January 26, 2018

Mr. Scott Pruitt
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

Submitted via regulations.gov

RE: Comments from ActionAid USA, Clean Air Task Force, Earthjustice, Mighty Earth, National Wildlife Federation, and Sierra Club on the U.S. Environmental Protection Agency's Proposed Rule - "Renewable Fuel Standard Program; Grain Sorghum Oil Pathway" 82 Federal Register 61205 (December 27, 2017); EPA–HQ–OAR–2017–0655

Dear Administrator Pruitt:

As national environmental, conservation, and development organizations, we are pleased to provide joint comments on the Environmental Protection Agency's (EPA) proposed rule - Docket No. EPA–HQ–OAR–2017–0655 - "Renewable Fuel Standard Program; Grain Sorghum Oil Pathway" that was published in the Federal Register at 82 Fed. Reg. 61205 on December 27, 2017. Our groups represent millions of members who are concerned with fighting global warming, protecting human health, promoting human rights, preserving natural habitats, and advocating for clean energy. We believe that fully analyzing new pathway proposals in the Renewable Fuel Standard (RFS) is critical to ensuring new biofuels meet the goals of the federal mandate.

Our comments are centered around EPA's lifecycle greenhouse gas (GHG) assessment that EPA is required to undertake to fully assess the GHG emissions of sorghum oil-based biofuels as compared to petroleum fuels. In particular, we urge EPA to undertake comprehensive lifecycle GHG emission analyses for sorghum oil-based biofuels to fully analyze indirect land use change impacts from diverting sorghum oil to biofuels instead of livestock feed markets. Otherwise, these emissions will be underestimated, potentially leading to approval of new RFS pathways that fail to meet the minimum GHG reduction thresholds established in the 2007 Energy Independence and Security Act (EISA).

EPA proposes to determine, first, that the lifecycle GHG emissions associated with biodiesel, renewable diesel, jet fuel, or heating oil made from distillers sorghum oil using hydrotreating "are approximately 80 percent less than the lifecycle GHG emissions associated with the baseline petroleum fuels they would replace"[1]; and, second, that such fuels should be eligible for D-4 or D-5 RINs.[2] While the Agency acknowledges some of the substantial uncertainty[3] surrounding its analysis, the proposal sets aside these uncertainties because EPA's analysis indicates that sorghum oil-based biofuels easily clear the 50% reduction threshold for lifecycle GHG emissions that EISA requires of biomass-based diesel and other non-cellulosic advanced biofuels.

Some of the issues that EPA sets aside may be determiniative as to whether sorghum oil-based biofuels achieve the required emissions reductions, however. The comments below, as well as the comments being submitted to this docket by the International Council on Clean Transportation (ICCT), demonstrate that a more

[1] 82 Fed. Reg. 61207 (December 27, 2017).
[2] *Id.* at 61212/1.
[3] *Id.* at 61210/2.

comprehensive assessment would resolve some of the key uncertainties noted in EPA's proposed rule. Specifically, had EPA conducted a fuller, more empirical analysis of the likely disposition of reduced-oil distillers grains with solubles (DGS), it would have likely concluded that the net GHG emissions associated with sorghum oil-based biofuels are not significantly lower than the emissions threshold required by EISA for advanced biofuels, and that in some instances the emissions exceed the statutory threshold.

The core problem with the proposed rule is that EPA, having acknowledged that sorghum oil-based biofuel production reduces the mass of DGS and the volume of vegetable oil available to existing consumers[4], fails to justify its decision to ignore upstream emissions associated with the process. Instead, EPA cites studies that indicate reduced-oil DGS might be more suitable than full-oil DGS for poultry, swine, and dairy production[5], and concludes the food market would not miss the oil as long as the reduced-oil DGS is sold to the right customers. From there, EPA assumes the benefits of reduced-oil DGS would offset the reduction in total available DGS, thus resulting in "no significant indirect GHG impacts per pound of DGS."[6]

Proposal Provides Inadequate Support for Assumptions About Demand and Disposition of Reduced-Oil DGS

The Agency's assumptions about the disposition of reduced-oil DGS are not rooted in an empirical analysis of the DGS market. EPA "anticipate[s] that sorghum oil producers will seek to sell reduced-oil DGS to poultry, swine, and dairy cow producers, as these markets *allow* them to obtain a higher value for their product"[7] (emphasis added), but the Agency is describing a hypothetical possibility based on one of many factors that farmers take into account. Nowhere does EPA provide actual market evidence that reduced-oil DGS will be supplied in greater proportion to dairy, poultry, and swine as compared to beef cattle.

EPA similarly assumes "sales of reduced-oil DGS to the beef cattle market are less likely" and if more fat content proves necessary, rations could be supplemented with additional distillers sorghum oil, "thereby reducing the volumes of biofuel produced from distillers sorghum oil but not causing additional indirect GHG emissions."[8] Again, EPA provides no supporting evidence to back up these assumptions. EPA goes on to assume "that it is unlikely that additional feed will be needed to backfill for the extracted oil."[9]

EPA should not simply assume that most DGS will be fed to dairy without adequate evidence to back up this assumption. Inaccurate assumptions in EPA's assessment could lead to indirect land use change emissions being underestimated as livestock feed demand grows to fill this gap. While some dairy operations are located in Texas and Kansas[10] where at least ten corn/sorghum ethanol facilities[11] are based (and most sorghum is

[4] *Id.* at 61210.
[5] *Id.* at 61208-209.
[6] *Id.* at 61209/2.
[7] *Id.*at 61209.
[8] *Id*. at 61209/2.
[9] *Id.* at 61208/3.
[10] Food and Water Watch, *Factory Farm Map* (2012) (https://www.factoryfarmmap.org/#animal:dairy;location:US;year:2012).
[11] Ethanol Producer Magazine, *U.S. Ethanol Plants* (January 24, 2018) (http://ethanolproducer.com/plants/listplants/US/Operational/All/).

grown[12]), beef cattle are the predominant livestock in this area.[13] Since wet DGS in particular are fed to livestock in close proximity to ethanol facilities,[14] EPA should fully assess which portion of reduced oil DGS would be fed to beef cattle, along with the related indirect land use change emissions. Information in EPA's own docket from Iowa State University projects that 54% of DGS would be fed to beef cattle in the 2016-17 marketing year while only 5% would be fed to poultry and 34% to dairy.[15] A paper by Bremer *et al.* (2010) and information from two Texas ethanol facilities[16] confirm that DGS (particularly wet DGS) from Texas sorghum/corn ethanol facilities are fed to nearby beef cattle – not poultry, dairy, or swine.[17] If the DGS were indeed shipped to poultry facilities[18] further east in states like Arkansas, Mississippi, or Alabama, or to dairy operations[19] in New Mexico, California, or eastern Colorado, then emissions from first drying and then transporting the DGS over longer distances should be accounted for.

EPA recognizes that if additional livestock feed must be produced to make up for the diversion of sorghum oil to biofuels production, "a net increase in GHG emissions" could result "if production of other feed crops (*e.g.*, corn, soybeans) increased to backfill the lost DGS, given that producing additional corn and soybeans would result in more GHG emissions."[20] In Table IV.2[21] of the proposed rule, EPA acknowledges that the displacement ratio of reduced-oil sorghum DGS for beef cattle is lower than the ratio for full-oil sorghum DGS, meaning additional livestock feed would be needed to fill the gap created by diverting sorghum oil from DGS to biofuels production instead. A full empirical analysis should be undertaken to ensure that all indirect land use change emissions from these diversions are accounted for.

---

[12] U.S. Department of Agriculture, National Agricultural Statistics Service, Sorghum for Grain 2016 Harvested Acres by County for Selected States (2016) (Docket ID No. EPA-HQ-OAR-2017-0655-0019) (https://www.regulations.gov/contentStreamer?documentId=EPA-HQ-OAR-2017-0655-0019&contentType=pdf).

[13] Food and Water Watch, *Factory Farm Map* (2012) (https://www.factoryfarmmap.org/#animal:cattle;location:US;year:2012).

[14] Bruce Babcock, *et al.*, *Using Distillers Grains in the U.S. and International Livestock and Poultry Industries,* Midwest Agribusiness Trade Research and Information Center at the Center for Agricultural and Rural Development, Iowa State University (2008) (https://pdfs.semanticscholar.org/0240/0efdfa426f4b9a457a8fa890289ffc4dc3bd.pdf).

[15] Agricultural Marketing Resource Center, Estimated U.S. Dried Distillers Grains with Solubles (DDGS) Production & Use (2015) (Docket ID No. EPA-HQ-OAR-2017-0655-0006) (https://www.regulations.gov/contentStreamer?documentId=EPA-HQ-OAR-2017-0655-0006&contentType=pdf).

[16] White Energy, *Plants* (http://www.white-energy.com/plants.aspx).

[17] Virgil Bremer, *et al.* 2010. Distillers Grains and Livestock are Important to Ethanol Energy and Greenhouse Gas Balance. 2010 Nebraska Beef Report (https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1548&context=animalscinbcr).

[18] Food and Water Watch, *Factory Farm Map* (2012) (https://www.factoryfarmmap.org/#animal:broilers;location:US;year:2012).

[19] Food and Water Watch, *Factory Farm Map* (2012) (https://www.factoryfarmmap.org/#animal:dairy;location:US;year:2012).

[20] 82 Fed. Reg. at 61210/1-2.

[21] *Id.* at 61209.

Proposal Incorrectly Assumes That an Increase in Metabolizable Energy Content Offsets Mass Loss

As comments submitted by ICCT explain in greater detail, an EPA memorandum placed in the rulemaking docket undermines the Agency's fundamental contention that the purported nutritional and energetic benefits associated with reduced-oil DGS offset the reduction in total available DGS. First, the memo indicates that a shift from full-oil DGS to reduced-oil DGS fed to growing beef cattle, finishing beef cattle, swine, and poultry would reduce the metabolizable energy content of the feed by 10%, 9%, 14%, and 6%, respectively.[22] Second, the proposed rule fails to fully consider the implications of the modest increase in metabolizable energy content that reduced-oil DGS offers to dairy cattle: as ICCT shows, reduced-oil DGS' 1% advantage in metabolizable energy is much too small to offset the reduction in total available mass that results when oil is extracted from DGS.

While information in the literature on sorghum oil is not as extensive as that for corn oil, EPA recognizes that comparisons can be made between reduced-oil corn DGS and reduced-oil sorghum DGS.[23] Research shows that additional livestock feed may be required to fill gaps created when corn oil is used for biofuels instead of feed/food:

- A paper by Jacela *et al.* (2011) found reduced energy content of corn DGS after oil was removed from swine rations.[24] In addition, the finishing pigs' average daily gain, average daily feed intake, and carcass fat quality were negatively affected when fed reduced-oil corn DGS even after dietary fat was added to their diets.[25]
- An Aug. 2017 report by Chris Malins entitled "Waste Not Want Not: Understanding the Greenhouse Gas Implications of Diverting Waste and Residual Materials to Biofuel Production" goes further, stating the use of distillers corn oil (DCO) "for biofuel feedstock is likely to have a marginally better net climate impact than use of virgin soy or palm oil, but that overall there is likely to be little climate benefit resulting from moving DCO out of feed markets and into biofuel production."[26] Malins elaborates on the indirect impacts of diverting feed to fuel, saying, "This reiterates the conclusion reached in many previous studies (e.g. Brander *et al*., 2009; Chudziak & Haye, 2016; ICF International, 2015; Searle *et al*., 2017; Taylor, 2013) that indirect emissions from using by-product and residual materials [for biofuels production] are likely to be significant in many cases, and should not be ignored when setting renewable fuels policy."[27]

---

[22] EPA Office of Air and Radiation, Memorandum: Summary of Net Energy Impacts of Reduced-Oil Sorghum Dried Distillers Grains with Solubles (DDGS) on Livestock (Docket No. EPA-HQ-OAR-2017-0655-0003), at 1, Table 1 (November 21, 2017) (https://www.regulations.gov/contentStreamer?documentId=EPA-HQ-OAR-2017-0655-0003&contentType=pdf).

[23] *Id.* at 1.

[24] JY Jacela, *et al*. 2011. Amino acid digestibility and energy content of deoiled (solvent-extracted) corn distillers dried grains with solubles for swine and effects on growth performance and carcass characteristics. Journal of Animal Science 89(6):1817-29. DOI: 10.2527. (https://www.ncbi.nlm.nih.gov/pubmed/21257785).

[25] *Id.*

[26] Christopher Malins, *Waste not want not: Understanding the greenhouse gas implications of diverting waste and residual materials to biofuel production,* Cerulogy (2017), at 38, (https://www.theicct.org/sites/default/files/publications/Waste-not-want-not_Cerulogy-Consultant-Report_August2017_vF.pdf).

[27] *Id.* at 78.

EPA Has an Overarching Responsibility to Conduct Complete LCAs and Other Environmental Assessments

EPA's obligations extend beyond determining whether a biofuel production pathway meets the arbitrary lifecycle GHG emission thresholds established by EISA. Given EPA's strong reluctance to revisit and revise GHG lifecycle emissions determinations, it is imperative that it get the "answer" correct the first time (and only) time it considers the question. Whenever the Agency decides to analyze a new biofuel production pathway, it must conduct the best, most complete lifecycle GHG emissions analysis possible. That necessarily includes a full assessment of the "direct emissions and significant indirect emissions such as significant indirect emissions from land use changes."[28] If the "information currently available" is inadequate to support a full analysis,[29] then EPA should table its pathway determination.

Were it EPA's practice to revisit and revise lifecycle analyses, then the willingness shown in this and previous proposals to set aside uncertainties about upstream emissions—*e.g.*, concerning the demand for reduced-oil DGS among dairy producers, which is hypothetical and "difficult to determine"[30]—might be less troubling. For better or worse, though, EPA's lifecycle GHG emissions analyses of biofuel production pathways under the RFS constitute the federal government's only assessment of the climate impact of these fuels. When EPA finalizes incomplete lifecycle analyses of RFS-regulated biofuels, it undermines its ability and the ability of others to ensure the RFS is meeting its programmatic objectives and to assess the overall carbon intensity of the US fuel mix.

Land use changes that directly or indirectly result from increases in biofuel production can negatively impact the environment in other ways as well. Notwithstanding its data on the disbenefits of reduced-oil DGS to most feed consumers, EPA asserts that there is a market for the reduced-oil DGS that would be left over after sorghum oil is extracted for biofuel production. If there is such demand, it would likely increase the economic return on sorghum production and create additional incentive to expand sorghum plantings. If that were true—again, notwithstanding EPA's data on the qualities of reduced-oil DGS—there would be associated land use conversion, which would directly and indirectly result in additional GHG emissions (as described above and in the comments submitted to this docket by ICCT). EPA has not only failed to account for these emissions, it has neglected the negative impacts that the land use changes would have on wildlife habitat, soils, water and air quality, water supply, ecosystem health, biodiversity, etc.[31]

In recent years, major assumptions about biofuel production and land use change made by EPA have been proven incorrect by careful empirical analyses. For example, EPA long has assumed that, as long as the number of acres in agriculture does not exceed the number of acres in agriculture in 2007, any crops or crop residues used for biofuel production must have been grown on land that was cleared or cultivated and nonforested prior

[28] CAA §211(o)(1)(H).
[29] *See* 82 Fed. Reg. 61210/2.
[30] *Id*.
[31] EISA requires EPA to assess a broad range of environmental impacts associated with the RFS every three years, CAA §211(note) ("Triennial Report"), and to determine whether implementation of the RFS will adversely impact air quality, *id*. at §211(v) ("Anti-Backsliding Analysis"). These analyses would help EPA asses the full environmental impact of sorghum oil-based biofuels and other biofuel production pathways that are not currently approved, but the Triennial Report and the Anti-Backsliding Analysis are both severely overdue. *See* EPA Office of Inspector General, *EPA Has Not Met Certain Statutory Requirements to Identify Environmental Impacts of Renewable Fuel Standard* (August 18, 2016) (https://www.epa.gov/sites/production/files/2016-08/documents/_epaoig_20160818-16-p-0275.pdf). We urge the Agency to complete these analyses as soon as possible.

to December 2007 as EISA requires.[32] This assumption is fundamental to EPA's "aggregate compliance approach" to enforcing statutory requirements that were intended to prevent direct land use change from biofuel production.[33] The assumption was disproved by an analysis of land cover data published by researchers at the University of Wisconsin[34], who found that at least 1.6 million acres of long-term unimproved grassland were plowed under for crop production between 2008 and 2012 when the RFS drove corn prices to record highs and that this land conversion was highly correlated with ethanol production. EPA can ill-afford similarly unfounded assumptions as it approves a pathway for sorghum oil-based biofuels.

EPA should also evaluate the impacts to water and air quality and biodiversity that would result from an increase in the production of other feed crops such as corn and soybeans to backfill the lost DGS. The Agency also must fulfill its Endangered Species Act Section 7 duties by consulting with wildlife agencies (U.S. Fish and Wildlife Service and National Oceanic and Atmospheric Administration Fisheries) to ensure that any loss of habitat, including modification or pollution resulting from land use changes associated with the increased production of sorghum oil-based biofuels, does not jeopardize the continued existence of any federally-listed endangered and threatened species or cause the destruction or adverse modification of designated critical habitat.[35]

Conclusion

In conclusion, this research should be fully analyzed and the findings incorporated into EPA's final rule and docket to ensure that sorghum oil-based biofuels' full lifecycle GHG emissions—including indirect land use change emissions—have been accounted for. Without a full, detailed lifecycle assessment, EPA cannot adequately determine the net climate impact associated with sorghum oil-based biofuels, the impact on food/feed markets, or other environmental impacts on soil, water, air, wildlife habitat, etc.

Thank you for the opportunity to provide comments. We hope that our remarks provide useful guidance for EPA's final decision. We appreciate your consideration.

Respectfully submitted,

Kelly Stone
ActionAid USA

Rose Garr
Mighty Earth

Jonathan Lewis
Clean Air Task Force

David DeGennaro
National Wildlife Federation

Peter Lehner
Earthjustice

Andrew Linhardt
Sierra Club

[32] 75 Fed. Reg. 14,670-14,904 at 14,701 (March 26, 2010).
[33] *Id.*
[34] Tyler Lark, *et al*. 2015. Cropland Expansion Outpaces Agricultural and Biofuel Policies in the United States. Environmental Research Letters 10. DOI: 10.1088. (http://iopscience.iop.org/article/10.1088/1748-9326/10/4/044003/meta).
[35] *See* ESA §7(a)(2), 16 U.S.C. §1536(a)(2).