



Department of Energy

Washington, DC 20585

Ms. Emily Skor
Growth Energy
701 8th Street, NW
Suite 450
Washington, DC 20001

Dear Ms. Skor:

Thank you for your letter regarding the life-cycle impacts of corn ethanol. We agree biofuels, including corn ethanol, are a readily available energy solution that deserves full consideration when strategizing our energy and environmental agenda. The Department of Energy (DOE) has supported research and analysis that suggests the existing corn supply chain can improve its environmental footprint and greenhouse gas emissions profile while providing a low-cost and reliable feedstock for fuel production. I am responding on behalf of Secretary Granholm.

The most recent DOE study in 2021 found that U.S. corn ethanol has 44-52% lower greenhouse gas (GHG) emissions than petroleum gasolineⁱ. DOE's Argonne National Laboratory (ANL) published the study and is recognized globally as one of the leading experts in this type of life-cycle analysis. This result represents a 20% decrease in GHG emissions between 2005 and 2019 based on increased corn yields per acre, decreased fertilizer use, and ethanol production process improvements. It also uses the most recent data on indirect land use.

Other credible studies have found similar results. A recent study from researchers at Harvard and other institutions find that conventional ethanol reduces greenhouse gas emissions by 46% relative to gasolineⁱⁱ. The U.S. Department of Agriculture (USDA) released a report in 2019 that concluded that ethanol production reduces GHG by 39-43%.ⁱⁱⁱ This same study identified known measures that could further reduce lifecycle emissions from U.S. corn ethanol to achieve 70% lower GHG emissions than petroleum.

We appreciate the concerns you have raised regarding the study released by Tyler Lark, et al., from the University of Wisconsin-Madison. We share many of your concerns about the methods and assumptions used in the study and are taking steps to ensure that more widely accepted science is shared in the public domain. As part of this effort, ANL and its collaborators published a [detailed technical review](#) of the Lark, et al. study on March 21. Lark, et al. responded to the ANL comments, and on May 25 ANL released a [review of their response to reaffirm and expand their initial comments](#).

We would be happy to offer you or your staff(s) a briefing to further discuss the status and the Department's efforts.

Sincerely,

Nichole Fitzgerald
Program Manager
Bioenergy Technologies Office

On behalf of

Valerie Reed
Director, Bioenergy Technologies Office
Energy Efficiency and Renewable Energy

ⁱ 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>

ⁱⁱ Scully, M.J., G.A. Norris, T.M.A. Falconi, and D.L. MacIntosh. 2021. Carbon Intensity of Corn Ethanol in the United States: State of the Science. *Environmental Research Letters* 16: 043001. Carbon intensity of corn ethanol in the United States: state of the science (iop.org)

ⁱⁱⁱ Lewandrowski, J, J. Rosenfeld, D. Pape, T. Hendrickson, K. Jaglo, & K. Moffroid. 2020. The greenhouse gas benefits of corn ethanol – assessing recent evidence. *Biofuels*, 11:3, 361-375.