

27 August 2024

California Air Resources Board  
1001 I Street  
Sacramento, CA 95814

**Submitted Electronically via** <https://ww2.arb.ca.gov/lispub/comm/bclist.php>

**Re: Proposed Low Carbon Fuel Standard Amendments**

Dear Board Members,

Decarbonizing aviation remains one of the most important tasks to address the growing impact of fossil fuels and to support California's aspirations to be a leader in climate policies.

We, as a broad coalition of sustainable aviation fuel (SAF) producers and stakeholders committed to building a robust alternative jet fuel industry and to decarbonizing aviation, express our disappointment that the current proposed amendments fail to fulfil CARB's commitment to advance support for SAF. According to the broad aviation sector, one of the largest expected opportunities for the aviation industry to reduce emissions is by using SAF.<sup>1</sup> Governor Newsom has indicated a desire to support SAF,<sup>2</sup> including via the LCFS program<sup>3</sup>. We share those goals, and we desire to keep the dialogue open to find ways – either in this rulemaking or future opportunities – for California to develop supportive SAF policies.

CARB originally proposed to “eliminate the LCFS exemption for fossil jet fuel as to intrastate fossil jet fuel consumption” which would have partially supported the 2045 carbon-neutrality scenario of the 2022 Climate Scoping Plan.<sup>4</sup> However, the current proposed modifications remove fossil jet fuel as an LCFS obligated fuel. This seemingly leaves California's transportation decarbonization programs fully focused on gasoline and diesel. The failure of California to address some of the structural challenges associated with production and supply of SAF into California makes this Scoping Plan scenario aspirational only and significantly less likely to be achievable.

As outlined in previous comments,<sup>5</sup> achieving California's ambitious goals for the aviation sector will require addressing the structural disincentives for SAF embedded in the status quo. While SAF is eligible to receive credits under the LCFS,<sup>6</sup> the lack of deficits on the fossil jet fuel side decreases the value of SAF as a replacement relative to renewable diesel, which replaces an obligated and therefore more costly fossil fuel. This structural disparity, illustrated by multiple third-party analyses, strongly and systematically incentivizes clean fuel producers to make renewable diesel rather than SAF.<sup>7</sup> The result: in 2023, 2 billion gallons of renewable diesel were registered by the program but only 23 million gallons of SAF.<sup>8</sup> It remains **unclear** what differences exist between aviation and on-road fuels that justify continuation of uneven supportive policies.

The proposed obligation on intrastate jet fuel is a moderate—but critically important—first step toward equalizing the regulatory regimes for aviation relative to other transport sectors. It is also an opportunity

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<sup>1</sup> [Waypoint 2050: Aviation: Benefits Beyond Borders \(aviationbenefits.org\)](https://aviationbenefits.org/)

<sup>2</sup> [Governor Newsom Calls for Bold Actions to Move Faster Toward Climate Goals | Governor of California](#) calling for 20% SAF target.

<sup>3</sup> See <https://www.gov.ca.gov/wp-content/uploads/2022/09/AB-1322-VETO.pdf?emrc=7598b6>

<sup>4</sup> See [2022 Scoping Plan Update \(ca.gov\)](#) assuming SAF would represent 80% of aviation fuel in 2045.

<sup>5</sup> See <https://www.arb.ca.gov/lists/com-attach/7031-lcfs2024-Wyh01A3Ag5RMAV3.zip>

<sup>6</sup> We applaud CARB's harmonization of the annual CI standards for diesel and jet fuel following the 2018 Rulemaking. This preserves credit generation opportunities for SAF and reduces some of the structural differences that would otherwise disincentivize SAF production compared to diesel, though significant disincentives remain.

<sup>7</sup> See Bay Area Air Quality Management District (BAAQMD), Sustainable Aviation Fuel: Greenhouse Gas Reductions from Bay Area Commercial Aircraft. October 2020. Page 56 available at <https://www.baaqmd.gov/news-and-events/page-resources/2020-news/121120-saf-report>. See also <https://stillwaterassociates.com/saf-in-the-ira-era-how-do-the-incentives-stack-up/>.

<sup>8</sup> CARB Data Dashboard available at <https://ww2.arb.ca.gov/resources/documents/lcfs-data-dashboard>

for California to demonstrate its continued leadership in addressing the carbon emissions from transportation fuel. **We are disappointed that California seems ready to cede that leadership opportunity as to aviation.**

Staff received comments questioning the financial impact that an obligation on fossil jet fuel would have on airlines and airline customers. At least one commenter—researchers from UC Berkeley—directly analyzed the **magnitude** of those impacts on both fuel cost and demand for aviation. They found the compliance costs to be a mere \$0.68 per intrastate gallon in 2035—just \$0.06 per gallon if the costs are spread across the entire jet fuel pool, as we expect they would be.<sup>9</sup> They also found that domestic aviation demand would shift only -0.2% as a result. We submit additional information for the record prepared by ICF confirming the Berkeley findings: they show the compliance costs to range from \$0.54-\$0.79 per gallon if concentrated on intrastate gallons, or just \$0.05-0.08 per gallon if spread across the jet fuel pool.<sup>10</sup> These impacts are minimal, and, importantly, when spread across all jet fuel would have identical impacts on all carriers in California. These compliance costs are also both modest and predictable compared to historic volatility of jet fuel prices, which have ranged from below \$1 to over \$5 per gallon in California since 2000. Ultimately, this burden is far lighter than the compliance costs associated with the existing (and proposed to be increasingly stringent) obligations on gasoline and diesel, as they would apply to only a small fraction of the jet fuel pool.

Declining to address emissions from fossil jet fuel in this Rulemaking would also fail to address concerns of California’s environmental justice communities, who have explicitly asked CARB to support displacement of fossil jet fuel with SAF. Not finalizing obligations on fossil jet fuel prevents disadvantaged Californians from realizing the substantial air quality benefits (i.e., reductions of NO<sub>x</sub>, PM 2.5, and SO<sub>x</sub>) provided by SAF.

If CARB does not finalize an obligation on fossil jet fuel, it should modify the CI benchmark for jet fuel to avoid any unnecessary and unintended negative signals on SAF as an opt-in credit generating fuel. In the proposal, CARB accurately recognizes the continued growth in low-carbon fuels for on-road transportation and, in response to the same, has proposed increases in the near-term carbon intensity benchmarks. Such growth of alternative fuels – in both supply and demand – is largely attributable to the success of the LCFS program in addressing the carbon intensity of gasoline and diesel fuel: while an increasing CI reduction target reduces credit generation for low carbon fuels, it simultaneously increases deficits for obligated fuels. However, without a fossil jet fuel obligation, the increased stringency merely reduces credit generation opportunities for SAF, steadily decreasing its competitiveness with fossil jet fuel.

To illustrate, consider a hypothetical SAF with a carbon intensity of 43 gCO<sub>2</sub>e/MJ. In 2035, under existing carbon intensity benchmarks that SAF would receive 0.0047 credits per gallon (~\$0.47/gal assuming credit price of \$100/tonne). But under the proposed benchmarks—even without Automatic Acceleration Mechanism (AAM) triggers—the same SAF would receive only 0.0009 credits (~\$0.09/gal) in the same year. Absent corresponding deficits, fossil jet fuel would remain cheap and abundant, and SAF adoption would decrease. A declining benchmark without corresponding obligations clearly and increasingly disadvantages adoption of opt-in alternatives over time.

For most low-carbon alternative fuels, production remains more expensive than the incumbent fossil alternative. Fundamentally, not obligating traditional fossil fuels ensures that they remain inexpensive relative to low carbon alternatives. Rational fuel users will choose the less expensive option, and even fuel users who want to advance low carbon options will be undercut. This puts a strong chilling effect on the rate of adoption of opt-in fuels.

To ensure that CARB’s current proposal does not exacerbate structural disincentives to SAF under the LCFS program, we suggest a modest step that would remove the applicability of the AAM to the table of annual

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<sup>9</sup> As fuel suppliers cannot identify ex ante which gallons of jet fuel sold will be used for intrastate flights, we anticipate that they would simply apply a small additional premium to all gallons to recover the compliance costs associated to the estimated intrastate fraction.

<sup>10</sup> See ICF Report, Sustainable Aviation Fuel in California’s Low Carbon Fuel Standard, August 2024 (attached)

jet fuel benchmarks. The AAM applied to the gasoline and diesel benchmarks can act to control the credit supply by both reducing credit generation for alternative fuels and increasing deficits for fossil fuels. However, without any obligations on fossil jet fuel, the AAM would only undercut support for SAF without creating any corresponding demand.

In conjunction, we propose that CARB set the jet fuel benchmarks at a level and on a schedule that recognizes that SAF is an emerging, less mature market that has not benefited from higher fossil benchmarks and years of credit generation since program inception in 2010. In the early years of the LCFS program, CARB set small CI reduction targets for gasoline and diesel and modest annual increases to allow the industry (both fossil and alternative) time to complete their investments and ramp up production. CARB can evaluate the jet fuel benchmarks and set them in such a way that supports SAF as an emerging fuel and addresses airline industry concerns about the transition towards increasing low-carbon fuel use. This could include freezing the jet fuel benchmarks, resetting the 2030 jet fuel benchmark targets to their pre-amendment level of 20%, or decoupling the annual increases of the jet fuel benchmarks from those of gasoline or diesel. Notably, British Columbia has adopted a similar approach under their recent LCFS amendments, providing both a higher benchmark and a less aggressive compliance curve for aviation fuels, preserving credit generation opportunities for the emerging SAF industry.

We are committed to the success of SAF. To achieve that ultimate success, we rely on the cooperation and policy support from California. We provide these comments in hopes to further encourage the Board to do more than offer an unspecified commitment “to finding effective ways to reduce emissions from the aviation sector through the production and use of cleaner aviation fuels and other low-carbon alternatives to fossil jet fuel.” We look forward to the opportunity to continue to engage and inform the current modifications – or to support future efforts – to support decarbonization of jet fuel in California.

Sincerely,



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