



August 27, 2024

The Honorable Steven S. Cliff, Ph.D.  
Executive Officer  
California Air Resources Board  
1001 I Street  
Sacramento, California 95814

The Honorable Liane M. Randolph  
Chair  
California Air Resources Board  
1001 I Street  
Sacramento, California 95814

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

Dr. Cliff and Chair Randolph:

NATSO, Representing America's Travel Centers and Truckstops, and SIGMA: America's Leading Fuel Marketers (together, the "Associations") represent more than 80 percent of retail sales of motor fuel in the United States.<sup>1</sup> On behalf of the diverse and forward-thinking retail fuel industry, we are eager to work with the California Air Resources Board ("CARB" or the "Agency") to advance policies that lower transportation emissions in California.

When properly deployed, low carbon fuel standards incentivize consumer adoption of advanced renewable fuels. Over the past decade, California's Low Carbon Fuel Standard (the "LCFS" or the "Program") has created a system wherein the cost of compliance is directly tied to market participants' ability to innovate and offer low-carbon alternatives to petroleum fuels. The Program's market-oriented mechanisms have historically mitigated any resulting inflationary impacts by incentivizing our members to integrate low-carbon fuels into their fuel supply. In response to the LCFS, many of the Associations' members have modified their operations in California to offer low-carbon fuels such as renewable diesel and biodiesel to California consumers.<sup>2</sup>

Successful decarbonization policies align economic incentives with environmental objectives. The Proposed Amendments<sup>3</sup> will create a misalignment between the market's economic incentives and CARB's environmental objectives. The Proposed Amendments advance environmentally incoherent outcomes while simultaneously threatening to raise fuel prices for consumers.

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<sup>1</sup> NATSO currently represents approximately 5,000 travel plazas and truckstops nationwide, comprising both national chains and small, independent locations. SIGMA represents a diverse membership of approximately 260 independent chain retailers and marketers of motor fuel. The retail fuels and convenience industry provide 2.38 million jobs at approximately 120,000 retail establishments across the country.

<sup>2</sup> This has resulted in a reduction of more than 12.5 percent in the average carbon intensity of the transportation fuel pool from the 2010 baseline, exceeding the 2022 benchmark of 10 percent reduction. See "Low Carbon Fuel Standard 2023 Amendments", California Air Resources Board, available at [https://ww2.arb.ca.gov/sites/default/files/2023-09/lcfs\\_sria\\_2023\\_0.pdf](https://ww2.arb.ca.gov/sites/default/files/2023-09/lcfs_sria_2023_0.pdf).

<sup>3</sup> "Proposed Low Carbon Fuel Standard Amendments", California Air Resources Board, (August 12, 2024), available at [https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/15day\\_notice.pdf](https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/15day_notice.pdf)

As discussed in further detail below:

- There is no environmental rationale for imposing company-wide 20 percent caps on credits for biomass-based diesel produced from virgin soybean and canola oil (the “Proposed Cap”).<sup>4</sup> The LCFS is designed to reward the most environmentally compelling feedstocks through a progressive reduction in carbon intensity (“CI”). The Proposed Amendments would abandon this approach, representing a dramatic departure from the direction indicated Agency staff has signaled throughout the workshop process. Indeed, CARB has worked extensively to develop robust feedstock sustainability provisions; the Proposed Amendments would undermine this progress by disallowing soy- and canola-based fuels, now subject to new, robust sustainability provisions, from contributing to lower transportation emissions in California.
  - A structure under which fuels are no longer assigned a CI score based on their actual environmental attributes is antithetical to the stated purpose of the LCFS and decidedly undermines the Program’s environmental integrity. The imposition of a cap on soy- and canola-based feedstocks would also severely hinder the ability of markets to comply with the ambitious CI reduction targets included in the Proposed Amendments.
  - The Proposed Cap will overly expose California’s transportation emissions to a small number of economically viable, low-carbon feedstocks, many of which are imported from overseas and thus exposed to protectionist policy changes now under consideration at the federal level.
- The proposed increase of the CI reduction targets to a nine percent reduction beginning in 2025 threatens to raise prices for consumers. Ambitious targets will inevitably increase the associated costs of compliance for fuel producers and distributors, and will ultimately be passed down to and borne by consumers in the form of higher fuel prices.
  - California lawmakers and regulatory agencies have repeatedly expressed concerns with, and sought to mitigate, escalating fuel costs throughout the State. This has often resulted in accusations of unfair or deceptive practices by businesses when, in reality, they generally reflect the costs of bringing fuel to market in a jurisdiction governed by an LCFS program. The Associations are supportive of aspirational, consumer-focused policies that result in increased consumption of low-carbon fuels. At the same time, policymakers must be clear-eyed about the impact that regulations may have on costs and prices. CARB should facilitate compliance with CI reduction targets in a market-oriented manner that balances its regulatory objectives with the resulting inflationary consequences for consumers at the pump.

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<sup>4</sup> The “Proposed Cap” in this comment letter is used to refer to the proposed amendment to assess biomass-based diesel from virgin soybean (“soy”) and canola oil in excess of 20 percent the carbon intensity of the applicable diesel pool benchmark for that year.

- The Proposed Amendments would perpetuate an environmentally indefensible preference for alternative jet fuel compared with renewable diesel and biodiesel. By prompting biofuel feedstocks to migrate from over-the-road use cases to aviation use cases, both consumer costs and overall emissions will increase because fewer gallons of biofuel will displace fewer gallons of petroleum-based fuel. (Lost gallons of biodiesel and renewable diesel will be replaced by gallons of petroleum diesel.)
- The Proposed Amendments to restrict the use of the book-and-claim process for renewable electricity credits (“RECs”) used for hydrogen production, and the proposed restrictions on hydrogen produced using fossil natural gas and carbon capture and sequestration each present several challenges that threaten to surrender the decarbonization potential of a burgeoning hydrogen industry.
- The Proposed Amendments to permit electric vehicle (“EV”) charging stations that are not publicly accessible to generate credits will undermine the incentive for private companies to continue investing in EV charging stations and ultimately compel consumers and taxpayers to subsidize private companies’ refueling costs.

Fuel retailers support the development of heavy-duty electric and hydrogen-powered vehicle technologies and the associated refueling network. Indeed, the Associations’ members have received more federal EV charging grant dollars than any other sector. Fuel retailers have ample experience responding to carbon intensity accounting price signals and leveraging government incentives to lower the price commercial fleets pay for fuel, while simultaneously displacing petroleum-based fuels with more environmentally attractive alternatives. It is irresponsible to rely exclusively on a prodigious pace of electrification to decarbonize the over-the-road transportation sector.<sup>5</sup> Transitioning to battery electric trucks requires expensive grid upgrades with uncertain time horizons.

CARB seems to presume that the market will promptly overcome these unambiguous impediments and, building on this incorrect assumption, is comfortable sacrificing existing environmentally and economically compelling diesel substitutes. Instead of depending on one technology to act as a silver bullet, however, over-the-road transportation should continue maximizing its use of low-carbon technologies that can deliver substantial emissions and cost savings in the heavy-duty sector *today*. This should in no way compromise the market’s ability to gravitate toward electrified and hydrogen-powered vehicles as they become more commercially viable at scale.

The LCFS is an instrumental tool to achieving the Agency’s near- to medium-term decarbonization goals. We are eager to work with you to achieve what we consider to be mutually compatible objectives.

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<sup>5</sup> A recent analysis of grid upgrades necessary for heavy-duty electrification found that a single highway fast-charging site will require the same amount of electricity as a sports stadium or a small town. *See* Gideon Katsh, et al., CALSTART et al., “Electric Highways: Accelerating and Optimizing Fast-Charging Deployment for Carbon-Free Transportation” (November 11, 2022) available at <https://calstart.org/electric-highways-study/>.

## **I. There is no environmental rationale for the Proposed Cap.**

In response to existing tax policies,<sup>6</sup> the California LCFS, and other incentive programs,<sup>7</sup> fuel retailers have invested billions of dollars in the physical and intellectual capital necessary to realign their operations to offer lower-carbon alternatives to consumers. We have supported these efforts. As a result, advanced biofuels now constitute more than half of the diesel supply in California.<sup>8</sup> This outcome, as CARB has frequently touted, has dramatically reduced carbon emissions in the heavy-duty transportation sector.<sup>9</sup> In 2020, biodiesel and renewable diesel eliminated 15 million metric tons of carbon dioxide in California alone, the equivalent of taking more than 3 million passenger cars off the roads.<sup>10</sup>

CARB has proposed to limit LCFS credits for biomass-based diesel produced from virgin soybean oil and canola oil to 20 percent of annual biomass-based diesel reported on a company-wide basis. The current biomass-based diesel fuel pool in California represents approximately 65-70 percent of the diesel fuel consumed (with the balance being petroleum-based). Within the biofuel pool, approximately 20 percent is tied to virgin soy feedstocks.<sup>11</sup> CARB's thinking appears to be that by establishing a 20 percent cap, petroleum diesel will nevertheless be replaced with biomass-based diesel in the coming years, just with minimal growth of virgin feedstocks and more growth of new, waste-based feedstocks, all without risking retail price increases.

This line of thinking is flawed and will result in economically and environmentally suboptimal outcomes. By restricting credit generation for these low-carbon alternatives, CARB risks undermining the growth of the clean diesel market; limiting biodiesel and renewable diesel in favor of technologies that will not be fully scalable for many years threatens both environmental progress and innovation. Soy- and canola-based renewable diesel gallons will in all likelihood be displaced with petroleum or other higher CI feedstock gallons, rather than new advanced biofuels

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<sup>6</sup> Generally, since 2004, Section 40A of the Internal Revenue Code has provided a credit of a fixed dollar amount per gallon of biodiesel and renewable diesel used, sold, or mixed in a trade or business. Initially, that credit was \$0.50 per gallon, and was increased to \$1.00 per gallon beginning in 2009 (Pub. L. 110-343). Most recently, those provisions were extended by Public Law 117-169 and are currently effective through December 31, 2024. This \$1.00 per gallon blenders' credit for biodiesel and renewable diesel, in concert with the LCFS, has resulted in lower prices and fewer carbon emissions associated with transportation energy. It has also promoted America's energy security.

<sup>7</sup> See the Renewable Fuel Standard at 42 U.S.C. 7545(o).

<sup>8</sup> California Air Resources Board, "For First Time 50% of California Diesel Fuel Is Replaced by Clean Fuels | California Air Resources Board," [ww2.arb.ca.gov](https://ww2.arb.ca.gov/news/first-time-50-california-diesel-fuel-replaced-clean-fuels), August 23, 2023, <https://ww2.arb.ca.gov/news/first-time-50-california-diesel-fuel-replaced-clean-fuels>.

<sup>9</sup> *Id.* "The use of cleaner fuels offers an essential tool to reduce pollution now," said California Air Resources Board Executive Officer, Dr. Steven Cliff. "A 50% reduction in diesel means cleaner air, healthier communities and a commitment to reaching carbon neutrality in California by 2045."

<sup>10</sup> California Energy Commission, "Renewable Diesel Production," January 2022, <https://www.energy.ca.gov/sites/default/files/2022-01/CEC-600-2022-034.pdf>.

<sup>11</sup> See "LCFS Data Dashboard", California Air Resources Board, *available at* <https://ww2.arb.ca.gov/resources/documents/lcfs-data-dashboard>

or other “zero emission” fuel technologies that may be optimal but, at the present time, remain aspirational.

The LCFS is designed to reward market participants that pursue low-carbon alternatives. Renewable fuel feedstocks, whether they be soy, canola, or used cooking oil (“UCO”), all carry varying environmental attributes. This is precisely why the LCFS assigns carbon intensity scores to gallons of fuel. Under this scheme, fuels using lower-carbon feedstocks are incentivized more because they generate higher credit values. Incentives for soy-based renewable diesel are already lower than incentives for other biofuels based on the environmental attributes of the respective fuels. The market is incentivized to foster a diverse and forward-thinking approach to biofuel development, driving advancement across various technologies and more effectively contributing to California’s clean energy goals.

If the LCFS begins to incentivize only the first 20 percent of companies’ soy- or canola-based biomass-based diesel blends, and then “flips a switch” and the next 80 percent of such blends receive the same CI score as petroleum-based diesel fuel, the LCFS ceases to be grounded in sound science. If one fuel is cleaner than another fuel, it should be incentivized to a degree commensurate with its environmental attributes.

Rather than imposing the Proposed Cap on certain feedstocks, CARB should instead continue pursuing more rigorous sustainability requirements to further lower the CI of fuels that utilize those feedstocks. The Proposed Amendments found in section 95488.9(g) that impose sustainable farming requirements, for example, are generally well-designed. At the same time, however, technology-specific caps dampen demand for the renewable fuel that these agricultural commodities produce. In this respect, the caps make it less likely that farmers will actually implement the sustainable practices found in 95488.9(g) since the return on investment will be artificially limited.

The Proposed Cap is also remarkably short-sighted given the increasing likelihood that the federal government will erect barriers to UCO imports that currently comprise a large share of California’s renewable diesel pool. Domestic agricultural interests are in the middle of an aggressive campaign to convince policymakers to limit the current flow of UCO imports from China into California.<sup>12</sup> A bipartisan coalition of U.S. senators recently encouraged the Biden Administration to limit the “Clean Fuel Production Tax Credit” – enacted as part of the Inflation Reduction Act and scheduled to take effect in 2025 – to fuels produced from domestic feedstocks.<sup>13</sup> In the not unlikely event that the credit is implemented with that limitation, UCO imports would immediately begin to dry up. If this occurs against the backdrop of a 20 percent cap on soy- and canola-based feedstocks, there may not be enough compliant fuels to satisfy the Program’s obligations.

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<sup>12</sup> See Letter from various agricultural groups including the American Farm Bureau Federation, American Soybean Association, National Corn Growers Association, and National Farmers Union strongly in favor of the imposition of domestic feedstock requirements; available at <https://www.fb.org/files/backgrounder/07.17.24-SAF-Coalition-Letter.pdf>

<sup>13</sup> See Letter from U.S. senators urging the limitation of imported feedstocks; available at [https://www.brown.senate.gov/imo/media/doc/45z\\_foreign\\_feedstocks\\_letter\\_final\\_7312024.pdf](https://www.brown.senate.gov/imo/media/doc/45z_foreign_feedstocks_letter_final_7312024.pdf)

The Proposed Cap also introduces unnecessary new compliance challenges by setting different timelines for different companies. Those with existing certified pathways prior to the adoption of the amendment have until January 1, 2028, to adjust their feedstock contracts, while other companies must comply immediately. This disequilibrium creates winners and losers for no environmental or economical reason. Companies in the future will be hesitant to put capital at risk on long-term projects or other clean fuel commitments due to the potential for regulatory changes to “pull the rug out from under them.” This uncertainty will inevitably undermine confidence in biofuel markets and impede progress toward clean energy incentives.

All of these phenomena result in higher retail fuel prices.

Finally, the Proposed Cap is a violation of the California Administrative Procedures Act (the “APA”). The principle of fair notice is a fundamental underpinning of the California APA, and serves to ensure that regulated industries are able to engage meaningfully in the rulemaking process. Indeed, the APA requires a 45-day notice for any “substantial” changes to a proposal that are not “sufficiently related” to the original text.<sup>14</sup> The addition of the Proposed Cap is both a substantial change and one that diverges significantly from the initial proposal. Limiting stakeholders to a 15-day comment period undermines the fair notice requirement and thus impedes the ability of the public to evaluate, and respond to, the Proposed Amendments.

## **II. The proposed increase of the CI reduction targets to a nine percent reduction beginning in 2025 threatens to raise prices for consumers.**

The ambitious CI reduction targets proposed by the Agency will compel fuel retailers to either blend greater quantities of low-carbon alternatives or purchase additional credits.<sup>15</sup> The retail fuels market is the most transparent, competitive commodities market in the United States. In as competitive and transparent a market as retail fuel, increased compliance costs are passed on to consumers in the form of higher prices.

Policymakers and regulators in California have consistently raised concerns about, and sought to mitigate, high fuel prices across the State.<sup>16</sup> These concerns are incongruous with the

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<sup>14</sup> See Cal. Gov. Code § 11346.8(c) (“No state agency may adopt, amend, or repeal a regulation which has been changed from that which was originally made available to the public pursuant to Section 11346.5, unless the change is (1) nonsubstantial or solely grammatical in nature, or (2) sufficiently related to the original text that the public was adequately placed on notice that the change could result from the originally proposed regulatory action.”).

<sup>15</sup> Many of the technologies necessary to meet the Proposed Amendments’ new stringent CI targets – such as next generation biofuels, carbon capture and storage, and advanced engine technologies – are not close to available at scale. CARB’s desired pace of escalation will outpace the development and deployment of these technologies.

<sup>16</sup> See Steven Greenhut, “Newsom’s ‘Price Gouging’ Shtick Running out of Gas,” Orange County Register (Orange County Register, August 23, 2024), <https://www.ocregister.com/2024/08/23/newsoms-price-gouging-shtick-running-out-of-gas/>; see also Lynn La, “When Will There Be Relief on California Gas Prices?,” CalMatters, May 8, 2024, sec. WhatMatters, <https://calmatters.org/newsletter/california-gas-prices-relief/>; see also Omar Mohammed, “Gavin Newsom Gets Warning about Gas Prices,” Newsweek (Newsweek, January 4, 2024), <https://www.newsweek.com/gavin-newsom-chevron-california-lower-future-investment-1857844>; see also Kenneth Schrupp, “Newsom Blames Oil Companies for Gas Prices, but His Own Energy Czar Disagrees,” The Center Square,



Proposed Amendments, which would impose upward pressure on fuel prices in California. The Associations would support a more comprehensive policy strategy that aligns regulatory objectives with the State’s purported commitment to keeping fuel costs low. The Associations support policies that encourage the adoption of renewable, low-carbon fuels, and have invested heavily in marketing those fuels to Californian consumers. Policymakers – including but not limited to CARB – should be cognizant of the impact that the Proposed Amendments may have on fuel prices.

### **III. The Proposed Amendments would perpetuate an environmentally indefensible preference for alternative jet fuel compared with renewable diesel and biodiesel.**

Biofuel producers today convert used cooking oil, animal fats, vegetable oils, and other “feedstocks” into advanced renewable fuels. The technology and feedstocks that can be used to produce alternative jet fuel today are generally the same as those currently used to produce over-the-road fuels.<sup>17</sup> Because there is a limited supply of feedstocks – exacerbated by the ongoing War in Ukraine and global supply chain issues – many producers face trade-offs about which kinds of fuels to produce.

If the Proposed Amendments are finalized, it would exacerbate LCFS policies that treat alternative jet fuel preferentially relative to renewable diesel and biodiesel. First, the proposed virgin oil feedstock cap excludes alternative jet fuel. This will divert feedstocks away from renewable diesel and biodiesel (which are capped) toward alternative jet fuel (which is not). Second, the Proposed Amendments would continue exempting fossil jet fuel from standards to which fossil diesel fuel is subject. This is curious because CARB is ostensibly seeking to increase alternative jet fuel consumption, and the best way to do that is to increase the price of the fuel it is intended to displace (*i.e.*, fossil jet). It’s also worth noting that the aviation industry urged CARB to continue exempting fossil jet fuel *at the same time* that it was touting its efforts to decarbonize aviation fuel.<sup>18</sup>

#### ***a. Feedstock is finite.***

The Environmental Protection Agency has repeatedly acknowledged that finite feedstock availability is “likely to cause any growth in renewable jet fuel to come at the expense of biodiesel

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August 12, 2024, [https://www.thecentersquare.com/california/article\\_e9d2fd3e-58f9-11ef-8712-4b83ae63798f.html](https://www.thecentersquare.com/california/article_e9d2fd3e-58f9-11ef-8712-4b83ae63798f.html); see also The Editorial Board, “Who’s to Blame for High Gas Prices?,” Orange County Register (Orange County Register, March 14, 2024), <https://www.ocregister.com/2024/03/14/state-policies-drive-higher-gas-prices/>; see also Wes Venteicher, “California’s Oil Czar on What’s Plaguing Gasoline Prices,” E&E News by POLITICO, April 15, 2024, <https://www.eenews.net/articles/californias-oil-czar-on-whats-plaguing-gasoline-prices/>.

<sup>17</sup> See Environmental Protection Agency, “Renewable Fuel Standard Program: Standards for 2023-2025 and Other Changes”, 87 FR 80582 (December 30, 2022) P. 80596 (“For example, the same refinery process that produces renewable diesel from waste fats, oils, and greases or plant oils also produces hydrocarbons in the distillation range of jet fuel that can be separated and sold as alternative jet fuel instead of being sold as renewable diesel.”)

<sup>18</sup> See Anne C Mulkern, “Facing Legal Threat, Calif. Grounds Plan to Cut Airline Emissions,” E&E News by POLITICO, August 15, 2024, <https://www.eenews.net/articles/facing-legal-threat-calif-grounds-plan-to-cut-airline-emissions/#:~:text=grounds%20plan%20to%20cut%20airline%20emissions>. (Airlines for America, a trade group for commercial carriers, praised the decision and said the proposal “would have led to higher jet fuel prices.”)

and renewable diesel.”<sup>19</sup> Feedstock migration from biodiesel and renewable diesel to alternative jet fuel on account of disparate LCFS treatment will cause overall carbon emissions to increase. This is because the alternative jet fuel production process is significantly less efficient than the biodiesel/renewable diesel production process.<sup>20</sup> For every unit of feedstock used to produce clean fuel, fewer gallons of alternative jet fuel can be produced relative to gallons of biodiesel/renewable diesel. That creates fewer petroleum gallons displaced and greater aggregate emissions.

Preferential treatment for alternative jet fuel will push the market away from the existing, efficient use of biodiesel and renewable diesel in trucks toward a costlier, less efficient, less environmentally compelling use of alternative jet fuel in planes. It will also crowd out the renewable diesel supply for the rail and shipping industries, which emit comparable emissions to aviation and are also difficult to electrify.<sup>21</sup> Heavy-duty trucking, shipping, and rail (diesel-operated engines) collectively comprise approximately 30 percent of transportation emissions. Air travel is responsible for only 8 percent of transportation emissions, and only 2 percent of emissions overall.<sup>22</sup>

***b. Alternative jet fuel is more expensive, less efficient, and less environmentally compelling than renewable diesel and biodiesel.***

The LCFS is designed to reduce the CI of California’s transportation fuel pool. The climate is agnostic as to whether emissions come from a truck engine or a jet turbine. Indeed, flexibility with respect to how deficits are satisfied is a fundamental underpinning of the LCFS and is precisely how the Program functions today. Regulated parties either elect to lower their emissions or must purchase credits. The aviation industry should not be exempt from contributing to emissions reductions in California.<sup>23</sup>

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<sup>19</sup> See Supra n.17 at P. 80596 (“[G]iven the limitations on the available feedstocks for renewable diesel and alternative jet fuel production we generally agree that future increases in alternative jet fuel production ... will likely result in less renewable diesel production than we would expect in the absence of increased alternative jet fuel production.”)

<sup>20</sup> Alternative jet fuel requires more processing than renewable diesel due to the lower freezing point; this requires greater hydrogen input for jet fuel compared to renewable diesel, which in turn requires more natural gas usage. See LMC International, *Comparative Economic Analysis of Renewable Jet Fuel and Renewable Diesel* (Sept. 2021).

<sup>21</sup> Trade groups representing the trucking and rail industries have repeatedly raised concerns about how this artificial market disparity will impact renewable diesel supply and availability. See Letter from American Trucking Associations, Association of American Railroads, National Association of Convenience Stores, National Motor Freight Traffic Association, National Tank Truck Carriers, etc. (September 13, 2023) available at <https://www.natso.com/resources/resources/view/document/948>.

<sup>22</sup> See United States Environmental Protection Agency, “Fast Facts on Transportation Greenhouse Gas Emissions,” <https://www.epa.gov/greenvehicles/fast-facts-transportation-greenhouse-gas-emissions>.

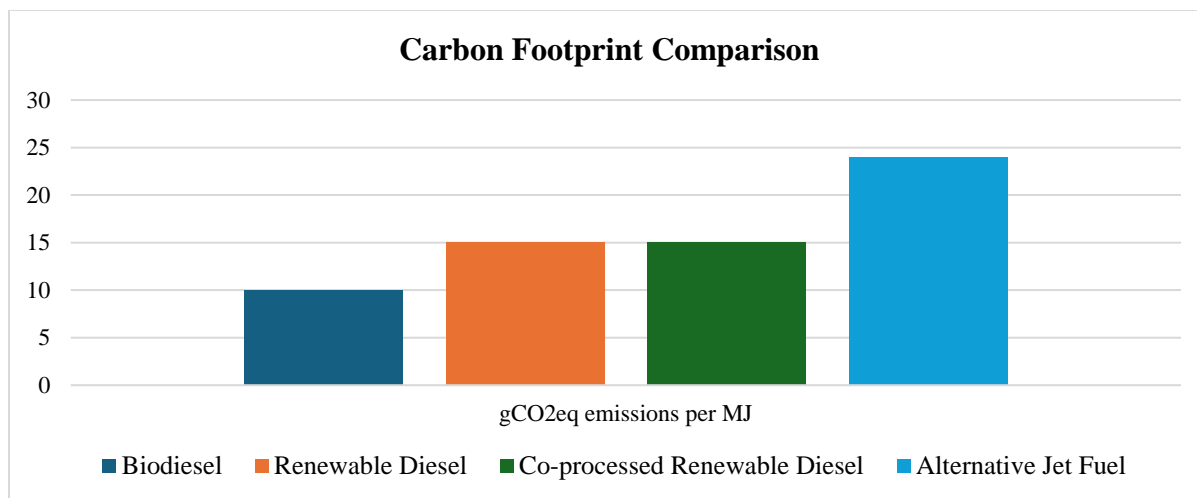
<sup>23</sup> Airline representatives are eager to tout their “commitment” to decarbonization, and always vigorously support taxpayer- or consumer-funded incentives, yet they consistently oppose any *obligation* to use lower CI fuels. Upward pressure on diesel prices for consumers as a result of the LCFS has yet to deter CARB from regulating the over-the-road fuels sector. Cost increases to consumers for air travel, which tend to disproportionately impact higher-income Californians, should not be evaluated differently. See <https://www.eenews.net/articles/facing-legal-threat-calif-grounds-plan-to-cut-airline-emissions/>.



The aviation industry can meaningfully contribute to transportation decarbonization in California – and help jumpstart the alternative jet fuel industry – by being obligated to purchase credits for over-the-road fuels and thereby displace petroleum-based fuel with renewable fuel across the State. Proliferation of a robust renewable fuel industry that maximizes its emissions impact will only serve to benefit alternative jet fuel production in the long run as trucking is electrified and existing production capacity can be converted for jet fuel purposes. The International Council on Clean Transportation has similarly argued that “in the longer term, as liquid fuel demand in road evaporates, existing biorefineries can adjust their processes to supply mostly or entirely jet fuel.”<sup>24</sup>

The cost of saving one kilogram of carbon dioxide (“CO<sub>2</sub>”) is higher for alternative jet fuel than it is for renewable diesel. Every gallon of alternative jet fuel delivers lower CO<sub>2</sub> savings than every gallon of renewable diesel; the displacement of one megajoule (“MJ”) of fossil *jet fuel* avoids less CO<sub>2</sub> than the displacement of one MJ of fossil *diesel*. A European study comparing four pathways for used cooking oil (“UCO”), a common feedstock used to produce several types of renewable fuel, found that UCO is “best deployed as biodiesel and renewable diesel in road transport.”<sup>25</sup>

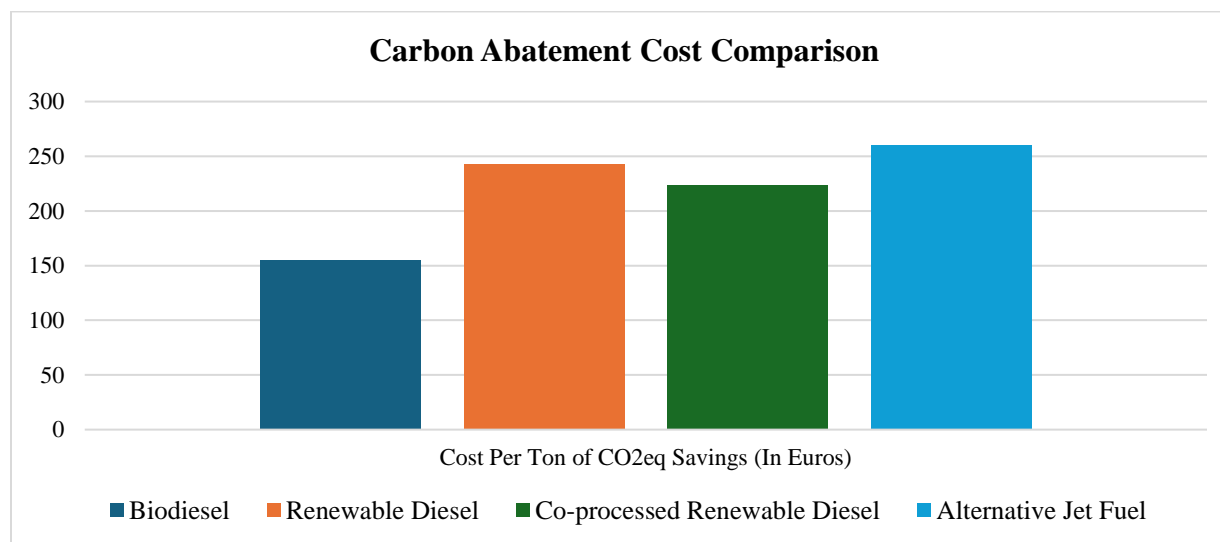
The study determined that, of all the end-uses, biodiesel has the lowest production costs, the highest feedstock efficiency, the highest emission reduction performance and, consequently, the lowest carbon abatement costs. From the perspective of overall climate mitigation, the use of UCO feedstocks for alternative jet fuel production achieves less emission reduction at higher abatement costs, compared to using UCO for road transport fuels.



<sup>24</sup> *Infra* n.31. The fuel retail industry has spent the last two decades aligning and optimizing the disparate logistical and transportation systems associated with petroleum fuel and biofuel products. Should alternative jet fuel become more commercially widespread, there will be few supply chain challenges. Unlike in over-the-road transport, alternative jet fuel consumption will be concentrated at a relatively low number of airports compared to the refueling network for heavy-duty trucking.

<sup>25</sup> Carlo Hamelinck et al., “Conversion Efficiencies of Fuel Pathways for Used Cooking Oil Study Commissioned by EWABA and MVaK Final Report,” 2021, [https://www.studiogearup.com/wp-content/uploads/2021/03/2021\\_sGU\\_EWABA-and-MVaK\\_Options-for-the-deployment-of-UCO.pdf](https://www.studiogearup.com/wp-content/uploads/2021/03/2021_sGU_EWABA-and-MVaK_Options-for-the-deployment-of-UCO.pdf).

Biodiesel achieves 10 gCO<sub>2</sub>eq/MJ, which implies about 90 percent emission reduction compared to the lifecycle emissions from petroleum-based diesel. Renewable diesel and co-processed renewable diesel have a slightly higher emission at 15 g/MJ. The carbon footprint of alternative jet fuel is higher, at 24 g/MJ. This means that alternative jet fuel achieves lower emissions reductions than the other pathways.<sup>26</sup> Expressed per ton of feedstock, biodiesel and renewable diesel achieve the highest carbon savings because it has the highest feedstock efficiency, combined with low supply chain emissions.<sup>27</sup>



When the fuel production costs are combined with the carbon savings per unit of feedstock, alternative jet fuel has the highest carbon abatement costs of the four pathways.<sup>28</sup> The study concluded that mitigation of the climate impact of the aviation sector may be better achieved with other pathways that draw on novel and scalable feedstocks. Importantly, the study noted that “any use of a limited feedstock such as UCO, just moves this UCO from one sector to another while decreasing the effective contribution to decarbonization of this feedstock.”<sup>29</sup>

A report issued by the International Council on Clean Transportation similarly concluded that “policies that promote the use of low-carbon fuel regardless of end-use sector will be most effective at developing the advanced fuel industry” and that “in the medium term, advanced fuel industry growth will be maximized if fuel is supplied mainly to the road sector.”<sup>30</sup>

<sup>26</sup> *Id.*

<sup>27</sup> *Id.*

<sup>28</sup> *Id.*

<sup>29</sup> *Id.*

<sup>30</sup> Stephanie Searle et al., “Long-Term Aviation Fuel Decarbonization: Progress, Roadblocks, and Policy Opportunities,” International Council on Clean Transportation, January 15, 2019, <https://theicct.org/publication/long-term-aviation-fuel-decarbonization-progress-roadblocks-and-policy-opportunities/>.

Alternative jet fuel displacing over-the-road biofuel consumption is not only more expensive and environmentally deleterious in the aggregate, but it would harm communities disproportionately impacted by climate change. Over-the-road advanced renewable fuels in lower emissions of nitrogen oxide (“NOx”) compared with fossil diesel fuel; feedstock migration from over-the-road biofuels to alternative jet fuel would thus increase ground-level emissions in vulnerable communities that experience heavy truck traffic. Alternative jet fuel, unlike renewable diesel, does not have the salutary benefit of reducing NOx emissions to improve air quality.<sup>31</sup>

CARB should not surrender the market’s ability to deliver dramatic near-term emissions savings by imposing a top-down, hurried transition to one technology through the LCFS. CARB should harness the near-term decarbonization potential of low-carbon options such as biodiesel and renewable diesel, *in addition to* incentivizing more aspirational longer-term technologies such as electrification. Over time, as the heavy-duty fleet gravitates toward electrification, it may eventually become prudent to institute an increased focus on alternative jet fuel production.

Policy should not encourage capital investments to flow toward more expensive, less environmentally attractive fuel technologies when a more efficient, more environmentally compelling alternative is available. CARB should affirmatively seek to limit the extent to which alternative jet fuel crowds out over-the-road biofuels in the coming years.<sup>32</sup>

#### **IV. The Proposed Amendments to restrict the use of the book-and-claim process for RECs used for hydrogen production, and the proposed restrictions on hydrogen produced using fossil natural gas and carbon capture and sequestration each present several challenges that threaten to surrender the decarbonization potential of a burgeoning hydrogen industry.**

Many of the Associations’ members – particularly those with highway locations that service heavy-duty commercial trucks – are actively expanding their hydrogen capabilities in response to market- and federal policy signals. They have developed new commercial relationships with companies in the hydrogen value chain, actively participate in multiple “hydrogen hub” projects – including the ARCHES project in California – and are actively exploring hydrogen grant and loan guarantee opportunities.

Unlike light-duty electric vehicle purchases, which can be motivated by non-financial interests, commercial decisions to invest in heavy-duty vehicles will be grounded in economics. Commercial businesses will not buy heavy-duty electric or hydrogen vehicles at scale unless the total cost of operation is less than the cost of diesel-powered trucks. Minimizing fuel costs should

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<sup>31</sup> See LMC International, *Comparative Economic Analysis of Renewable Jet Fuel and Renewable Diesel* (Sep. 2021).

<sup>32</sup> Climate research has consistently emphasized the importance of near-term emissions reductions relative to future reductions. More efficient diesel engines coupled with low-carbon, biomass-based diesel can reduce emissions immediately. See G. Cornelis van Kooten, Patrick Withey, and Craig M.T. Johnston, Biomass and Bioenergy 151 “Climate Urgency and the Timing of Carbon Fluxes,” (August 2021) available at <https://doi.org/10.1016/j.biombioe.2021.106162>. (“The current climate emergency dictates that **immediate action is required to mitigate climate change**, which implies that carbon fluxes occurring **20 or more years from now are too late to have any mitigative effect**”) (emphasis added).

therefore be an essential element of any policy intended to decarbonize heavy-duty trucking, including via hydrogen as a transportation fuel.

Hydrogen-powered trucks would leverage *existing* refueling infrastructure and a supply chain familiar to the industry – centralized production, transportation to market and retail fuel sales through a network of well-functioning and convenient refueling locations. As transportation energy retailers and distributors, our membership will rely upon hydrogen producers to provide an economical supply of clean hydrogen in the years ahead.

The LCFS should maximize the market’s ability to realize these objectives. Any additional requirements or restrictions should be pursued only if they do not effectively preclude the industry from developing. We have serious concerns that CARB’s proposal would do just that.

Under the Proposed Amendments, CARB has removed the book-and-claim provision that was previously contained in the 45-day package for “process energy”. Eliminating this provision will have a significant impact on the CI score of liquefied hydrogen, effectively raising its cost. CARB should advance LCFS policies that *improve* the economic viability of low-carbon hydrogen, rather than make it more challenging.

The proposed change will result in an environmentally incoherent outcome. RECs are a market-oriented mechanism that enable producers (including hydrogen producers) to compete over clean electricity to power their production processes. Carbon intensity accounting as an enabler for market signals is a necessary component of the hydrogen value chain. Hydrogen production and lower-cost clean hydrogen should be incentivized and available at retail. Upstream investments in clean electricity generation to power the hydrogen production processes should also be encouraged. RECs facilitate these positive outcomes. If RECs are exceedingly expensive or impossible to obtain, they cannot serve this purpose. This would undermine the LCFS’s objectives.

The Proposed Amendments would also exclude hydrogen produced using fossil fuel gas and carbon sequestration from LCFS credit eligibility beginning on January 1, 2031. Hydrogen produced from a fossil fuel process (“SMR”) that utilizes scientifically proven carbon capture and sequestration (“CCS”) technology, represents a cost-effective and growing base of low-carbon hydrogen supply. Eliminating this supply source also reduces head-to-head competition for other low-carbon (*i.e.*, green) hydrogen producers. Absent competition from low-carbon hydrogen CCS sources, green hydrogen producers can charge an unjustifiable premium for their low carbon hydrogen product. By contrast, including low-carbon CCS sources in the LCFS enables more head-to-head competition for low-carbon hydrogen supply and places downward pressure on hydrogen prices. Removing this source could lead to a significant reduction in available hydrogen, as renewable hydrogen production capacities are still developing and are not yet able to meet current demand.

As renewable generation comes online and transmission capacity increases, it may be appropriate to consider restricting hydrogen feedstocks to mitigate avoidable ancillary emissions; until then, however, any such restrictions will simply impede the growth of the nascent hydrogen industry. CARB should thus incorporate the book-and-claim system for hydrogen production under the LCFS, as it facilitates vital market growth. Similarly, the exclusion of fossil natural gas-

based hydrogen production with CCS from LCFS credits unduly limits the supply of low-carbon hydrogen. This policy not only restricts competition among low-carbon hydrogen sources, but ultimately raises prices for consumers, thereby impeding broader adoption and undermining efforts to achieve a diversified and economically viable hydrogen market.

Any near-term, ancillary, electricity-related emissions would be more than offset by the emission reduction opportunities associated with maintaining hydrogen as a viable means to decarbonize transport.

**V. The Proposed Amendments to permit EV charging stations that are not publicly accessible to generate credits will undermine the incentive for private companies to continue investing in EV charging stations and ultimately compel consumers and taxpayers to subsidize private companies' refueling costs.**

CARB should only permit charging stations that are publicly available to generate LCFS credits. By opening up credit generation to other EV charging sites that are only available to a limited universe of companies (*e.g.*, a single company's fleet), it will prompt finite EV charging investment dollars to migrate away from publicly accessible offerings toward more limited offerings. This will only further prolong CARB's efforts to help consumers overcome EV charging range anxiety.

The greatest limitation on light-duty vehicle electrification lies not in the price of the vehicle but rather in the so-called "range anxiety" that consumers feel about the readily available public charging.<sup>33</sup> If CARB is going to impose such stringent CI-reduction schedules on fuel, it should be more hyper-focused on incentivizing behavior to address the challenge of range-anxiety. Instead, the Proposed Amendments would redirect finite private capital toward behind-the-gate, non-publicly accessible EV charging stations that a limited universe of vehicles could utilize, rather than encouraging investment in publicly accessible charging stations that would be available to all current and prospective EV owners.

The extent to which EV penetration is outpacing public charging station deployment is changing the landscape of the light-duty EV market. A recent national, representative survey by Consumer Reports and the University of Chicago found that 61 percent of Americans point to "not enough public charging stations" as the primary issue preventing them from buying or leasing an EV.<sup>34</sup> The same survey found that 45 percent of Americans say that easy access to public fast-charging stations would be the most likely variable to affirmatively *encourage* them to buy or lease an EV. A mere 21 percent of respondents pointed to "similar purchase price to gasoline-powered vehicles" as a primary motivator.<sup>35</sup> This trend threatens the development and durability of transportation electrification. A 2021 study from the University of California at Davis Institute for

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<sup>33</sup> "Fact from Fiction: Why Consumers Don't Buy EVs," Blink Charging, April 8, 2020, <https://blinkcharging.com/fact-from-fiction-the-real-reason-why-consumers-dont-buy-electric-vehicles/?locale=en>.

<sup>34</sup> Consumer Reports, "Battery Electric Vehicles and Low Carbon Fuel: Overview of Methodology," April 2022, [https://article.images.consumerreports.org/prod/content/dam/surveys/Consumer\\_Reports\\_BEV%20AND%20LCF%20SURVEY\\_18\\_FEBRUARY\\_2022](https://article.images.consumerreports.org/prod/content/dam/surveys/Consumer_Reports_BEV%20AND%20LCF%20SURVEY_18_FEBRUARY_2022).

<sup>35</sup> *Id.*

Transportation Studies found that almost 20 percent of EV owners in California switched back to a gas vehicle because of the difficulty of consistently charging a vehicle.<sup>36</sup>

The availability of EV charging stations at existing locations motorists utilize today is the most effective way to solve range anxiety. Consumers freely drive their gas- and diesel-powered vehicles to every part of the country without concerns about whether they will be able to refuel safely and reliably whenever necessary. Offering EV charging at fuel retailing locations would mean drivers do not need to change their habits—they can refuel on the go at the same convenient locations they do today. The availability of EV charging on large price signs at fuel retailers' locations in communities and along California's highways will effectively relieve EV range anxiety. If EV charging is not available *and reliable* in the neighborhoods consumers want to visit, as well as along Interstate locations, many Americans simply will not purchase an EV, no matter the price.

At the moment, there are several impediments that make it challenging for private businesses to identify a pathway to profitability with respect to EV charging. Most of these impediments involve an electricity market that was not designed for, and is in many ways incompatible with, the retail fuel market.

Robust LCFS credit availability for publicly accessible charging station owners and operators would make installing EV charging stations more attractive for existing fuel retailers. To the extent that allowing private charging stations to generate credits undermines the attractiveness of credits available for public charging owners, it will be counterproductive to CARB's long-term transportation electrification efforts.

## **VI. Conclusion**

Thank you for considering our perspective on these important topics. We would welcome the opportunity to further discuss these issues with you at any time.

Sincerely,

NATSO, Representing America's Travel Plazas and Truckstops  
SIGMA: America's Leading Fuel Marketers

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<sup>36</sup> Scott Hardman and Gil Tal, "Understanding Discontinuance among California's Electric Vehicle Owners," *Nature Energy*, April 26, 2021, <https://doi.org/10.1038/s41560-021-00814-9>.