuel Standard Program (RFS 2) Regulatory Impact Analysis.

[6] See Docket No. EPA-HQ-OAR-2005-0161-3173.5

[7] Clean Air Task Force (2013), Corn Ethanol GHG Emissions Under Various RFS Implementation Scenarios, included in CATF Comments on EPA RFS 2013 Volume Adjustment. [Hereinafter CATF]

[8] Mosnier, et al. (2013), *Alternative US Biofuel mandates and global GHG emissions: the Role of Land Use Change, Crop Management and Yield Growth.*

[9] CATF at 3.

nitrogen oxides and ozone.[10] In 2011, the National Academy of Sciences found that "overall production and use of ethanol was projected to result in increases in the pollutant concentration . . . Those projected air-quality effects from ethanol fuel would be more damaging to human health that those from gasoline use."[11] In particular, experts have found that, compared to the lifecycle emissions from gasoline, corn ethanol results in significantly greater emissions of particulate matter, which can contribute to respiratory illnesses.[12] As a result, the RFS is complicating state and local efforts to meet particulate matter pollution standards. In addition, RFS2 will raise ozone levels even higher than RFS1.[13] Overall, the increase in emissions caused by the RFS are, according to the National Academy, "projected to lead to increases in population-weighted annual average ambient [particulate matter] and ozone concentrations, which in turn are anticipated to lead to up to 245 cases of adult premature mortality."[14]

Corn ethanol also contributes to significant water quality and quantity challenges. As the number of acres dedicated to corn production has increased – from 79 million acres, on average, between 2000 and 2006 to 90 million acres, on average, between 2007 and 2012 – farmers have applied more nitrogen fertilizer.[15] Nitrogen that washes off farm fields contributes to poor water quality, increasing water treatment costs and creating low-oxygen "dead zones." As the National Academy noted, "the increase in corn production has contributed to environmental and surface effects on surface and ground water, including hypoxia, harmful algal blooms and eutrophication."[16] Water used to irrigate corn ethanol and by ethanol refineries also depletes aquifers and streams. According to various studies compiled by the Academy, producing a gallon of gasoline, on a well-to-wheel basis, consumes far less water than producing a gallon of corn ethanol.[17]

Fortunately, some second-generation biofuels hold far more promise than corn ethanol. Because many of these fuels convert crop wastes or other byproducts into fuel, some second-generation fuels do not contribute to the conversion of land or increase the use of farm chemicals.[18] Unfortunately, the marketplace is saturated by corn ethanol, blocking the commercial development of promising second-generation fuels. While corn ethanol refiners currently have the capacity to produce 14.7 billion gallons, gasoline refiners can

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[10] Wagstrom and Hill (2011), *Air Pollution Impacts of Biofuels*, in Gasparatos and Stromberg, Socioeconomic and Environmental Impacts of Biofuels: Evidence from Developing Nations, Cambridge University Press, England. See also

[11] National Academy of Sciences (2011), *Renewable Fuel Standard: Potential Economic and Environmental Effects of US Biofuels Policy*, at 246. [Hereinafter NAS].

[12] Tessum, et al. (2012), *A Spatially and Temporally Explicit Life Cycle Inventory of Air Pollutants from Gasoline and Ethanol in the United States*; *See also* Cook, et al., (2010) *Air Quality Impacts of Increased Use of Ethanol under the United States' Energy Independence and Security Act*

[13] Environmental Protection Agency, Renewable Fuel Standard Program (RFS 2) Regulatory Impact Analysis (2010) at 602.

[14] NAS at 206.

[15] Testimony of Joseph Glauber, Chief Economist, USDA, before the Subcommittee on Energy and Power of the House Committee on Energy and Commerce, June 26, 2013. Corn acres reached 97.2 million acres in 2012.

[16] NAS at 10.

[17] *Id*. at 227.

[18] Tilman, et al. (2009), *Beneficial Biofuels – The Food, Energy, and Environmental Trilemma; See also* Wagstrom and Hill.

only blend 13.4 billion gallons of ethanol into the fuel supply, what is commonly known as the "blend wall." Expected declines in fuel consumption, driven largely by fuel efficiency standards, will further reduce the amount of ethanol that can be blended into gasoline, and significant infrastructure and engine constraints limit the use of higher ethanol blends.

To allow second-generation biofuels to gain a foothold in the marketplace, Congress must reform the RFS to phase out the mandate for corn ethanol. Accelerating development of promising second-generation fuels is critical to efforts to reduce the carbon intensity of the overall fuel supply, but this is not happening quickly enough to offset the negative environmental impacts of conventional biofuels. There is little evidence that the RFS, as currently designed, is providing sufficiently powerful incentives to develop these fuels. The Energy Information Administration has repeatedly reduced its predictions for cellulosic biofuel production by 2022: from less than 3 billion in 2012,[19] to less than 1 billion gallons in January 2013,[20] to less than 500 million gallon in April 2013.[21] At a minimum, Congress should "level the playing field" by demanding that all corn ethanol production meet the same high greenhouse gas reduction standards as other biofuels.[22]

Accelerating development of second-generation fuels that convert wastes into fuels could have other benefits.[23] In particular, phasing out the corn ethanol mandate and allowing second-generation fuels to meet current marketplace demand for ethanol could reduce food and feed prices. Between 2005 and 2012, annual corn ethanol production grew from less than 4 billion gallons to almost 14 billion gallons. As a result, the share of corn diverted from food and feed supplies has increased from 6 percent to 40 percent.[24] Expanding corn production has only partially offset the rapid growth in demand for corn ethanol, resulting in significantly higher corn prices. Although many factors have contributed to recent price increases, experts estimate that the rapid expansion of corn ethanol accounted for at least one-third of the increase.[25] Rising demand for corn also drives up the price of other crops such as wheat.[26] Unless we reform the RFS to speed up development of second-generation fuels, our ethanol policies will continue raise the cost

[19] US EIA, Annual Energy Outlook 2012 (June 2012). The AEO 2013 (April 2013) concludes that cellulosic biofuel production will not grow until after 2013.
[20] US EIA Deputy Administrator How Gruenspecht, (January 2013), *Biofuels in the United States: Context and Outlook*
[21] US EIA, AEO 2013, at 83. See fig. 100.
[22] In addition, Congress should reject new subsidies for corn production and instead support common-sense reforms such as payment limits and means testing. Second-generation fuel feed-stocks are generally not eligible for farm subsidies.
[23] Some second-generation fuels, under certain scenarios, increase greenhouse gas emissions and food and feed prices.
[24] World Agricultural Outlook Board, USDA, World Agricultural Supply and Demand Estimates (2013).
[25] E.g. Babcock and Fabiosa (2011) *the Impact of Ethanol and Ethanol Subsidies on Corn Prices: Revisiting History*. CARD, Iowa State University.
[26] Griffen and Soto (2012). *US Ethanol Policy: The Unintended Consequences*

of basic staples for American consumers and increase the number of food-insecure people around the globe.[27]

In conclusion, the rapid expansion of corn ethanol production has increased greenhouse gas emissions, worsened air and water pollution, and driven up the price of food and feed. By contrast, some second-generation biofuels could significantly reduce greenhouse gas emissions without creating new environmental challenges or increasing food prices. So long as corn ethanol saturates the marketplace for ethanol, there will be little incentive to develop these promising new fuels.

[27] Condon, Klemick, and Wolverton (2013). *Impacts of Ethanol Policy on Corn Prices: A Review and Meta-Analysis of Recent Evidence.*