



## OFFICE OF AIR AND RADIATION

WASHINGTON, D.C. 20460

December 13, 2023

Ms. Lily Batchelder  
Assistant Secretary, Tax Policy  
U.S. Department of Treasury  
1500 Pennsylvania Avenue, N.W.  
Room 3120  
Washington, D.C. 20220

Dear Assistant Secretary Batchelder:

The U.S. Department of the Treasury (UST) has requested that the U.S. Environmental Protection Agency (EPA) provide UST with information related to lifecycle greenhouse gas (GHG) emissions calculations that could be used in UST's implementation of the sustainable aviation fuel (SAF) tax credit which was enacted into section 40B of the Internal Revenue Code (IRC) by the Inflation Reduction Act (IRA).

Over the past several months, a federal SAF Interagency Work Group (IWG) that includes the EPA, UST, the U.S. Departments of Agriculture (USDA) and Energy (DOE) and the Federal Aviation Administration (FAA) has worked to assess a variety of technical matters concerning lifecycle GHG emissions related to potential SAF pathways. Among other things, the SAF IWG is conducting analysis to support UST's implementation of the IRC section 40B tax credit.

A key provision of that tax credit concerns lifecycle GHG emissions calculations. IRC section 40B(e) provides that the term "lifecycle greenhouse gas emissions reduction percentage" means the percentage reduction in lifecycle greenhouse gas emissions as defined in accordance with "the most recent Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) which has been adopted by the International Civil Aviation Organization with the agreement of the United States" or "*any similar methodology which satisfies the criteria under section 211(o)(1)(H) of the Clean Air Act.*" 26 U.S.C. 40B(e) (emphasis added). Section 211(o)(1)(H) of the Clean Air Act (CAA or Act) defines the term "lifecycle greenhouse gas emissions" to mean "the aggregate quantity of greenhouse gas emissions (including direct emissions and significant indirect emissions such as significant emissions from land use changes), as determined by the [EPA<sup>1</sup>] Administrator, related to the full fuel lifecycle, including

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<sup>1</sup> See 42 U.S.C. 7602(a).

all stages of fuel and feedstock production and distribution, from feedstock generation or extraction through the distribution and delivery and use of the finished fuel to the ultimate consumer, where the mass values for all greenhouse gases are adjusted to account for their relative global warming potential.”

As explained below, the EPA has interpreted CAA section 211(o)(1)(H) under the Act’s Renewable Fuel Standard (RFS) program. In that context, the EPA has already “qualified” multiple SAF pathways under the RFS program and has been supporting the development of SAF through the RFS in this way for several years. Given this longstanding interpretation and application of CAA section 211(o)(1)(H), UST has asked the EPA whether the use of the current version of ANL GREET<sup>2</sup> would qualify as a “similar methodology which satisfies the criteria under section 211(o)(1)(H) of the Clean Air Act” for purposes of calculating lifecycle GHG emissions for IRC section 40B implementation.

In response to this request, the EPA notes that we are currently working with our federal partners in the SAF IWG to develop modifications to GREET that would be consistent with the direction from Congress on SAF in the context of IRC section 40B(e). We expect those modifications to be available in early 2024. We believe the most critical task before the IWG is development of this new modeling approach.

With respect to UST’s specific question on the current version of ANL GREET, the EPA has previously determined that the 2010 version of ANL GREET by itself is not sufficient to calculate lifecycle GHG emissions for purposes of CAA section 211(o)(1)(H).<sup>3</sup> Moreover, for the reasons discussed in the next paragraph, the EPA has not been able to determine that the current version of ANL GREET is consistent with CAA section 211(o)(1)(H). As relevant to IRC section 40B, the only methodology that the EPA has determined satisfies the CAA section 211(o)(1)(H) criteria is the methodology, modeling, and analysis the EPA developed for its 2010 Final Rule regarding the RFS program and has applied in subsequent RFS rulemakings.<sup>4</sup>

The EPA promulgated its interpretation of CAA section 211(o)(1)(H), which defines “lifecycle greenhouse gas emissions,” through a notice-and-comment RFS rulemaking in March 2010.<sup>5</sup> As part of that rulemaking, the EPA also determined the methodology it would use to assess

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<sup>2</sup> The “current version of ANL GREET” refers to the following lifecycle analysis model: Wang, Michael, et al. (2022). Greenhouse gases, Regulated Emissions, and Energy use in Technologies Model<sup>®</sup> (2022 Excel). Computer Software. USDOE Office of Energy Efficiency and Renewable Energy (EERE). 10 Oct. 2022. Web. doi:10.11578/GREET-Excel-2022/dc.20220908.1.

<sup>3</sup> See, e.g., “Renewable Fuel Standard Program (RFS2) Summary and Analysis of Comments,” EPA-420-R-10-003, February 2010, page 7-37.

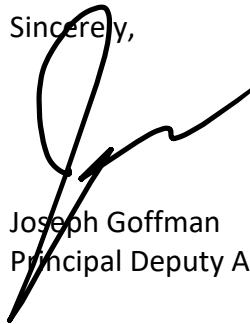
<sup>4</sup> See “Regulation of Fuels and Fuel Additives: Changes to Renewable Fuel Standard Program,” 75 Fed. Reg. 14670, 14764-85 (Mar. 26, 2010) (2010 Final Rule).

<sup>5</sup> Id. at 14764-67.

lifecycle GHG emissions consistent with this interpretation.<sup>6</sup> That methodology includes consideration of significant indirect emissions from land use, crop production and livestock emissions. In the EPA's responses to public comments, we stated that GREET did not satisfy the relevant statutory criteria because it did not include these indirect emissions.<sup>7</sup> Subsequently, the developers of the GREET model have added indirect land use change emissions into the model, but the current version does not include all of the significant direct and indirect emissions that the EPA determined were necessary in 2010.

The EPA recognizes the important role a new modeling tool could play in the implementation of IRC section 40B. We are working closely with your staff along with USDA, DOE, and FAA to assess what updates to a GREET-based approach would be needed for purposes of the SAF tax credit. The IWG has developed a work plan, which among other things includes close coordination with Treasury on related administrative issues, such as certification processes, that will also be part of successful implementation of IRC section 40B. The EPA also continues to engage directly with non-government SAF stakeholders from the agriculture, SAF production, and other sectors to ensure we understand all relevant perspectives related to the IWG's work.

Sincerely,

A handwritten signature in black ink, appearing to read 'Joseph Goffman', with a long, sweeping horizontal stroke extending to the right.

Joseph Goffman  
Principal Deputy Assistant Administrator

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<sup>6</sup> A detailed discussion of the EPA's lifecycle analysis methodology for the RFS program is described in the regulatory impact analysis (RIA) for the 2010 Final Rule. "Renewable Fuel Standard Program (RFS2) Regulatory Impact Analysis" (RFS2 RIA), EPA-420-R-10-006, February 2010, chapter 2.

<sup>7</sup> The EPA explained that, in the context of the RFS program, the lifecycle analysis methodology must capture not only indirect/induced land use change emissions, but also other potentially significant indirect emissions such as crop inputs, N<sub>2</sub>O emissions, rice methane emissions, and livestock emissions. RFS2 RIA, section 2.4.2.