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May 31, 2018

To: Justin Schwab, Deputy General Counsel, Environmental Protection Agency

From: Adam Gustafson

Re: Lifecycle Analysis in the Triennial Report to Congress on Biofuels

Under the Energy Independence and Security Act, EPA is required to conduct a “lifecycle analysis”¹ to estimate greenhouse gas (GHG) effects of ethanol under the Renewable Fuel Standard (RFS).² EPA is also required to report to Congress every three years on the environmental impacts of the RFS, “in consultation with the Secretary of Agriculture and the Secretary of Energy.”³

In 2010, EPA conducted an initial lifecycle analysis of ethanol and gasoline.⁴ In that analysis, EPA concluded that by 2022, conventional corn ethanol would achieve annual lifecycle GHG emissions savings of 21% compared to 2005 gasoline.⁵ In 2011, EPA submitted its first and only “triennial” report to Congress, repeating the conclusions of the 2010 lifecycle analysis.⁶

At the time, EPA recognized that its 2010 analysis was subject to many uncertainties.⁷ So EPA committed to “further reassess . . . the lifecycle estimates” as the science evolved.⁸

EPA has not done so, even though its prior estimates have been superseded by new science. As a study commissioned by USDA recently found, “a large body of information has become available since 2010—including new data, scientific studies, industry trends, technical reports, and updated emission coefficients—that indicates that . . . actual emissions . . . differ significantly from those projected” by EPA.⁹ Using EPA’s own methodology, the USDA

¹ Lifecycle analysis accounts for all the GHG pollution emitted during a fuel’s production, distribution, and consumption, and it may include indirect emissions such as global land-use changes caused by price changes.

² See 42 U.S.C. § 7545(o)(1)(H). Under the RFS, each renewable fuel category is subject to a minimum lifecycle greenhouse gas emission reduction threshold. See *id.* § 7545(o)(1)(C).

³ Energy Independence and Security Act of 2007, Pub. L. 110-140, § 204, 121 Stat. 1492 (Dec. 19, 2007).

⁴ Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program, 75 Fed. Reg. 14,670, 14,785 (Mar. 26, 2010) (hereinafter 2010 RFS Rule).

⁵ 2010 RFS Rule, 75 Fed. Reg. at 14,786 (“The results for this corn ethanol scenario are that the midpoint of the range of results is a 21% reduction in GHG emissions compared to the gasoline 2005 baseline.”).

⁶ EPA, Biofuels and the Environment: First Triennial Report to Congress 2-3 (2011).

⁷ 2010 RFS Rule, 75 Fed. Reg. at 14,765 (“[A]s the state of scientific knowledge continues to evolve in this area, the lifecycle GHG assessments for a variety of fuel pathways will continue to change.”).

⁸ *Id.* at 14,785.

⁹ ICF, USDA, A Life-Cycle Analysis of the Greenhouse Gas Emissions of Corn-Based Ethanol 4-5 (Jan. 12, 2017).

study estimates that corn ethanol lowers lifecycle GHG emissions by 43% and 48% in 2014 and 2022, respectively, compared to 2005 gasoline.¹⁰

The Department of Energy's influential GREET model estimates a 35% lifecycle GHG emissions reduction for corn ethanol produced *in 2015* compared to 2005 gasoline.¹¹

Despite this contrary evidence, EPA told its Inspector General that the agency had “*no plans to update the original 2010 analysis.*”¹²

The IG found EPA had not complied with its duty to report to Congress.¹³ In December, EPA announced that it “is currently working on the Second Triennial Report to Congress . . . and expects to deliver that report in the spring of 2018.”¹⁴

Interagency consultation on the Triennial Report is required by law,¹⁵ and it presents an opportunity to correct EPA's erroneous emission estimates. Adopting DOE or USDA's up-to-date analyses in place of the outdated 2010 estimates would promote rural prosperity and energy independence in America, as the President has directed.¹⁶

First, correcting these estimates would improve EPA's administration of the RFS and promote Congress's goal of energy independence through renewable fuel production.

Second, correcting EPA's lifecycle analysis would promote U.S. ethanol exports by signaling to U.S. trading partners that U.S. corn ethanol is a means of meeting their carbon-reduction goals. Approximately 42 countries have adopted biofuel blending mandates.¹⁷ But they must be persuaded that U.S. corn ethanol imports are consistent with their climate policies. EPA's lifecycle analysis has already been cited to limit imports of U.S. ethanol to Japan and Brazil.

Including lifecycle analysis in the Triennial Report to Congress is consistent with the law. The Energy Independence and Security Act of 2007 specifies the subjects that must be included in the Triennial Report. Among these are “[e]nvironmental issues, including air quality”;

¹⁰ *Id.* at 166.

¹¹ See Zhichao Wang et al., *Influence of Corn Oil Recovery on Life-Cycle Greenhouse Gas Emissions of Corn Ethanol and Corn Oil Biodiesel*, 8 *Biotechnol. Biofuels* 178, 178, 183, Fig. 3 (2015).

¹² EPA Office of Inspector General, *EPA Has Not Met Certain Statutory Requirements to Identify Environmental Impacts of Renewable Fuel Standard*, Report No. 16-P-0275 at 7 (Aug. 18, 2016).

¹³ See *id.* at 4.

¹⁴ Renewable Fuel Standard Program – Standards for 2018, Response to Comments 179 (Dec. 2017).

¹⁵ 42 U.S.C. § 7545 note, Pub. L. No. 110-140, § 204, 121 Stat. 1529 (2007).

¹⁶ See Executive Order 13,783, 82 Fed. Reg. 16,093 (Mar. 31, 2017) (energy independence); Executive Order 13,790, 82 Fed. Reg. 20,237 (Apr. 28, 2017) (rural prosperity).

¹⁷ United Nations, *Second Generation Biofuel Markets: State of Play Report 11* (2016) (“In 2014, mandates are in place in 42 countries. Within these policy frameworks, various jurisdictions mandate specified bioethanol blends.”).

“[r]esource conservation issues . . . including impacts on forests, grasslands, and wetlands”; and “environmental impacts outside the United States.”¹⁸

Lifecycle analysis is undoubtedly an “environmental issue,” and the mandatory sub-issues are not exclusive.¹⁹ In *Massachusetts v. EPA*, the Supreme Court recognized that carbon dioxide and other greenhouse gases “fit well within the Clean Air Act’s capacious definition of ‘air pollutant.’ ”²⁰ There is no legal basis to exclude them from the term “air quality.” The law therefore requires EPA to include lifecycle analysis in the Triennial Report.

Moreover, domestic and global land-use change (“impacts on forests, grasslands, and wetlands”) are the key variables in a lifecycle analysis of ethanol’s greenhouse gas emissions. Demonstrable over-estimation of ethanol’s land-use change effects is the primary reason why EPA’s 2010 lifecycle analysis is wrong. It would be irrational to update the Agency’s land-use change estimates and *not* factor those same estimates into the Agency’s lifecycle analysis.

EPA will be required to consider “the impact of the production and use of renewable fuels on . . . climate change” when it modifies the mandatory blending volumes of cellulosic and advanced biofuels under the Renewable Fuel Standard.²¹ There is no good reason to omit that information from the Triennial Report, especially since it was included in EPA’s first and only Triennial Report.

The forthcoming Triennial Report should be no less inclusive, and EPA should revise the outdated lifecycle analysis to reflect the best available science. This is a virtually cost-free proposition for EPA, which can simply adopt DOE’s GREET model and its periodic revisions as its own.

¹⁸ 42 U.S.C. § 7545 note, Pub. L. No. 110-140, § 204, 121 Stat. 1529 (2007).

¹⁹ See *Puerto Rico Mar. Shipping Auth. v. ICC*, 645 F.2d 1102, 1112 (D.C. Cir. 1981) (“It is hornbook law that the use of the word ‘including’ indicates that the specified list . . . that follows is illustrative, not exclusive.”).

²⁰ *Massachusetts v. EPA*, 549 U.S. 497, 532, 127 S. Ct. 1438, 1462 (2007).

²¹ 42 U.S.C. § 7545(o)(2)(B)(ii), cited in 42 U.S.C. § 7545(o)(7)(F).