Clean Fuels ALLIANCE AMERICA

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Internal Revenue Service
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Room 5203
P.O. Box 7604
Ben Franklin Station
Washington, DC 20044

Docket ID No: IRS-2022-0036

Re: Comments of Clean Fuels Alliance America on Notice 2023-06, Sustainable Aviation Fuel Credit; Registration; Certificates; Request for Public Comments

Introduction
Clean Fuels is the U.S. trade association representing the entire biodiesel, renewable diesel, and sustainable aviation fuel supply chain, including producers, feedstock suppliers and fuel distributors. Made from an increasingly diverse mix of resources such as recycled cooking oil, soybean oil, and animal fats, the clean fuels industry is a proven, integral part of America's clean energy future. We serve as the clean fuel industry's primary organization for technical, environmental, and quality assurance programs and are the strongest voice for its advocacy, communications, and market development.

The biodiesel and renewable diesel industry is on a path to sustainably double the market to 6 billion gallons annually by 2030, eliminating at least 35 million metric tons of CO_2 equivalent greenhouse gas emissions annually. With advancements in feedstock, use will reach 15 billion gallons by 2050 or sooner. These fuels are among the cleanest and lowest-carbon fuels available today to help reduce greenhouse gas (GHG) emissions now and are available to meet President Biden's near- and long-term climate goals, particularly in hard to decarbonize sectors.[1]

We appreciate the opportunity to provide additional comments in response to Notice 2023-06, Sustainable Aviation Fuel Credit; Registration; Certificates; Request for Public Comments. [2]

[1] Executive Office of the President. Executive Order 14008: Tackling the Climate Crisis at Home and Abroad, 86 FR 7619 (February 1, 2021), available at https://www.federalregister.gov/d/2021-02177
[2] U.S. Treasury and Internal Revenue Service, Sustainable Aviation Fuel Credit; Registration; Certificates; Request for Public Comment, Notice 2023-06, December 19, 2022, available at https://www.irs.gov/pub/irs-drop/n-23-06.pdf

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SECTION 8. REQUEST FOR COMMENTS

.01 General comments.

The statutory language of the Inflation Reduction Act (IRA) clearly states that sustainable aviation fuel (SAF) derived from co-processing an applicable material (or materials derived from an applicable material) with a feedstock which is not biomass is ineligible for the sec. 40B tax credit. The law's unambiguous exclusion of certain co-processed fuels by Congress was considered and intentional. Clean Fuels' requests that Treasury and IRS adhere to the spirit and to the letter of the law and avoid providing any guidance that upends this rule.

Furthermore, since a fuel's eligibility under sec. 40B in part hinges on the definitions of ASTM standard versions D7566-22a and D1655-22a, we request that Treasury and IRS specifically memorialize the ASTM standard versions as "D7566-22a" and "D1655-22a", thereby clearly linking the citations to the definition in effect at a specific date and time. In the absence of providing such specificity, Treasury would be linking tax credit eligibility (and the associated potential revenue loss associated with the tax credit), to an ever-changing ASTM standard, which is frequently expanded and enhanced by an organization (ASTM) composed of unelected members that include fuels company executives who are unaccountable to voters.

Co-processing biomass at existing petroleum refineries involves relatively little risk, investment, or additional domestic employment. Stand-alone SAF producers will not invest billions of dollars in plants, build out infrastructure, and create jobs if Treasury and IRS allow co-processed SAF to somehow circumnavigate the clear statutory prohibition and qualify for the credit.

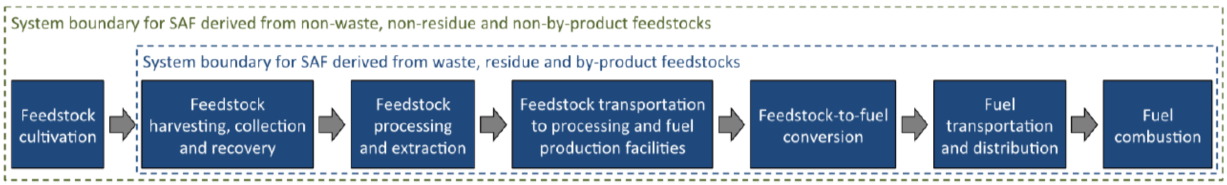
Additionally, there is the issue of ensuring that producers of co-processed fuels can accurately document the exact amount of the resulting Sustainable Aviation Fuel that is composed of eligible feedstocks. Extensive data suggests that when petroleum refineries co-process fats and plant oils, it is difficult to reconcile the amounts of renewable feedstocks used at the beginning of the process with the amount of renewable fuel and other byproducts that result in the end. Furthermore, little data exists to validate the environmental or health benefits of a gallon of fuel made by co-processing biomass material. Without reliable data, it is impossible for the IRS to audit claims and protect Treasury from inappropriate credit payments for fuel composed of ineligible fossil feedstocks.

.02 Comments on specific questions.

(1) Section 40B(e)(2) provides that "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" may be used to determine the reduction in lifecycle greenhouse gas emissions. What methods exist that could qualify as a "similar methodology"? Do the lifecycle emissions values that have been developed by the Environmental Protection Agency for the Renewable Fuel Standard qualify as a "similar methodology"? Does the Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (GREET) model developed by the Argonne National Laboratory qualify as a "similar methodology"?

The methodologies used by: (1) Argonne National Laboratory in its suite of GREET model tools, (2) the California Air Resources Board for the Low Carbon Fuels Standard, and (3) the EPA for the Renewable

Fuels Standard should all qualify as similar methodologies to the lifecycle greenhouse gas emissions methodology developed under CORSIA and that satisfy the Clean Air Act criteria at § 211(o)(1)(H). The ICAO CORSIA methodology for determining lifecycle greenhouse gas emissions incorporates the direct emissions from a process-based or attributional lifecycle analysis approach that includes the entire fuel supply chain (as depicted in the figure below) as well as indirect emissions from land use change using a consequential lifecycle analysis approach.[3]



Source: CORSIA Supporting Document: CORSIA Eligible Fuels – Life Cycle Assessment Methodology: Version 5, June 2022, at 20.

ICAO relied on several models to determine the default lifecycle emissions values for CORSIA-eligible fuels. While ICAO took scientific liberties to average outputs from different direct and indirect emissions models, it did use results from the GREET model for direct emissions as well as Purdue University's Global Trade Analysis Project biofuels model (GTAP-BIO) for indirect emissions from land use change (ILUC) to derive its final values.

Section 211(o)(1)(H) defines lifecycle greenhouse gas emissions as

> "the aggregate quantity of greenhouse gas emissions (including direct emissions and significant indirect emissions such as significant emissions from land use changes) … 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."

Combining the elements of CORSIA's methodology and the criteria of § 211(o)(1)(H), qualifying methodologies under Section 40B(e)(2) must consider both direct, process based GHG emissions related to the fuel lifecycle and consequential indirect GHG emissions from land use change.

The suite of Excel-based tools developed for the GREET model use the most up-to-date scientific information available, including results from GTAP-BIO to model life cycle emissions from a wide variety of transportation fuels, allowing a proper apples-to-apples comparison of the environmental attributes of those fuels. The GREET 1 model focuses on the fuel cycle providing a well-to-wheels assessment of the direct emissions related to the full life cycle of nearly fifty feedstock-fuel combinations, including all stages of fuel and feedstock production, distribution, and consumption. In addition, GREET's Carbon Calculator for Land Use and Land Management Change from Biofuels Production (CCLUB) model analyzes GHG emissions from indirect land use change (ILUC) and land management change (LMC). CCLUB translates GTAP-BIO consequential lifecycle analysis outputs into an ILUC emissions value. As such, the GREET model suite uses "[p]rimarily process-based LCA approach (the so-called attributional

[3] *CORSIA Supporting Document: CORSIA Eligible Fuels – Life Cycle Assessment Methodology: Version 5*, June 2022, at 19-20.

LCA)[, and] some consequential effects [e.g., ILUC] are incorporated."[4] The incorporation of CCLUB into GREET allows fuel producers to capture both the direct and significant indirect emissions from land use and land management change to estimate the full life cycle emissions of their fuels in a manner similar to CORSIA, while also meeting the criteria under § 211(o)(1)(H).

In addition to GREET, Treasury and the IRS can rely on the methodology the California Air Resources Board (CARB) utilizes under its Low Carbon Fuel Standard (LCFS). Subsections 95488.3(a) and (d) of the LCFS state:

> (a) Calculating Carbon Intensities. Fuel pathway applicants and the Executive Officer will evaluate all pathways based on life cycle greenhouse gas emissions per unit of fuel energy, or carbon intensity, expressed in gCO2e/MJ. For this analysis, the fuel pathway applicant must use CA-GREET3.0 model (including the Simplified CI Calculators derived from that model) or another model determined by the Executive Officer to be equivalent or superior to CA-GREET3.0.
>
> (d) Accounting for Land Use Change. The Executive Officer calculates LUC effects for certain crop-based biofuels using the GTAP model (modified to include agricultural data and termed GTAP-BIO) and the AEZ-EF model….[5]

Importantly, the carbon intensity (CI) score in the California LCFS is based on lifecycle analysis using the CA-GREET3.0 Model which was developed directly from the GREET 1 model as published by Argonne National Laboratory in 2016; simply an older version of the very same GREET model referenced above. Regarding indirect land use change (ILUC), CARB also used the GTAP-BIO model to derive consequential indirect emissions. Rather than use a California-specific CCLUB model, which did not exist at the time California created the LCFS program, CARB utilized the Agro-Ecological Zone Emissions Factor (AEZ-EF) model to convert GTAP-BIO land use change outputs to ILUC emissions values. By using the very same models CORSIA relies upon and incorporating both direct and significant indirect emissions, the CA LCFS methodology should also qualify as a similar methodology under 40B(e)(2).

Lastly, EPA's current lifecycle GHG emissions methodology for the Renewable Fuel Standard is best summarized in its recent rulemaking qualifying canola renewable diesel, jet fuel, naphtha, liquified petroleum gas, and heating oil as pathways under the program:

> The components of this methodology generally involve the use of agricultural modeling to estimate emissions from land use change, crop production, livestock, and rice methane, as well as application of coefficients and assumptions from the … (GREET) model and other sources to evaluate emissions associated with feedstock and fuel transport, processing, and use.[6]

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[4] Michael Wang, Argonne National Laboratory, "Overview of the GREET Life-Cycle Analysis Model," (7 Nov. 2022) at 11, *available at https://greet.es.anl.gov/workshops.*

[5] Cal. Code Regs. Tit. 17, § 95488.3.

[6] 87 Fed. Reg. 73956, 73961 (Dec. 2, 2022), https://www.federalregister.gov/d/2022-26250/p-106.

It uses two models, the Forest and Agricultural Sector Optimization Model (FASOM) and Food and Agricultural Policy Research Institute Center for Agricultural and Rural Development (FAPRI-CARD) model, to estimate the emissions from ILUC and changes in agricultural commodity production following a consequential lifecycle approach. It then adds the process-based estimates for the other lifecycle stages of fuel production from the GREET model. As such, EPA's methodology has a slightly larger system boundary relative to agricultural feedstock production as depicted in the CORSIA figure above because it incorporates consequential emissions due to changes in agricultural production as a result of the specific fuel's feedstock production/cultivation (as depicted by the first box in the figure). That said, the emissions associated with feedstock and fuel transport, processing, and use are all derived from the GREET model. In sum, EPA's methodology takes a consequential approach to feedstock production and land use change, while taking a process-based approach to the remaining lifecycle stages of the fuel, assessing the fuel's full lifecycle emissions, including ILUC. As a result, while EPA's methodology may not be the same as CORSIA's, it is similar. Furthermore, by estimating emissions from the full fuel life cycle, "including direct emissions and significant indirect emissions such as significant emissions from land use changes," EPA's methodology unquestionably satisfies the criteria under Clean Air Act § 211(o)(1)(H).

It is worth noting, however, that EPA in its rulemaking on the Renewable Fuel Standard Program: Standards for 2023–2025 and Other Changes noticed its intent to update its GHG impacts modeling framework.[7] While EPA's methodology meets the needs of Section 40B(e)(2), Treasury and the IRS need to be aware that changes to EPA's methodology could impact the use of it for the purposes of Section 40B(e)(2) on a going-forward basis.

(2) Section 40B(f)(2)(A)(ii) (concerning general requirements, supply chain traceability requirements, and information requirements established under CORSIA) provides that in the case of any methodology established under § 40B(e)(2) (concerning any similar methodology, which satisfies the criteria §211(o)(1)(H) of the Clean Air Act (42 U.S.C. 7545(o)(1)(H))), requirements similar to the requirements described in section 40B(e)(1) apply. What CORSIA requirements are needed to ensure supply chain traceability of information related to lifecycle greenhouse gas emissions and what unrelated party or parties are qualified to demonstrate compliance?

The CORSIA traceability requirements set forth in Table 3 in *CORSIA Eligibility Framework and Requirements for Sustainability Certification Schemes*[8] are sufficient to ensure supply chain traceability related to lifecycle GHG emissions. These requirements parallel what is required in the California LCFS where fuel producers report mass balance feedstock data for low carbon intensity (CI) feedstocks on a quarterly basis to generate LCFS credits aligned with their reported CI score. As such, in addition to CORSIA certification bodies, any CARB-accredited verification body should be qualified to demonstrate compliance. California law dictates accreditation and competency requirements, meaning only those entities with the technical training to ensure supply chain integrity are given accreditation. Furthermore, when it comes to imported feedstocks, some fuel producers rely *a priori* upon foreign vendors' International Sustainability and Carbon Certification (ISCC) standing to conduct feedstock transactions, which are then confirmed through LCFS verification. Fuel producers do this because ISCC and LCFS traceability requirements are highly compatible. This tactic is notable because the ISCC is one of two approved sustainability certification schemes for CORSIA eligible fuels, providing evidence that CARB-accredited verification bodies, which confirm feedstock traceability compliance, are well aligned with programs already approved

[7] 87 Fed. Reg. 80582, 80610 (Dec. 30, 2022), https://www.federalregister.gov/d/2022-26499/p-410.

[8] *ICAO document - CORSIA Eligibility Framework and Requirements for Sustainability Certification Schemes* (Nov. 2019)

under CORSIA and therefore can similarly demonstrate compliance with supply chain traceability requirements for purposes of Section 40B as it pertains to any similar methodology to CORSIA's.

(4) With respect to the registration requirements under § 4101, this notice treats the person who produces a SAF co-processed qualified mixture as a sustainable aviation fuel producer. Is it more appropriate to treat the producer of the SAF FT hydrocarbons as the sustainable aviation fuel producer?
Clean Fuels Alliance America believes that the producer of the finished SAF co-processed qualified mixture should be treated as the sustainable aviation fuel producer. By definition, the producers of SAF FT hydrocarbons are not required to produce a finished fuel meeting the ASTM specifications within D1655. Essentially, the SAF FT hydrocarbons are merely a biointermediate/feedstock.

(5) What types of verification exist to show what portion of a SAF co-processed qualified mixture is attributable to FT hydrocarbons versus petroleum? Are carbon dating or mass balancing appropriate types of verification?
Carbon Dating via ASTM D6866 method B *Standard Test Methods for Determining the Biobased Content of Solid, Liquid, and Gaseous Samples Using Radiocarbon Analysis* is the consensus industry method for verifying the renewable content (SAF) in a qualified mixture. [9] This method has proven to be very reliable and accurate beyond its own published precision when used to predict the renewable (biogenic) content of fuels. Due to the variability both between and within each refinery to accurately identify and track all renewable content when co-processing, mass balancing should NOT be an allowable type of verification.

(6) What entities are capable of providing the certifications required by § 40B(d)(1)(D) (relating to a lifecycle greenhouse gas emissions reduction percentage of at least 50 percent) and (f)(2)(A) (concerning general requirements, supply chain traceability requirements, and information requirements established under CORSIA or a similar methodology under the Clean Air Act) with respect to SAF co-processed qualified mixtures?
In addition to CORSIA certification bodies, any CARB-accredited verification body is capable of providing the necessary certifications relative to lifecycle GHG emissions as well as documentation management, transparency, traceability, and information transmission. As previously noted, CARB-accredited verification bodies function similarly and are subject to similar requirements as established under CORSIA and are therefore similarly positioned to certify SAF co-processed qualified mixtures.[10]

(7) Section 40B(c)(4) requires that the transfer of the qualified mixture into an aircraft occur in the United States. What types of verification exist to show that the qualified mixture is transferred to the fuel tank of an aircraft in the United States?
Aviation fuels in the Unites States are typically fungible products. There are two scenarios to be considered. First, if a qualified mixture is produced and transported directly (without further comingling) to a domestic airport or Fixed Base Operation (FBO), the volume transfer can be recorded and reported in a manner similar to other renewable fuel reporting requirements. Secondly, if the qualified mixture is commingled with additional volumes of petroleum fuel, each batch of qualified mixture must be verified

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[9] Martin R. Haverly, Scott R. Fenwick, Fredd P.K. Patterson, David A. Slade, (February 2019), Biobased carbon content quantification through AMS radiocarbon analysis of liquid fuels, Fuel, Volume 237, Pages 1108-1111, available at https://www.sciencedirect.com/science/article/pii/S0016236118317952

[10] *See* California Air Resources Board, "Accreditation Requirements for Third-Party Verifiers for California's Low Carbon Fuel Standard (LCFS)," https://ww2.arb.ca.gov/resources/fact-sheets/accreditation-requirements-third-party-verifiers-californias-low-carbon-fuel.

via ASTM D6866 analysis as the last step to be tracked at the final airport fueling facility or Fixed Base Operation (FBO).

Conclusion
Clean Fuels appreciates the opportunity to provide comments to Treasury and IRS with respect to the Sustainable Aviation Fuel Credit. We look forward to working with Treasury and IRS and to provide additional technical information as needed as you implement the Sustainable Aviation Fuel Credit.

Sincerely,

Kurt A. Kovarik

Kurt Kovarik
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Clean Fuels Alliance America