



March 15, 2023

Dr. Cheryl Laskowski
Chief, Transportation Fuels Branch
California Air Resource Board
1001 I Street Sacramento, CA 95814

#Submitted electronically#

RE: California Air Resources Board's Potential Regulation Amendment Concepts to the Low Carbon Fuel Standard (LCFS) Program. Public Workshop February 22, 2023.

Dear Dr. Laskowski,

For almost a decade, EDF has been working to reduce harmful pollution from aviation to mitigate climate change and deliver public health benefits by means of alternative fuels. This includes engagement in climate policy at the International Civil Aviation Organization (ICAO), leading and participating in expert working groups developing ICAO's Sustainability Framework for Sustainable Aviation Fuel (SAF) – an effort that borrows heavily from California's Low Carbon Fuel Standard (LCFS). We were also deeply involved in the inclusion of SAF tax credits in the federal Inflation Reduction Act (IRA).

EDF welcomes the opportunity to provide comments on the February 22, 2023 "Potential Regulation Amendment Concepts" public workshop organized by the California Air Resources Board (CARB). EDF commends the agency for its continuing efforts to promote a cleaner, lower-carbon transportation sector. CARB's efforts over the last twelve months dramatically reshape the state's climate action blueprint, particularly those in response to Governor Newsom's July 22 letter requesting bolder action for the aviation sector.¹

In this letter, we offer practical solutions to ease administrative burden posed by three potential barriers: (1) reporting architecture, (2) legal authority, and (3) enactment of safeguards. The structured deployment of SAF is a prime stage for California to take leadership in global civil aviation's 2050 net-zero imperative.

The adoption of a 20% clean fuels target for the aviation sector represents a unique opportunity to institute a future-proof program. Meeting the 2030 aviation target is also a precondition for bringing to life the Scoping Plan Scenario for the AB 32 GHG inventory sector: *in 2045, 20% of aviation fuel demand is met by electricity (batteries) or hydrogen (fuel cells), and SAF meets most or the rest of the aviation fuel demand that has not already transitioned to hydrogen or batteries.*

¹ <https://www.gov.ca.gov/wp-content/uploads/2022/07/07.22.2022-Governors-Letter-to-CARB.pdf?emrc=1054d6>

Governor Newsom's request represents a milestone for aviation with nationwide implications. Expanding the scope of the LCFS program to include aviation fuels beyond the existing opt-ins is a necessary step towards that goal and for achieving carbon neutrality in California by 2045.

As noted in previous iterations of our commentary,² the only way to ensure deployment of alternative aviation fuels in sufficient quantity to effect meaningful climate and public health benefits for California is to adopt a sub-target for aviation within the LCFS (hereinafter referred to as aviation LCFS). Voluntary and incentive-based measures alone cannot deliver on that goal and are not sustainable policy options to decarbonize aviation.

Administrative feasibility of tracing fuel burn

In the context of a narrowly defined intrastate coverage as presented in the draft concepts, using air carriers as a point of regulation would require an unrealistic volume of monitoring, reporting and verification (MRV) provisions in implementation. In contrast, an expanded scope covering all jet fuel uplifted in California would greatly streamline the reporting architecture, enabling CARB to satisfy the objectives of this rulemaking, as well as the overarching program goals.

All jet fuel, whether fossil or alternative, passes through the hands of producers and/or importers. Absent the distinction between intrastate, interstate domestic, and international flight routes, there would be no need to retrieve subdivided route information from air carriers, and therefore no need to undertake the cumbersome administration of a separate reporting class.

Extending the scope of deficit generation to all jet fuel uplifted in California, and assigning producers and importers as the first fuel reporters for both alternative and fossil jet, constitutes a straightforward approach requiring negligible, if any, changes to current structure. For guidance, CARB could tap on existing fuel consumption MRV approaches such as the one applicable to ICAO CORSIA for international aviation.³ These include fuel burn monitoring and tools similar to U.S. Federal Aviation Administration's Aviation Environmental Design Tool (AEDT), a software system that models, *inter alia*, aircraft performance in space and time to estimate fuel consumption.

Legal authority to regulate jet fuel as a deficit generator

The Governor issued his call to action with full awareness that the aviation sector is directly regulated by the federal government. While CARB has initially envisioned the scope of LCFS to cover only intrastate flights, nothing need prevent CARB from extending it to cover all fossil jet fuel uplifted in California to ensure tangible environmental benefits and to fulfill the Governor's request. According to California inventory data,⁴ constraining action to intrastate

² <https://www.arb.ca.gov/lists/com-attach/143-lcfs-wkshp-nov22-ws-BWBTMQBnUV1RNAhn.pdf>

³ See ICAO's Standards and Recommended Practices (SARPs) Annex 16 Volume IV, available at <https://www.icao.int/environmental-protection/CORSIA/Pages/SARPs-Annex-16-Volume-IV.aspx>

⁴ Based on 2020 data available at: https://ww2.arb.ca.gov/sites/default/files/classic/cc/inventory/ghg_inventory_scopingplan_sum_2000-20.pdf (October 26, 2022 update)

flights would represent a mere 10% of emissions from jet fuel uplifted in California or around 6% of the total aviation emissions from flights to and from California -- meaning that the Governor's requested aggressive 20% clean fuels target for the aviation sector would only deliver emissions reductions on the order of 1%.

Important to note, legal questions around federal preemption would apply to intrastate, interstate, and international flights alike. Thus, California needs to properly address any potential federal preemption concerns before it formalizes state-level regulation. As we noted in our previous letter, including aviation fuel under the LCFS does not necessarily represent an attempt to enforce any standard covered under Sec. 233 of the CAA. As such, CARB has the authority to expand the LCFS to include all jet fuel uplifted in California (i.e., for all flights taking off from California, irrespective of destination) as long as: 1) the eligible SAF has been certified by ASTM International as safe for use in aircraft, in accordance with the Federal Aviation Administration's existing standards; and 2) the LCFS targets respect the maximum blending limit of SAF use (currently 50%).

Safeguarding against unintended consequences

As noted in the workshop presentation, the 2022 scoping plan implications for LCFS call on CARB to ensure that fuel technology deployment does not result in unintended consequences. The successful adoption of a sub-target for aviation within the LCFS implies CARB adopts measures to prevent the negative environmental and social ripple effects of certain feedstocks that result in indirect land use change (ILUC) emissions.

Modelling GHG emissions derived from ILUC is a necessary step, but in and of itself not sufficient to prevent unintended consequences. The numerical value says nothing about geographical distribution of inequities: it does not adequately account for the subsequent chain of events such as biodiversity loss, or the hunger, food insecurity and malnutrition that higher feedstocks prices could cause. Ignoring the broader environmental and social impacts is not consistent with California's 2022 scoping plan, nor with ethical sustainability principles at large.

The only way to prevent such undesired outcomes is to use the modeling to identify ILUC risks and subsequently require fuel producers to mitigate such a risk through land management practices. This approach has already been recognized by ICAO and adopted by the European Union under the Renewable Energy Directive.⁵

CARB should ensure that fuel producers verifiably implement robust low ILUC risk methodologies and that only new practices may earn zero ILUC values. This can be achieved by recognizing RSB's ground-breaking Low ILUC Risk Biomass Criteria and Compliance Indicators.⁶ Further detailed guidance on how to implement this approach with integrity can be found in EDF's High-Integrity SAF Handbook⁷ (see Appendix D.1). The European Union's

⁵ <https://eur-lex.europa.eu/legal-content/EN/TEXT/PDF/?uri=CELEX:32022R0996>

⁶ <https://rsb.org/wp-content/uploads/2018/05/RSB-STD-04-001-ver-0.3-RSB-Low-iLUC-Criteria-Indicators.pdf>

⁷ <https://www.edf.org/sites/default/files/2022-08/EDF-HIGH-INTEGRITY-SAF-HANDBOOK.pdf>

methodology builds, as does ICAO's, on that of RSB and is fully aligned with EDF's guidance, providing fuel producers with meaningful assurance toward viable investment routes.

CARB's rulemaking notably includes directives to support scaling of nascent technologies needed to meet future demand, a group which includes electro-fuels. Addressing inadvertent ILUC impacts would go a long way toward fulfilling this provision by correcting for a longstanding information gap that has profoundly affected the trajectory of alternative fuels development. Ensuring a level playing field across SAF pathways is a sine-qua-non condition for ensuring wise and effective investment of resources.

Interaction of LCFS targets with Cap-and-Trade system and greater ambition

In their current configuration, the cap-and-trade provisions allow all biogenic fuels to claim "zero" CO₂ emissions, regardless of the actual carbon intensity of the fuel's production stages. However, claiming "zero" CO₂ emissions at the point of combustion without considering the life-cycle emissions could generate perverse incentives, undermining the integrity of the entire cap-and-trade system -- all from loosening the stringency of qualifications for a single credit-generating category. As such, CARB should count the GHG benefits of biogenic carbon only to the extent that emissions reductions exist on a life-cycle basis - especially indirect effects - as determined by ICAO under CORSIA. This is essential for California adapting its methods, in accordance with the Paris Agreement enhanced transparency framework, to track progress towards meeting its climate goals in cooperation with other jurisdictions.

Although voluntary measures alone face inherent limits, the new suite of federal-level incentives for SAF uptake provides a timely launchpad for CARB to design even more forward-thinking regulatory instruments as a true pioneer in the sector's decarbonization.

We look forward to supporting your administration as it charts a path for aviation to contribute to the state's goal of achieving net-zero greenhouse gas emissions by 2045. These efforts stand to significantly improve local air quality and public health in a sustainable and globally conscious manner.

We would be glad to clarify or elaborate on any points made in the above comments. If there are any questions, CARB staff can feel free to contact Katelyn Roedner Sutter (kroedner@edf.org) and Dr. Pedro Piris-Cabezas (ppiris@edf.org).

Sincerely,

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