



August 24, 2023

The Honorable Michael S. Regan
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

Re: Response to EPA-SAB Draft Commentary on *Volume Requirements for 2023 and Beyond under the Renewable Fuel Standard Program*

Dear Administrator Regan,

I write today to respond to the Science Advisory Board's (SAB) specious claims about the climate benefits of the Renewable Fuel Standard (RFS), and specifically the assertions regarding the greenhouse gas (GHG) emissions impacts of corn starch ethanol.¹ I also wish to express our concern about the SAB's opaque and biased process for developing its commentary.

The SAB writes that "...resolving the scientific question of whether use of corn starch ethanol as a fuel reduces GHG emissions or not, relative to gasoline and diesel, is absolutely central..." to determining whether the RFS offers net climate benefits.² But this scientific question has been answered. The overwhelming preponderance of scientific analyses and empirical data clearly show that corn starch ethanol significantly reduces GHG emissions relative to the gasoline it replaces. We adamantly disagree with the SAB's statement that "the best available science" suggests there are "minimal or no climate benefits" related to substituting corn ethanol for gasoline.³ Indeed, the best available science shows just the opposite.

Extensive research conducted by the U.S. Department of Energy's (DOE) Argonne National Laboratory found the average carbon intensity of corn ethanol to be 52.4 grams CO₂e/megajoule (including model-derived land use change emissions).⁴ This is a 44 percent reduction compared to the carbon intensity of petroleum gasoline blendstock (93 grams CO₂e/megajoule, as estimated by Argonne). The scientists determined that corn ethanol has "helped the U.S. transportation sector reduce GHG emissions by 544 million metric tons" over the

¹ Letter from EPA SAB to the Honorable Michael S. Regan, Administrator, EPA. "DRAFT Commentary on the *Volume Requirements for 2023 and Beyond under the Renewable Fuel Standard Program* (RIN 2060-AV14)." August 21, 2023. https://sab.epa.gov/ords/sab/r/sab_apex/sab/meeting?p19_id=1009&clear=19&session=15727850435944

² *Id.*

³ *Id.*

⁴ Lee, U., Kwon, H., Wu, M. and Wang, M. (2021), Retrospective analysis of the U.S. corn ethanol industry for 2005–2019: implications for greenhouse gas emission reductions. *Biofuels, Bioprod. Bioref.*, 15: 1318–1331. <https://doi.org/10.1002/bbb.2225>

past 15 years.⁵ In conclusion, the Argonne researchers found that corn ethanol “...provides significant GHG emission reductions” compared to U.S. average petroleum gasoline, and noted that corn ethanol “...can play a critical role in the U.S. desire for deep decarbonization of its economy.”⁶ The SAB commentary does not include a single acknowledgement or mention of Argonne’s comprehensive research quantifying the GHG impacts of corn ethanol.

The SAB also ignores published research by the U.S. Department of Agriculture (USDA)⁷, University of Illinois, Life Cycle Associates⁸, DOE’s National Renewable Energy Laboratory and the University of Toronto⁹, California Air Resources Board¹⁰, and other institutions, all of which show corn ethanol reduces GHG emissions by 40-50 percent compared to petroleum. Further, the SAB commentary attempts to portray Scully *et al.* (2021)¹¹—which found an average corn ethanol GHG reduction of 46 percent—as an outlier in the literature when, in fact, its results fall squarely within the range of results from other recent studies.

In an attempt to support its spurious claim that corn starch ethanol may offer only minimal climate benefits, the SAB cites a single dissident study by Lark *et al.* (2022).¹² While the SAB acknowledges that Lark *et al.* prompted several scientific critiques and criticisms from their academic peers, the board fails to adequately examine or contextualize those reproaches.

The SAB asserts that much of the disagreement over the GHG benefits of corn ethanol “...has to do with its impacts on land-use change – how much cropland has expanded to grow corn for ethanol in the United States as a result of the RFS...”¹³ The commentary suggests that “[t]hese facts are difficult to pin down.”¹⁴

In reality, these facts and data are readily available and easy to interpret. The Energy Independence and Security Act of 2007 prohibits the use of renewable fuels produced from crops

⁵ *Id.*

⁶ *Id.*

⁷ Rosenfeld, J., Kaffel, M., Lewandrowski, J. and Pape, D. *The California low carbon fuel standard: Incentivizing greenhouse gas mitigation in the ethanol industry.* (2020). <https://www.usda.gov/sites/default/files/documents/CA-LCFS-Incentivizing-Ethanol-Industry-GHG-Mitigation.pdf>

⁸ Unnasch, S., D. Parida, and B. D. Healy (2023). GHG Reductions from the RFS2 – A 2022 Update. Life Cycle Associates Report LCA. LCA.6145.238.2023 Prepared for Renewable Fuels Association. <https://d35t1syewk4d42.cloudfront.net/file/2424/GHG%20Emissions%20Reductions%20due%20to%20the%20RFS2%20-%20Feb%202023.pdf>

⁹ Pereira LG, Cavalett O, Bonomi A, Zhang Y, Warner E and Chum HL, Comparison of biofuel life-cycle GHG emissions assessment tools: The case studies of ethanol produced from sugarcane, corn, and wheat. *Renew Sustain Energy Rev* 110: 1–12 (2019). <https://doi.org/10.1016/j.rser.2019.04.043>.

¹⁰ California Air Resources Board, LCFS Quarterly Data Spreadsheet (July 31, 2023) (shows an average carbon intensity of 60.1 grams CO₂e/MJ for ethanol used in California in 2023Q1, compared to 100.82 for gasoline blendstock, a 40.4 percent reduction).

¹¹ Scully, Melissa J., Gregory A. Norris, Tania M. Alarcon Falconi, and David L. MacIntosh. 2021a. Carbon intensity of corn ethanol in the United States: state of the science. *Environmental Research Letters* 16: 043001.

¹² Lark, Tyler J., Nathan P. Hendricks, Aaron Smith, Nicholas Pates, Seth A. Spawn-Lee, Mathew Bougie, Eric G. Booth, Christopher J. Kucharik, and Holly K. Gibbs. 2022a. Environmental outcomes of the US Renewable Fuel Standard. *Proceedings of the National Academy of Sciences* 119(9): e2101084119.

¹³ Letter from EPA SAB to the Honorable Michael S. Regan, Administrator, EPA. “DRAFT Commentary on the *Volume Requirements for 2023 and Beyond under the Renewable Fuel Standard Program* (RIN 2060-AV14).” August 21, 2023. At 5.

¹⁴ *Id.*

that come from land “cleared or cultivated” after December 19, 2007.¹⁵ To ensure compliance with this provision, EPA in 2010 began annually estimating the amount of U.S. agricultural cropland to determine whether any expansion has occurred beyond the 2007 “baseline” level of 402 million acres.¹⁶ In each of the 12 assessments EPA has conducted since 2010, total U.S. agricultural cropland has been well below the 2007 level, indicating that cropland area continues to *shrink*—not expand. According to EPA’s assessments, U.S. agricultural cropland has averaged 380 million acres since 2012, which is 22 million acres (an area the size of Indiana) less than the 2007 level.

Annual data available from USDA also show that the amount of U.S. cropland continues to trend lower.¹⁷ Since the expanded RFS program was implemented, total U.S. cropland has been well below the average levels from the 1980s, 1990s and early 2000s. The slight increase in corn acres planted in recent decades has come from land previously planted to other crops (e.g., wheat, cotton, oats), which have experienced productivity improvements (thus requiring less land for cultivation) and/or lower global demand.

These facts are not “difficult to pin down.” We encourage the SAB to examine empirical data from EPA, USDA, and other sources to evaluate what has actually happened on the ground, rather than embracing admittedly uncertain results from studies that use economic modeling and error-prone satellite imagery to predict the outcomes of hypothetical renewable fuel demand scenarios.

We also have grave concerns with the process undertaken by the SAB to develop its commentary. Without providing any advance notification to the public or opportunity for input, the SAB established a “RFS Workgroup” to evaluate EPA’s proposed rule for 2023-2025 renewable volume obligations. The six-person work group included members with expertise and education in psychology, public affairs, human toxicology, and other fields unrelated to bioenergy and climate science. No scientists with biofuels industry expertise were invited to participate in the work group; however, the group included the chief scientist from a New York-based environmental lobbying and political advocacy group that has lobbied for repeal of the RFS. We strongly encourage the SAB to do better in ensuring relevant expertise and a balance of perspectives are included in work groups focused on the biofuels policies administered by EPA.

While we strongly disagree with many of the assertions in the SAB’s commentary, we do support their recommendation that EPA “conduct more extensive research into the role the RFS plays in reducing GHG emissions.” Any objective, science-based analysis will show that the RFS—and corn ethanol specifically—play an important role in decarbonizing our nation’s transportation sector.

¹⁵ P.L. 110—140—DEC. 19, 2007 121 STAT. 1521

¹⁶ EPA publishes its annual estimate of agricultural cropland as part of the annual renewable volume obligations. See, for example, the agency’s 2021 estimate in 87 Fed. Reg. 39635 (“...we have estimated that U.S. agricultural land reached approximately 382.6 million acres in 2021 and thus did not exceed the 2007 baseline acreage of 402 million acres.”)

¹⁷ USDA. Historical Track Record – Crop Production (April 10, 2023). <https://usda.library.cornell.edu/concern/publications/c534fn92g>

I look forward to sharing additional perspective at the upcoming public meeting of the SAB. Please do not hesitate to contact RFA with any questions or comments regarding this matter. We stand ready to continue working together with EPA to ensure the successful implementation of the RFS.

Sincerely,

A handwritten signature in black ink that reads "Geoff Cooper". The signature is written in a cursive, flowing style.

Geoff Cooper
President and CEO

Cc:

The Honorable Thomas J. Vilsack, Secretary of Agriculture

The Honorable Jennifer M. Granholm, Secretary of Energy

Dr. Thomas Armitage, Designated Federal Officer, EPA Science Advisory Board

Dr. Sheila Olmstead, Professor of Public Affairs, Lyndon B. Johnson School of Public Affairs, The University of Texas at Austin