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December 3rd, 2022

Re: Notice 2022-58 | Request for Comments on Credits for Clean Hydrogen and Clean Fuel Production

To the Internal Revenue Service:

Section 3.02(2) *Establishment of Emissions Rate for Sustainable Aviation Fuel. Section 45Z(b)(1)(B)(iii) provides that the lifecycle greenhouse gas emissions of sustainable aviation fuel shall be determined in accordance with the Carbon Offsetting and Reduction Scheme for International Aviation or "any similar methodology which satisfies the criteria under § 211(o)(1)(H) of the Clean Air Act (42 U.S.C. 7545(o)(1)(H)), as in effect on the date of enactment of this section." What methodologies should the Treasury Department and IRS consider for the lifecycle greenhouse gas emissions of sustainable aviation fuel for the purposes of § 45Z(b)(1)(B)(iii)(II)?*

Indigo Ag supports the use of Argonne National Laboratory's *Greenhouse Gases, Regulated Emissions, and Energy Use in Technologies* (GREET) model and affiliated module *Feedstock Carbon Intensity Calculator* (FD-CIC) for quantifying lifecycle greenhouse gas emission of sustainable aviation fuel. Specifically, we propose including the benefits to soil organic carbon stocks and fluxes resulting from the adoption of certain farming practices such as no-till farming and cover crop cultivation. These practices are promoted by the United States Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) and well documented in the scientific literature to improve soil health and increase sequestration of carbon in soils, if implemented appropriately. To this end, the USDA has recently provided $2.8 billion in funding via the Climate Smart Commodities program to support the adoption of carbon sequestering farming practices. Additionally, the Inflation Reduction Act provides $18 billion in funding to NRCS to fund conservation practices that support carbon sequestration in soils. These investments reflect an important reality: America's farmers are playing a critical role in reducing the carbon intensity of biofuels. We ask this contribution is recognized and rewarded.

Recently, a joint effort of the Department of Energy (DOE), Department of Transportation (DOT), USDA and Environmental Protection Agency (EPA) entitled "SAF Grand Challenge Roadmap: Flight Plan for Sustainable Aviation Fuel[1]" outlined an ambitious goal of producing 3 billion gallons per year of sustainable aviation fuel (SAF).

"Going from 5 million to 3 billion gal/yr by 2030 is a 600-fold increase that requires a 122% year-over-year growth in production to 2030. It is critical this growth starts immediately. Robust federal support for commercially proven technology pathways is necessary to achieve this growth."
(Page 3, *SAF Grand Challenge Roadmap*)

One theme of this document is a focus on near term emissions reductions of feedstocks used to produce SAF. The feedstocks required to meet the ambitious goals ahead are commodity vegetable oils.

"Expanded use of commodity vegetable oils including soybean and canola could play a role in growing SAF volumes. An important near-term activity under the Feedstock Innovation Action Area will be to improve the CI scores through RD&D that improves cultivation practices, increases yield, and decreases inputs."
(FI.2 - Page 17, *SAF Grand Challenge Roadmap*)

Ensuring we use commodity oil feedstocks with low carbon intensity is critical to minimizing emissions as SAF production scales up to meet the ambitious timelines set forth. Oilseed cover crops and biomass are extremely promising feedstocks scheduled to come online, however, massive investments are being made today in soy and oilseed crush. These investments reflect a need for surety of feedstock supply to newly financed biorefineries. The surest supply is existing commodity oil feedstocks. Projects under construction today will produce over 200,000 barrels of soy oil per day, up from only 38,000 barrels per day in 2018. An estimated 30 million additional acres of soy is scheduled to come online by 2024[3]. Creating incentives for farmers to produce low carbon intensity commodity oil feedstocks to meet the near-term demand amplifies Federal funding in producing both an economic and climate impact across the entire value chain.

The need for an incentive at the farm level is also recognized within the SAF Grand Challenge Roadmap.

ACTIVITY SC.3.2: Incentivize development of low- carbon-intensity feedstock production, harvesting, transport, storage, and overall logistics through full demonstration stage.
(Page 96, *SAF Grand Challenge Roadmap*)

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[1] https://www.energy.gov/sites/default/files/2022-09/beto-saf-gc-roadmap-report-sept-2022.pdf
[3] https://www.agweb.com/news/crops/soybeans/fuel-crush-renewable-diesel-pumps-soybean-demand

“Incentivize” implies a benefit flowing to the producer of the feedstock and acknowledges their role in the production of lower carbon intensity SAF and subsequent 45z tax credits. If we are to truly incentivize low carbon fuels, then incentives must flow to the entire value chain including farmers. Furthermore, as referenced in the request above, the criteria of § 211(o)(1)(H) of the Clean Air Act (42 U.S.C. 7545(o)(1)(H)) makes clear the full fuel lifecycle includes feedstock production.

(H) Lifecycle greenhouse gas emissions The term “lifecycle greenhouse gas emissions” means 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 Administrator, related to the full fuel lifecycle, including 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.
(42 U.S.C. 7545(o)(1)(H))

The ”full fuel lifecycle” includes “all stages of fuel and feedstock production” as well as emissions “from feedstock generation”. Utilizing the FD-CIC module of GREET ensures farmers are incentivized to produce low carbon intensity feedstocks as well as providing a framework for quantifying the feedstock contribution to lower carbon intensity SAF.

Accepting the farmers contribution to lower CI feedstocks is valuable and worthy of incentive, we must consider how an incentive is awarded. The following methods are used.

- **National or regional averages** – Feedstocks are given a carbon intensity score based upon a national or regional value. Individual contribution is not recognized. Although convenient, these methods are not discerning and cannot create market mechanisms that encourage reducing carbon intensity of feedstock production.

- **Emissions Factors** – In an effort to acknowledge the contribution of individuals, emissions factors allow the inclusion of low carbon intensity practices by modifying the national or regional averages. For example, if a farmer invests in planting cover crops, the national or regional average is multiplied by a reducing factor. Do not be fooled. This approach to modifying the carbon intensity of a population is not statistically sound and continues to disaggregate the individual contribution into a convenient average. In addition, appropriate application of emission factors requires field-level practice data at which point the better use of those data would be to support field-level accounting.

- **Lookup tables** – The FD-CIC tool uses a different approach. Instead of using factors to modify national or regional carbon intensity values, the model uses county specific values stored in a table. The averages and factors methods previously described use a top-down approach to modify average values. Lookup tables like the FD-CIC apply a bottom-up inventory method that is increasingly preferred. For example, in Polk County, Iowa planting cover crops will sequester 200 grams of carbon in the soil. That value acts a debit against the emissions from feedstock production such as fertilizer and fuel consumption.

- **Field level accounting** – To truly reward farmers for reducing carbon intensity of SAF, the incentive must align with property rights. Corn, soy and other feedstocks are produced on fields and investments in reducing carbon intensity occur at the field level. To address emissions from international aviation, the International Civil Aviation Organization (ICAO) has adopted the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), a global market-based measure. Under CORSIA several carbon crediting programs have already been approved for issuing eligible emissions units that can be used for offsetting against an airline's CORSIA obligations. Both Climate Action Reserve (CAR) and Verra are accepted carbon crediting programs under CORSIA. In 2020 CAR developed the Soil Enrichment Protocol (SEP) and Verra developed the VM0042 Methodology for Improved Agricultural Land Management. Program standards accepted by CORSIA are detailed in the publication, "CORSIA Emissions Unit Eligibility Criteria[4]"

  These registry protocols enable the financing of programs to reward individual farmers at the field level for his or her contributions to increasing soil carbon and reducing feedstock carbon intensity. We ask the Treasury Department and IRS to consider the methodologies utilized by existing carbon offset registries, specifically CAR SEP and Verra VM0042, for the purposes of § 45Z(b)(1)(B)(iii)(II).

Thank you for your time, and we look forward to following up with your team. Please don't ever hesitate to contact us.

Sincerely,

/s/

Chris Harbourt, Ph.D.

[4] https://www.icao.int/environmental-protection/CORSIA/Documents/ICAO_Document_09.pdf