**Comments on Environmental Protection Agency Proposed Rule**

**Regarding the**

**2014 Standards for the Renewable Fuel Standard (RFS) Program**

**[EPA-HQ-OAR-2013-0479; FRL-9900-90-OAR]**

**Submitted by**

**Environmental Working Group**

**on**

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The Environmental Working Group is the nation's most effective environmental health research and advocacy organization. EWG appreciates the opportunity to comment on the Environmental Protection Agency's proposed rule to establish standards for the Renewable Fuel Standard program for 2014, and commends EPA for holding a public hearing on the proposal.

As detailed in recent testimony before Congress, EWG supports the goal of the RFS program to promote the development of second-generation biofuels that reduce greenhouse gas emissions and lessen our dependency on petroleum, but is concerned that this development is not occurring quickly enough to offset the environmental harms of increased corn ethanol production.[1] EPA recognizes that corn ethanol has saturated the marketplace, and its proposed reduction to the total renewable fuels mandate appropriately addresses the constraints posed by the blendwall. It is critical, however, that corn ethanol be significantly deemphasized in the RFS in order to make room for more promising fuels that meet higher environmental standards and do not compete with our food needs. So as long as corn ethanol saturates the marketplace for ethanol, and the playing field remains unequal, the incentive to develop the innovative fuels of the future will be limited.

Since its inception, the RFS has been buoyed by corn ethanol, exacerbating efforts to combat climate change and creating air and water pollution challenges associated with a rapid expansion of corn production. EPA's own analysis has shown that the lifecycle greenhouse gas emissions of corn ethanol were higher than those of gasoline in 2012 and 2017. Of the 33 corn ethanol production pathways identified in the RFS implementation rule docket, only three decreased emissions relative to the baseline

[1] Testimony of Scott Faber, Senior Vice President of Government Affairs, EWG, before the Senate Committee on Environment and Public Works and the Subcommittee on Clean Air and Nuclear Safety, December 11, 2013.

in 2012, and only nine are expected to meet the qualifying greenhouse gas reduction standard in 2017.[2] Despite these findings, the agency chose to base this standard on lifecycle analysis of hypothetical corn ethanol production in 2022 – an issue raised by the National Research Council in its 2011 report on the RFS. [3] EPA's approach assumed projected corn production efficiencies and improvements in biorefinery technologies that were not commonly used at the time of the 2010 final rule. According to the NRC:

> EPA calculated its 21-percent GHG reduction as a weighted average of projected biorefinery and corn production efficiencies that could be realized in 2022. Thus, according to EPA's own estimates, corn-grain ethanol produced in 2011, which is almost exclusively made in biorefineries using natural gas as a heat source, is a higher emitter of GHG than gasoline. Nevertheless, corn-grain ethanol produced at the time this report was written still qualified for RFS2 based upon EPA's industry-weighted average of projected 2022 industry. The discrepancy between how RFS2 is implemented (under the assumption of 21-percent reduction of GHG emissions by corn-grain ethanol compared to gasoline) and EPA's own analysis suggests that RFS2 might not achieve the intended GHG reductions.

To date, it remains highly uncertain whether these upgrades are being developed and adopted at a rate and scale in congruous with the assumptions built into EPA's determination, especially considering that a substantial portion of corn ethanol production is exempt from the program's greenhouse gas reduction standard. In an attempt to relieve the uncertainty clouding this issue, EWG suggests the agency consider an assessment of the industry's capabilities to develop and adopt such upgrades.

Recent research on land conversion related to corn ethanol production calls into question the assumption of corn ethanol's carbon neutrality. EWG's analyses of annually updated satellite data provided by the U.S. Department of Agriculture has documented the plowing up of more than 23 million acres of

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[2] See Fuel-Specific Lifecycle Greenhouse Gas Emissions Results (5) in Docket No. EPA-HQ-OAR-2005-0161-3173

[3] National Research Council of the National Academy of Sciences (2011), Renewable Fuel Standard: Potential Economic and Environmental Effects of U.S. Biofuel Policy at 201, [Hereinafter NRC]. See also Clean Air Task Force (2013), Response to House Energy & Commerce Committee: Greenhouse Gas Emissions & Other Environmental Impacts of the RFS at 4-5 [Hereinafter CATF].

marginal lands – an area the size of Indiana – since 2008 to plant crops.[4] Corn accounts for the largest share of this conversion, especially in areas where the loss of wetlands and grasslands has been most extensive, including the wildlife-rich Prairie Pothole region of the Upper Midwest.[5] Other studies have documented land use change, directly attributing losses to the increased use of corn for ethanol.[6] An investigation by the Associated Press found that 1.2 million acres of virgin land in Nebraska and the Dakotas have been converted to corn and soybean since 2006.[7] Accelerating the conversion to cropland – both in the U.S. and on a global scale – boosts emissions of carbon stored in the soil and nitrous oxide from increased fertilizer applications. According to EPA, "clearing forested areas or pasture land for new cropland results in advanced microbial decomposition of organic carbon and elevated GHG emissions," creating a "carbon debt" which may take many years for biofuel consumption to offset.[8] Similarly, the NRC noted that greenhouse emissions generated by such land conversion could be large enough to negate any benefits of displacing petroleum with biofuels, and may undermine future potential for carbon storing.[9]

New data on land conversion trends occurring in the U.S. warrants a revisiting of the regulatory provisions governing land use restrictions on biofuel feedstocks. Petitions submitted by the Clean Air Task Force and the National Wildlife Federation argue for a reconsideration of the aggregate compliance approach in order to ensure that qualifying biofuel feedstocks are consistent with the definition of

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[4] EWG (2012), Plowed Under. http://static.ewg.org/pdf/plowed_under.pdf
[5] Corn acres accounted for 68 percent of wetland losses – more than 236,000 acres – in the Prairie Pothole region since 2008. See EWG (2013), Going Going Gone, http://static.ewg.org/pdf/going_gone_cropland_hotspots_final.pdf
[6] Wright and Wimberly (2013), Recent Land Use Change in the Western Corn Belt Threatens Grasslands and Wetlands, Proceedings of the National Academy of Sciences. See also Johnston (2013), Wetlands Losses Due to Row Crop Expansion in the Dakota Prairie Pothole Region, Society of Wetland Scientists.
[7] Cappiello and Apuzzo (2013). The Secret Environmental Cost of US Ethanol Policy. Associated Press.
[8] EPA (2011), Biofuels and the Environment: First Triennial Report to Congress at 5-9 and 5-10.
[9] NRC at 4.

renewable biomass and that cropland expansion does not occur on ineligible lands.[10] EWG also endorses the conclusion reached by these organizations that "compelling justification exists…to include a positive requirement on biofuel producers to demonstrate and document the eligibility of lands where their feedstocks are grown."[11]

Aside from land use impacts, air and water quality concerns related to corn ethanol production also cast doubt on corn ethanol's benefits to the environment and public health. Corn ethanol has been shown to increase emissions of harmful air pollutants, including sulfur dioxide and particulate matter, ammonia, nitrogen oxides and ozone.[12] The NRC concluded that the effects of ethanol fuel on air quality would be more damaging to human health than those from gasoline use.[13] Additionally, EPA concluded that the 2007 expansion of the RFS will also raise ozone levels.[14] Overall, the increase in emissions caused by the RFS are, according to the NRC, "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."[15]

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.[16] Nitrogen that washes off farm fields contributes to poor water quality, increasing water treatment costs and creating low-oxygen "dead zones." As the NRC noted, "the increase in corn

[10] CATF at 16-17.
[11] *Id.* at 17. See also National Wildlife Federation
[12] 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.
[13] NRC at 246.
[14] EPA (2010), Renewable Fuel Standard Program (RFS 2) Regulatory Impact Analysis at 602.
[15] NRC at 206.
[16] 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. [Hereinafter Glabuer] Corn acres reached 97.2 million acres in 2012.

production has contributed to environmental and surface effects on surface and ground water, including hypoxia, harmful algal blooms and eutrophication."[17]

From an environmental perspective, corn ethanol seems to be doing more harm than good, yet the RFS holds it to a much lower standard - at the expense of cleaner biofuels. While improvements have been made to lower corn ethanol's carbon footprint, these advances are likely undone by the grandfather clause in the Energy Independence and Security Act of 2007 that exempts ethanol facilities from demonstrating the minimum greenhouse gas emissions baseline.[18] EWG supports the elimination of the exemption for this reason.

Lastly, regarding E15, EWG is wary of the risks higher ethanol blends may pose to vehicle, marine and small engines. Although E15 is now allowed for use in 2001 and newer vehicles, only 5 percent of vehicles on the road today are actually approved for use under warranty by their manufacturer.[19] Five major car companies including Chrysler and Toyota – the largest automaker in the world – stated that their warranties do not cover any damage related to the use of E15, and eight other manufacturers said E15 does not comply with their fuel requirements specified in owner's manuals.[20] AAA expects that it will take another decade before the bulk of the U.S. fleet will be compatible with E15. Meanwhile, most consumers are unaware that incompatible blends may harm their engines and void their warranties. Additionally, most fuel dispensing and storage equipment is incompatible with E15 and would not

[17] NRC at 10.
[18] Virent, Inc. Comments on the House Committee on Energy and Commerce White Paper on Greenhouse Gas Emissions and Environmental Impacts at 1-2.
[19] Testimony of Robert L. Darbelnet, President and CEO, AAA, before the Subcommittee on Energy and Power of the House Committee on Energy and Commerce, July 23, 2013
[20] AAA Press Release, AAA CEO Urges Suspension of E15 Gasoline Sales in Testimony to Congress." February 2013.

comply with federal safety standards, according to the Government Accountability Office.[21] Compatible dispensers can cost upwards of $20,000, while replacing an underground storage tank can easily exceed $100,000 per location. These are significant costs for retailers in order to sell a fuel for which demand is uncertain.[22]

In conclusion, the RFS is not generating sufficient enough environmental benefits because it gives preference to a fuel whose environmental benefits are questionable at best. By contrast, some second-generation biofuels could significantly reduce greenhouse gas emissions without creating new environmental challenges or require costly engine and infrastructure improvements, but these fuels cannot compete in a market saturated by corn ethanol. EPA's proposed rule recognizes that the RFS is on a collision course with reality, and must be reformed accordingly.

EWG appreciates EPA's efforts to reset the RFS program on a sustainable path forward. Thank you for reviewing these comments.

Respectfully submitted,

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[21] GAO (2011), Challenges to the Transportation, Sale and Use of Intermediate Ethanol Blends
[22] Testimony of Joseph H. Petrowski, CEO, The Cumberland Gulf Group before the Subcommittee on Energy and Power of the House Committee on Energy and Commerce, July 23, 2013