



May 9, 2024

Liane Randolph
Chair, California Air Resources Board

Steven Cliff
Executive Officer, California Air Resources Board
1001 I Street
Sacramento, CA 95814

Comment submitted electronically

RE: Sustainable Aviation Fuel Producer Group’s Comments on Sourcing Low Carbon Intensity Power for Production Facilities

Dear Chair Randolph and Executive Officer Cliff:

This comment letter is submitted on behalf of the sustainable aviation fuel (SAF) Producer Group, which is composed of many of the world’s leading companies producing SAF or developing SAF production facilities, including Fulcrum BioEnergy, Gevo, LanzaJet, NXTClean Fuels, Velocys, and World Energy. The SAF Producer Group commends the California Air Resources Board (CARB) for CARB’s decision in a prior rulemaking to integrate alternative jet fuel¹ in the Low Carbon Fuel Standard (“LCFS”). CARB’s policy leadership regarding SAF has firmly established California as the leading SAF state in the country from both a supply and demand standpoint and has placed California in the top tier of locations globally supporting the expansion of SAF.

This comment letter is focused solely on respectfully requesting that CARB empower SAF producers to access low carbon intensity (Low-CI) power both for the production of hydrogen used to produce SAF and for the production of SAF itself through a well-designed indirect accounting mechanism that reflects recent developments with the section 40B credit. Many of the SAF Producers that have joined this letter have separately commented on other aspects of the proposed rule, and we emphasize that those separate comments are the source of critical SAF industry perspective on all issues not addressed here.

¹ The LCFS defines the term “Alternative Jet Fuel” at 17 CCR §95481(a)(6) to mean: “a drop-in fuel, made from petroleum or non-petroleum sources, which can be blended and used with conventional petroleum jet fuels without the need to modify aircraft engines and existing fuel distribution infrastructure.” While there are nuanced distinctions between the LCFS defined term “alternative jet fuel” and “sustainable aviation fuel,” this comment letter uses the term SAF which is more widely used in the industry. Note that all further regulatory references are to 17 California Code of Regulations unless otherwise indicated.

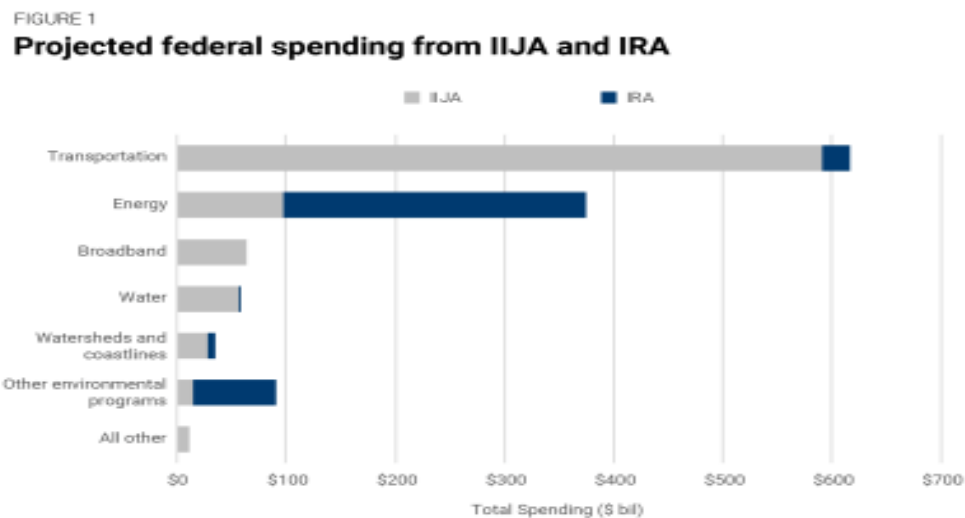
Recent Federal SAF Policy Developments Support SAF Expansion

Based on very recent federal policy developments, the SAF Producer Group perceives a new and critical opportunity in this LCFS rulemaking for California to maintain its lead on state-level SAF policy and to maximize alignment with emerging federal SAF policy. Specifically, CARB can address electricity-related LCFS crediting in a way that optimizes opportunities to achieve the greenhouse gas (“GHG”) emissions reductions that the State seeks to meet its goals.

Through this regulatory strategy, CARB will also achieve upstream emission reductions and stimulate expansion of Low-CI power generation capacity, storage and transmission during the peak spending period of Inflation Reduction Act (“IRA”) and Infrastructure Investment and Jobs Act (“IIJA”). As stated in a Brookings Institute Report issued on February 1, 2023:

Between the Infrastructure Investment and Jobs Act (IIJA) and the Inflation Reduction Act (IRA), the 117th Congress invested \$1.25 trillion across the transportation, energy, water resources, and broadband sectors for the next five to 10 years. It’s now the Biden administration’s responsibility to get that historic amount of money out the door—yet the bulk of it is still sitting in federal coffers or unrealized tax credits on the federal balance sheet. (...)

After years of false starts and empty promises from Congress, the IRA is the first major federal spending response to climate change.(...) Using the same methodology as our Federal Infrastructure Hub, we can see the combined reach of the two bills.(...)²



Note: Projected spending includes advance appropriations, budget impacts of IRA tax credits as estimated by the CBO, and a small number of authorized programs.
Source: Brookings analysis of Infrastructure Investment and Jobs Act, Inflation Reduction Act, and CBO data.

B | Brookings Metro

² Adie Tomer, Caroline George and Joseph W. Kane for Brookings Research, “The start of America’s infrastructure decade: How macroeconomic factors may shape local strategies,” at <https://www.brookings.edu/articles/the-start-of-americas-infrastructure-decade-how-macroeconomic-factors-may-shape-local-strategies/>

The Need for LCFS Support for SAF Deployment

The IRA’s SAF tax credits (40B and 45Z in the IRA) provide a helpful financial signal to enable fulfillment of California’s ambitious goals for SAF expansion and displacement of fossil jet fuel. Governor Newsom has targeted 20% clean fuels adoption in the aviation sector.³ The Legislature has estimated a need for at least 1.5 billion gallons of SAF blending by 2030.⁴ Moreover, in order to fulfill California’s goal of achieving carbon neutrality by 2045, the 2022 CARB Scoping Plan states that 80% of all aviation fuel demand will need to come from SAF by 2045.⁵

For California to realize the full potential value of the federal SAF tax credits to fuel SAF expansion, the approach to accounting for and crediting electricity-related emissions set forth in the U.S. government’s recently released guidance on the 40B SAF tax credit is instructive and should be incorporated into the LCFS program, as discussed below.

We would like to emphasize, however, that the IRA SAF tax credits should not be viewed as sufficient to enable the fulfillment of either the California goals summarized above or the federal SAF Grand Challenge goal of three billion gallons per year by 2030.⁶ The rapid development of SAF production capacity requires long-term durable policy support to attract sufficient capital to a nascent industry. Regrettably, both the 40B and 45Z tax credits are of limited duration so further policy long-term support at the state and federal level for remains essential to SAF industry expansion. While outside the scope of this LCFS rulemaking, we think it appropriate to recognize the additive value of state-level tax credits for SAF that have recently been established in Colorado, Illinois, Nebraska and Washington. We encourage CARB to continue to engage with the SAF Producer Group, the airlines, the California airports, labor unions, and other stakeholders to support additional state-level policy development.

Feasible Access to Low-CI Electricity is Essential to Produce Low-CI SAF

In the last major LCFS rulemaking, CARB recognized the vital importance of enabling low carbon intensity (“Low-CI”) power sourcing to electrify transportation and established a policy structure that enabled two categories of LCFS credit generators to choose Low-CI electricity over grid mix power. CARB authorized the sourcing of Low-CI power for electric vehicle usage

³ See California Office of the Governor, Governor’s Letter to Chair Randolph. July 22, 2022.

<https://www.gov.ca.gov/wp-content/uploads/2022/07/07.22.2022-Governors-Letter-to-CARB.pdf?emrc=1054d6>

⁴ See AB1322 (Rivas) available at

https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220AB1322. AB 1322 was passed by the California assembly in 2022 and later vetoed by Governor Newsom, who, in his veto letter, supported the legislature’s intent with the bill and ordered CARB to develop a “plan to reduce greenhouse gas emissions through the production and use of sustainable aviation fuels by July 1, 2024”. Governor Newsom’s veto letter available at <https://www.gov.ca.gov/wp-content/uploads/2022/09/AB-1322-VETO.pdf?emrc=7598b6>

⁵ See CARB, 2022 Scoping Plan for Achieving Carbon Neutrality. December 2022.

https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp_1.pdf. Page 73. The Scoping Plan scenario envisions 20% of aviation fuel demand met by electricity (batteries) or hydrogen (fuel cells) in 2045, with sustainable aviation fuel meeting the remaining 80%.

⁶ See U.S. Department of Energy Bioenergy Technologies Office, Sustainable Aviation Fuel Grand Challenge, at <https://www.energy.gov/eere/bioenergy/sustainable-aviation-fuel-grand-challenge>.

and electrolytic hydrogen production including hydrogen used to produce a transportation fuel via the use of Renewable Energy Certificates (“RECs”).⁷

**To Attain its Hydrogen Expansion Goals,
CARB Must Retain Book-and-Claim for Hydrogen
Used to Produce a Transportation Fuel**

In the 45-day rulemaking package, CARB proposed to retain the existing LCFS structure for Low-CI power for electric vehicle usage as currently exists in section 95488.8(i)(1)(A)-(B). CARB proposed, however, to restrict the use of book-and-claim accounting for hydrogen to hydrogen used directly as a transportation fuel and to exclude eligibility to hydrogen used to produce a transportation fuel as reflected in proposed section 95488.8(i)(1).

As many commentators stated in their 45-day comments, we request that CARB revert to the current treatment of hydrogen such that Low-CI power sourcing via book-and-claim is available both for hydrogen used as a transportation fuel and for hydrogen used to produce a transportation fuel. We concur with CARB’s proposal to eliminate the distinction between electrolytic and non-electrolytic hydrogen but instead to allow book-and-claim for “Low-CI Hydrogen” as is referenced in the heading of proposed section 95488.8(i) and specified in proposed section 95488.8(i)(3).

Simply put, there are not enough light-duty fuel cell electric vehicles to support rapid expansion of hydrogen production. Without sufficient demand, there will not be dramatic hydrogen supply expansion as required by the 2022 Final Scoping Plan. The lack of hydrogen demand for fuel cell electric vehicles (“FCEVs”) has been established by CARB’s own analysis. According to CARB’s 2023 Annual Evaluation of Fuel Cell Electric Vehicle Deployment, just under 13,000 FCEVs are currently on the roads (making up 1.1% of all zero emission cars in California).⁸ In the same report, CARB estimated that “the projected hydrogen fueling network capacity growth is expected to stay well ahead of demand through the end of the decade. By 2029, the statewide hydrogen fueling network will have rated capacity at full availability sufficient for nearly three times the number of expected FCEVs on the road.”⁹

**Recent Federal SAF Policy Developments
Should Inform LCFS Regulatory Design**

On April 30, 2024, the U.S. Department of the Treasury and Internal Revenue Service (“Treasury”) released guidance on the SAF Tax Credit (“SAF Credit Guidance”) that was developed in close partnership with the U.S. Environmental Protection Agency (“EPA”), Department of Agriculture (“USDA”) and DOE. As part of the guidance, the agencies comprising the SAF Interagency Working Group jointly announced the 40BSAF-GREET 2024

⁷ 17 Cal Code Reg. Sec. 95488.8(i)(1)

⁸ California Air Resources Board, “2023 Annual Evaluation of Fuel Cell Electric Vehicle Deployment and Hydrogen Fuel Station Network Development,” <https://ww2.arb.ca.gov/sites/default/files/2023-12/AB-8-Report-2023-FINAL-R.pdf>.

⁹ *Id.*

model (“40BSAF-GREET”).¹⁰ Section 2 of the 40BSAF-GREET guidelines presents the methodology used in 40BSAF-GREET to calculate the life cycle GHG emissions of SAF production pathways via technologies currently represented in the tool. (at p. 7) Section 2.4.1 provides three available options for accounting for electricity. All three of these available options are informed by the structure that CARB separately has established within the LCFS program. Among other options established by the 40B GREET guidelines for SAF is for electricity supplied to the facility from certain zero-carbon intensity (CI) generator(s) through the purchase of RECs.” (at p. 12) This “Option 2” is referred to in the guidelines as “Specified Source Power”, and it closely tracks the LCFS book-and-claim accounting system authorized for electricity. However, the guidelines take the additional step of extending eligibility for book-and-claim accounting to SAF for lookup table pathways only and imposes an additionality component that is not included in the current LCFS regulation. As summarized in the guidelines:

40BSAF-GREET 2024 allows users to use an emissions rate associated with a given type of generator or combination of generators, provided that any electricity that is claimed to be sourced from the subject generator(s) in a given calendar year is verified via the purchase and retirement of RECs that meet specified criteria described in more detail below. These criteria align with the methodology established in the California LCFS (book-and-claim accounting for electricity is primarily addressed in CCR title 17, section 95488.8[I]). Eligible RECs are those purchased within a facility’s local balancing authority from zero-CI RPS-eligible generators as defined in the California LCFS, which are assigned a GHG-intensity of zero in 40BSAF-GREET 2024. Specifically, this includes all California RPS-eligible generator types as defined in California Public Utilities Code sections 399.11-399.36 except biomass, biomethane, geothermal, and municipal solid waste, which are not considered zero-CI by the California LCFS. Generator types that are considered zero-CI RPS-eligible as defined in California LCFS include solar thermal, solar photovoltaic, wind, RPS-eligible hydroelectric generation, ocean wave, ocean thermal, and tidal current.

Although California LCFS does offer a separate option for the purchases of RECs that include non-RPS-eligible generators (i.e., low-CI generators, such as nuclear power and fossil fuel-fired generators with carbon capture and sequestration), this requires applicants to pursue a Tier 2 LCFS pathway application process rather than the simpler Tier 1 LCFS process. Unlike the Tier 1 application process, which requires the submission of a discrete set of inputs in order to calculate the carbon intensity, the Tier 2 application process does not have a complete set of predetermined site-specific input fields and requires a detailed Life Cycle Analysis Report for the facility, as well as a public comment period.¹¹ Because of the short timeframe for the 40B tax credit relative to the timeline for

¹⁰ U.S. Department of the Treasury, “Biden-Harris Administration Partners Announce Updated GREET Model to Measure Lifecycle Emissions from Sustainable Aviation Fuels,” April 30, 2024, at <https://home.treasury.gov/news/press-releases/jy2307>; U.S. Department of Energy, “Guidelines to Determine Lifecycle Greenhouse Gas Emissions of Sustainable Aviation Fuel Production Pathways using 40BSAF-GREET 2024” (April 2024), at https://www.energy.gov/sites/default/files/2024-04/40bsaf-greet_user-manual.pdf, hereafter the “SAF-GREET Guidelines.”

¹¹ Cal. Code Regs. Tit. 17, § 95488.7. Additional information on Tier 1 and Tier 2 application processes is provided by the California Air Resources Board: <https://ww2.arb.ca.gov/resources/documents/apply-lcfs-fuel-pathway>

the Tier 2 application process, users of 40BSAF-GREET 2024 are limited to zero-CI RPS-eligible generators only. As consistent with the California LCFS, the difference between electricity consumed and RECs purchased is calculated over a three-quarter (9 month) time period. A user-friendly guide to book-and-claim electricity accounting under the California LCFS is provided in LCFS Guidance 19-01.¹² In addition, in order to claim zero CI electricity in 40BSAF-GREET 2024, generators supplying power through RECs must have a commercial operations date (COD)¹³ no earlier than 36 months prior to the placed in service (PIS)¹⁴ date of the SAF (or ethanol) facility that is purchasing the RECs. In summary, before entering specified source power (RECs, in this case) into 40BSAF-GREET 2024, ethanol or SAF facilities must obtain and retire RECs from generators that:

- are located within the local balancing authority for the facility,*
- have a COD no earlier than 36 months before the PIS date for the SAF (or ethanol) facility that is purchasing the RECs,*
- are California RPS-eligible generators excluding biomass, biomethane, geothermal, and municipal solid waste (nuclear power and fossil fuel generators with CCS are also ineligible).*

We encourage CARB to replicate this model for SAF in the LCFS Regulation. The SAF Producer Group respectfully requests that CARB allow SAF to utilize Low-CI power sources that are located within the same balancing authority for the facility or are directly delivered to the balancing authority, consistent with Public Utilities Code Section 399.16. RECs used for LCFS purposes cannot be used for other regulatory purposes, such as the State's RPS requirements. The Low-CI power source must also meet an additionality criterion by demonstrating its COD is no earlier than 36 months before the PIS date for the SAF facility that is purchasing the energy and RECs.

Finally, the Low-CI power source must meet the RPS eligibility requirements. For wind, solar, and other qualifying resources, the project should be assigned a CI consistent with values listed in the look-up table. If the Low-CI power source is a biomass, biomethane, geothermal, or municipal solid waste project, its CI should be studied in a Tier 2 application process. This Tier 2 process is already established within the existing LCFS program, and the LCFS program has been authorized indefinitely so CARB is not faced with the short-term program situation that caused DOE to decline to utilize CARB's Tier 2 provision for section 40B. By including these provisions, CARB will facilitate greater emissions reductions, better position the state to meet its SAF and carbon neutrality goals, and ensure environmental integrity by requiring additionality.

¹² Low Carbon Fuel Standard Guidance 19-01 Book-and-Claim Accounting for Low-CI Electricity. https://ww2.arb.ca.gov/sites/default/files/2022-12/19-01_updated%20for%20WREGIS%20changes_ADA.pdf. (footnote in original).

¹³ The term commercial operations date or COD means the date on which a facility that generates electricity begins commercial operations. (footnote in original)

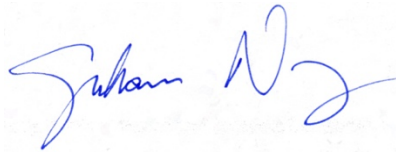
¹⁴ The placed in service (PIS) date of a facility is distinct from commercial operations date (COD). (footnote in original)

Our proposed revisions to the LCFS Regulation to effectuate this SAF specific aspects of this proposal are set forth in Exhibit A.

Conclusion

The SAF Producer Group appreciates the opportunity to comment on CARB's proposed amendments to the LCFS. We look forward to working with CARB to further tailor and ultimately implement amendments to the LCFS regulations.

Sincerely,

A handwritten signature in blue ink, appearing to read "Graham Noyes". The signature is fluid and cursive, with the first name "Graham" and the last name "Noyes" clearly distinguishable.

Graham Noyes
Noyes Law Corporation

Exhibit A

Section 95488.8

(i) Indirect Accounting for Renewable or Low-CI Electricity and Biomethane.

- (1) *Book-and-Claim Accounting for Renewable or Low-CI Electricity Supplied as a Transportation Fuel or Used to Produce Hydrogen.(...)*
(...)
- (2) *Book-and-Claim Accounting for Pipeline-Injected Biomethane Used as a Transportation Fuel or to Produce Hydrogen. (...)*

Add new section:

- (3) Book-and-Claim Accounting for Renewable or Low-CI Electricity Used to make Alternative Jet Fuel. Reporting entities may use indirect accounting mechanisms for low-CI electricity supplied for Alternative Jet Fuel production, provided the conditions set forth below are met:
 - (A) Reporting entities may report low-CI electricity supplied for Alternative Jet Fuel production delivered through the grid without regard to physical traceability if it meets all requirements of this subarticle. The low-CI electricity must be supplied to the grid within a California Balancing Authority (or local balancing authority for Alternative Jet Fuel produced outside of California) or alternatively, meet the requirements of California Public Utilities Code section 399.16, subdivision (b)(1). Such book-and-claim accounting for low-CI electricity may span only three quarters. The low CI electricity source must have a commercial operation date that is no earlier than thirty-six months before the Alternative Jet Fuel production facility begins commissioning. If a low-CI electricity quantity (and all associated environmental attributes, including a beneficial CI) is supplied to the grid in the first calendar quarter, the quantity claimed for LCFS reporting must be matched to grid electricity for alternative jet fuel production no later than the end of the third calendar quarter. After that period is over, any unmatched low-CI electricity quantities expire for the purpose of LCFS reporting;
 - (B) All electricity procured by any LSE for the purpose of claiming a lower CI must be in addition to that required for compliance with the California Renewables Portfolio Standard (described in California Public Utilities Code sections 399.11-399.32) or, for Alternative Jet Fuel produced outside of California, in addition to local renewable portfolio requirements;
 - (C) Renewable energy certificates or other environmental attributes associated with the electricity, if any, are retired and not claimed under any other program with the exception of the federal RFS, and the market-based compliance mechanism set forth in title 17, California Code of Regulations Chapter 1, Subchapter 10, article 5 (commencing with section 95800).