



February 20, 2024

Chair Randolph and Honorable Members of the Board  
California Air Resources Board  
1001 I Street  
Sacramento, California 95814

**Re: NRDC Recommendations for the Low-Carbon Fuel Standard Program**

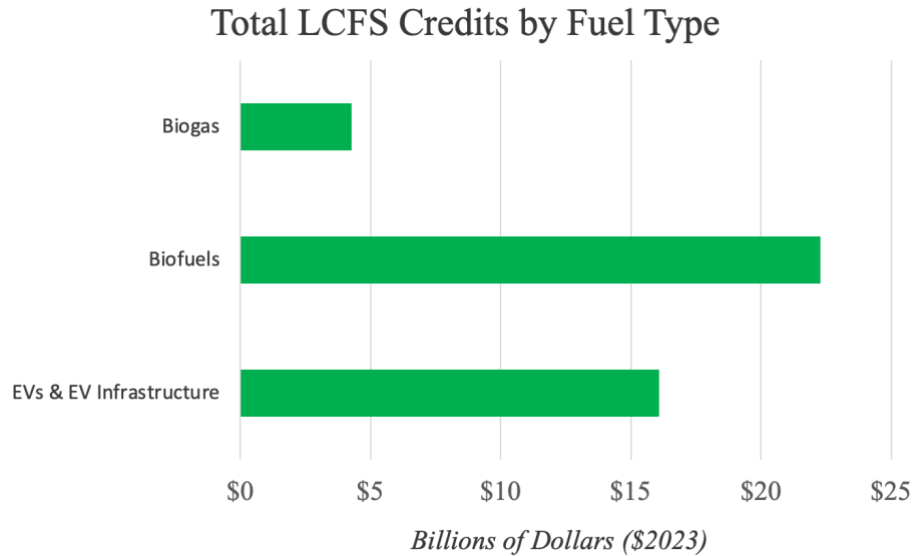
The LCFS Program is one of California’s largest sources of funding for clean transportation. But, as NRDC and other commenters have extensively described, some aspects of the program’s current design have unintended consequences that prove non-beneficial or worse for communities and the climate. In particular, the program channels billions of dollars to both biomethane, which CARB’s own Scoping Plan finds is not a significant, long-term decarbonization solution for the transportation sector,<sup>1</sup> and to lipid-based biofuels, which have dubious carbon benefits and significant harmful impacts that are not effectively addressed by CARB’s Staff Proposal.<sup>2</sup> The LCFS Program’s reliance on these fuels exacerbates harm to communities that live near highways, refineries, and large livestock operations,<sup>3</sup> and it detracts from CARB’s electric vehicle (EV) targets. The Staff Proposal represents a missed opportunity to fix the LCFS to make it into the truly effective and progressive climate measure it was intended to be.

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<sup>1</sup> California Air Resources Board 2022 Scoping Plan for Achieving Carbon Neutrality (Nov. 16, 2022) at 185-190 (“CARB Scoping Plan”) *finding that* “[t]he primary ZEV technologies available today are battery-electric and hydrogen fuel cell electric vehicles” *and demonstrating a minimal role for biomethane in the transportation sector over the coming decades*. Available at <https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp.pdf>.

<sup>2</sup> Herein, we refer collectively to the “Staff Report: Initial Statement of Reasons” and its appendices as the “Staff Proposal.” Accessible at <https://ww2.arb.ca.gov/rulemaking/2024/lcfs2024>.

<sup>3</sup> María Arévalo and Katherine Lee, “Popular California climate program lets polluters keep harming vulnerable communities,” CalMatters (Aug. 1, 2023). Accessible at <https://calmatters.org/commentary/2023/08/climate-program-polluters-harm-communities/>.



**Figure 1:** LCFS funding by fuel type (2011-2022), based on data from UC Davis LCFS data visualization tool.<sup>4</sup> Source: NRDC

Hundreds of public commenters and numerous environmental justice and environmental organizations have called on CARB to address these issues and to bring the LCFS Program into alignment with California’s climate and environmental justice objectives.<sup>5</sup> Yet the Staff Proposal does not effectively address these concerns. Californians pay for the LCFS Program at the pump, and they deserve to see their hard-earned money supporting clean, non-polluting technologies that advance climate action, improve air quality, benefit communities, and provide a pathway to the state’s clean transportation future. We urge CARB to reform the LCFS Program, starting by hosting at least two additional Board meetings to consider significant changes to the Staff Proposal.

<sup>4</sup> Prof. Aaron Smith, U.C. Davis Department of Agricultural and Resource Economics, LCFS Calculator. Accessible at <https://asmith.ucdavis.edu/data/LCFS>. (“UC Davis LCFS Data Visualization Tool”).

<sup>5</sup> See, e.g., comments responding to CARB’s February 2023 Workshop (accessible at [https://www.arb.ca.gov/lispub/comm2/iframe\\_bccommlog2.php?listname=lcfs-wkshp-feb23-ws&\\_ga=2.255679752.1654759407.1684780517-1745364582.1672094362](https://www.arb.ca.gov/lispub/comm2/iframe_bccommlog2.php?listname=lcfs-wkshp-feb23-ws&_ga=2.255679752.1654759407.1684780517-1745364582.1672094362)); public comments at CARB’s September 28, 2023 Board meeting; and recommendations from the Environmental Justice Advisory Committee (Accessible at <https://ww2.arb.ca.gov/sites/default/files/2023-08/EJAC%20Low%20Carbon%20Fuel%20Standard%20Recommendations%20Version%201%20082423.pdf>). Commenters include Animal Legal Defense Fund, Center for Food Safety, Central California Environmental Justice Network, Central Valley Air Quality Coalition, Earthjustice, Food & Water Watch, International Council on Clean Transportation, Leadership Counsel for Justice and Accountability, Sierra Club California, and Union of Concerned Scientists.

Below is a summary of the changes NRDC recommends to the Staff Proposal.

CARB Staff Proposal	NRDC Recommendations
<p><b>Extend avoided methane crediting for biomethane</b> through 2040 for CNG vehicles and through 2045 for hydrogen production for any project that breaks ground before 2030.</p>	<p><b>Correct the over-crediting of livestock biomethane this year</b> and utilize CARB’s SB 1383 authority to open a proceeding by 2025 to regulate, track and report emissions from the agricultural sector.</p>
<p><b>Allow unrestricted crediting for lipid-based bioenergy</b> produced from oil feedstocks in the food crop system, requiring only sustainability certification of the particular feedstock being refined.</p>	<p><b>Establish a cap on lipid-biofuel feedstocks</b> to limit the use of food crop oils, and re-evaluate the carbon intensity of such fuels in a manner that considers feedstock fungibility and displacement.</p>
<p><b>Allow CO<sub>2</sub>-enhanced oil recovery projects</b> to continue to receive LCFS credits.</p>	<p>Disallow credit-generation for carbon capture projects that <b>utilize CO<sub>2</sub> for enhanced oil recovery</b>, in line with SB 1314.</p>
<p><b>Allow fossil hydrogen</b> paired with biomethane environmental attributes to receive greater LCFS credits than green, electrolytic hydrogen.</p>	<p><b>Ensure that credited hydrogen is truly climate-friendly</b> by requiring it to be produced with zero-carbon electricity that is incremental, deliverable, and hourly-matched.</p>
<p><b>Change the design of traditional LCFS credits for EVs</b> by allowing base residential credits for charging stations in multi-family residences and establishing a new statewide rebate for MHD EVs, among other changes to base residential credits;</p> <p><b>Extend the current capacity credits for public DC fast chargers for light-duty EVs</b> to 2030 but reduce the size of the program and limits it to rural and DAC areas;</p> <p><b>Add a new capacity credit program for MHD EVs</b> at public, shared depot and fleet locations to 2030 with many restrictions.</p>	<p><b>Keep the design of base residential credits and the current program rules</b> (e.g., limits on credits, size of charging plazas) and extend the program to 2035;</p> <p><b>Allow emerging types of transportation electrification to earn credits</b> without a Tier 2 application;</p> <p><b>Grant larger credits</b> to fixed guideways, transit buses and school buses;</p> <p><b>Encourage more DCFC development</b>, including at shared depot and fleet locations for drayage, short-haul and delivery trucks.</p>

**Table 1:** Comparison of the Staff Proposal with NRDC’s recommended changes

**1. Avoided methane crediting for livestock biomethane is distorting the LCFS Program and the economics of the livestock industry, with detrimental consequences for communities and the climate.**

Staff proposes to extend avoided methane crediting for biomethane through 2040 for CNG vehicles and through 2045 for hydrogen production, with these extensions applying for any project that breaks ground before 2030. If approved, this recommendation would lock in the distortionary impacts of avoided methane crediting for decades – undermining California’s clean transportation goals and harming communities that live near concentrated-animal feeding operations (CAFOs) and refineries. Instead, CARB must correct the over-crediting of livestock biomethane by the end of 2024 and utilize its SB 1383 authority to open a new proceeding specifically designed to regulate emissions from the agricultural sector.<sup>6</sup>

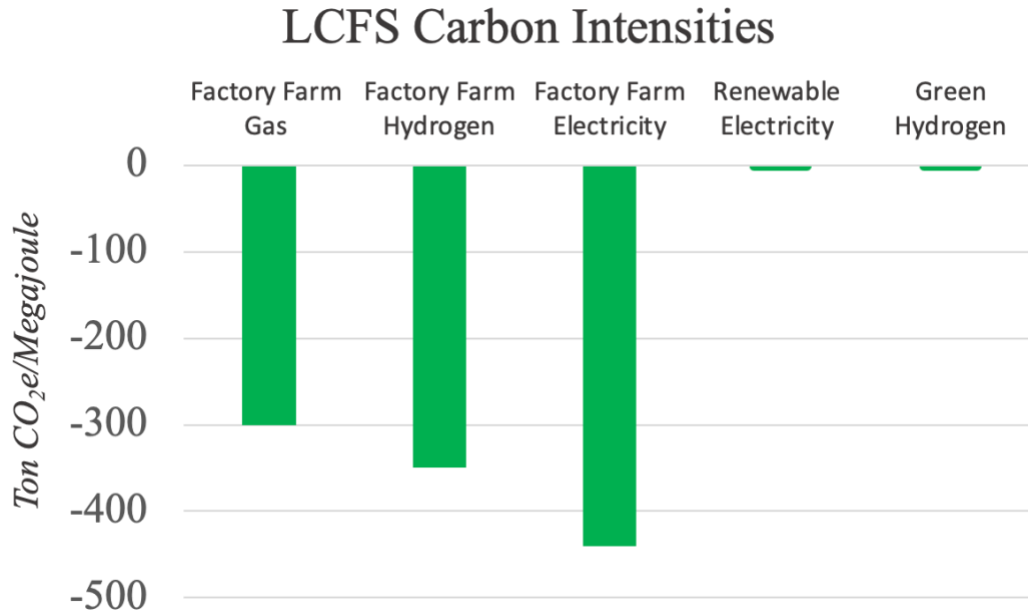
Today, the LCFS Program provides an outsized “avoided methane credit” to livestock biomethane based on the assumption that manure methane from CAFOs would be released into the atmosphere if not captured in digesters funded by the LCFS Program. This results in livestock biomethane (and fossil hydrogen produced with biomethane credits) receiving outsized carbon intensity (CI) scores that range from negative 300 to negative 400 tons CO<sub>2e</sub>/Megajoule.<sup>7</sup> In comparison, the CI scores of renewable electricity and green, electrolytic hydrogen hover near zero. Since the program’s inception, biomethane has received more than \$1.26 billion (\$2023) in LCFS credits due to avoided methane crediting.<sup>8</sup> This has spawned a digester industry that is reliant on these public resources and provides struggling industrial dairies with a new revenue stream.

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<sup>6</sup> Senate Bill No. 1383 (Lara), Health and Safety Code § 39730.5(b)(1) (2016), [https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill\\_id=201520160SB1383](https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160SB1383).

<sup>7</sup> Michael Wara et al., Stanford University, “Simulating an “EJ Scenario” for the Low Carbon Fuel Standard Rule update using the ARB CATS Model” (May 31, 2023). Accessible at <https://ww2.arb.ca.gov/sites/default/files/2023-05/Stanford%20Presentation.pdf>.

<sup>8</sup> See Figure 1 above.



**Figure 2:** Approximate carbon intensities under current LCFS CI scoring system, based on Stanford University Climate & Energy Policy Program modeling.<sup>9</sup> Source: NRDC

Avoided methane crediting is distorting the LCFS Program. As shown above, the lowest possible CI score for renewable electricity is zero – placing it on an uneven playing field with biomethane and stifling the deployment of EVs and EV charging infrastructure. This results in one compressed natural gas (CNG) truck and three diesel trucks receiving the same amount of LCFS credits as four electric trucks<sup>10</sup> – despite CARB’s objective of 100 percent zero-emission heavy-duty truck sales by 2036.<sup>11</sup> Similarly, under this scoring system, green electrolytic hydrogen with a minimum possible CI of zero receives far fewer credits than fossil hydrogen produced in a refinery that purchases biomethane’s environmental attributes. Avoided methane crediting artificially sweetens the deal for biomethane in the LCFS, even as CARB

<sup>9</sup> Michael Wara et al., Stanford University, “Simulating an “EJ Scenario” for the Low Carbon Fuel Standard Rule update using the ARB CATS Model” (May 31, 2023). Accessible at <https://ww2.arb.ca.gov/sites/default/files/2023-05/Stanford%20Presentation.pdf>.

<sup>10</sup> Michael Wara, Stanford University, Joint Meeting of CARB and the Environmental Justice Advisory Committee (Sept. 14, 2023) at 12 (citing to Phoebe Seaton’s 7/17/23 presentation to EJAC). Accessible at <https://ww2.arb.ca.gov/sites/default/files/barcu/board/books/2023/091423/ejacpres.pdf>.

<sup>11</sup> See CARB Advanced Clean Fleets Regulation. Accessible at <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets>.

acknowledges via other policies that biomethane has a negligible role to play in decarbonizing transportation.<sup>12</sup>

The LCFS program’s current design is harming communities living near CAFOs and refineries. CARB staff’s proposal will continue to do the same. Outsized incentives for biomethane particularly benefit large livestock operations, which pollute the air and water of the communities who live near them.<sup>13</sup> Troublingly, recent research finds that dairy biomethane incentives from the LCFS are so large that they may enable increases in herd sizes even as dairy demand decreases.<sup>14</sup> In other words, the LCFS may actually be incentivizing the growth of CAFOs whose main product is not milk, but rather methane that industrial farms can capture and sell as a transportation fuel under the current LCFS framework.

Proponents of the avoided methane credit for biomethane argue that the LCFS is helping clean up emissions from the agricultural sector. But as a transportation fuels program, the LCFS should drive California towards a zero-emissions transportation future – not direct resources to expensive methane digesters that have little to no role in the clean transportation future. Because the LCFS is designed to be a transportation program, it is also not effective at addressing all of the climate, air, and water emissions from CAFOs. To fix the LCFS Program and meaningfully address agricultural emissions, CARB should remove avoided methane crediting in 2024 and open a new proceeding under CARB’s SB 1383 authority to consider separate, dedicated policies to comprehensively address methane emissions from CAFOs.<sup>15</sup>

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<sup>12</sup> See, e.g., CARB Scoping Plan at 190, Advanced Clean Cars II Regulation, and Advanced Clean Fleets Regulation.

<sup>13</sup> See, e.g., Leadership Counsel for Justice & Accountability, Food & Water Watch, Animal Legal Defense Fund, the Center for Food Safety, Institute for Agriculture & Trade Policy, Association of Irrigated Residents, Campaign for Family Farms & the Environment, Central Valley Air Quality Coalition, Center on Race Poverty and the Environment, Valley Improvement Project, Center for Biological Diversity, Friends of the Earth, Central California Environmental Justice Network, Sierra Club California, and Defensores del Valle Central Para el Agua y Aire Limpio; “Comments on Potential Changes to the Low Carbon Fuel Standard Program” (Mar. 15, 2023). Accessible at <https://www.arb.ca.gov/lists/com-attach/115-lcfs-wkshp-feb23-ws-UzIXPgBoVmtXJQNc.pdf>.

<sup>14</sup> E. Merchant, “A Battle Is Underway Over California’s Lucrative Dairy Biogas Market,” Inside Climate News, (Dec. 2023). Accessible at <https://insideclimatenews.org/news/28122023/milking-it-battle-underway-california-dairy-biogas-market/>.

<sup>15</sup> Senate Bill No. 1383 (Lara), Health and Safety Code § 39730.5(b)(1) (2016), [https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill\\_id=201520160SB1383](https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160SB1383).

**2. Hydrogen credited as zero-emission or lower under the LCFS Program should be green, electrolytic hydrogen produced according to the “three pillars” of incrementality, deliverability, and hourly matching.**

The Staff Proposal continues to encourage hydrogen production through the LCFS Program with little attention to the true carbon intensity of production pathways. As demonstrated in Figure 2 above, under the LCFS Program, a refinery can produce polluting hydrogen from fossil gas (which emits harmful local air pollution as well as greenhouse gases), purchase LCFS credits for factory farm gas from anywhere in North America, and then sell their hydrogen on the market with a negative CI. Meanwhile, green hydrogen produced from solar electricity achieves a minimum CI of zero.

NRDC continues to call on CARB to ensure that, where hydrogen is credited as zero-emission or lower in the LCFS Program, it is green, electrolytic hydrogen produced with clean electricity that meets the three pillars of incrementality, deliverability, and hourly matching.<sup>16</sup> This will ensure that hydrogen credited as zero-emission is truly delivering emissions reductions.

- **Incrementality:** Also referred to as additionality, this requires that an electrolyzer be powered by *new* clean energy, thereby ensuring that the electrolyzer does not lead to an increase in fossil fuel combustion on the grid from resource shuffling.
- **Deliverability:** For an electrolyzer to claim that a clean energy project is offsetting its grid electricity consumption by displacing fossil fuels, the clean energy project needs to be delivering power into the same grid where the electrolyzer is located.
- **Temporal matching:** An electrolyzer drawing grid power should only be allowed to claim that its consumption is offset by clean energy during times when this clean energy is actually generating. Therefore, there needs to be a strong correlation, or “temporal matching,” between times of electrolyzer operations and times of clean energy generation. Matching should be demonstrated on an hourly basis from 2028.

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<sup>16</sup> Rachel Fakhry, NRDC blog, “Success of IRA Hydrogen Tax Credit Hinges on IRS and DOE” (December 8, 2022). Accessible at <https://www.nrdc.org/bio/rachel-fakhry/success-ira-hydrogen-tax-credit-hinges-irs-and-doe>.

### **3. CARB’s Staff’s Proposed Measures to Address Biofuel Feedstock Sourcing Fail to Address the Problem of Fungibility**

NRDC and numerous other commenters made a strong recommendation to CARB last year to impose caps on lipid bioenergy feedstocks. The specific reason given in support of that recommendation was that these feedstocks – in particular, virgin oils in the food crop market – are fungible. As explained in NRDC’s 2023 Comment,<sup>17</sup> when large volumes of a feedstock such as soybean oil are diverted to energy production, the shortage created by that diversion will incentivize both additional land being devoted to grow more of the feedstock oil to address the shortage, and increased production of other types of oil that are fungible with the feedstock oil. The most problematic of these fungible oils, as explained, is palm oil, which is associated with large-scale deforestation and the ecological and carbon impacts that ensue. The 2023 Comment cited the extensive research supporting this concern by ICCT and others.

The solutions that CARB offers to this problem of food crop oil fungibility and displacement are incapable of addressing the issue. CARB proposes, first, that the specific feedstocks used in bioenergy refining must be traced to their point of origin and certified as not having caused recent deforestation; and second, that palm-derived fuels be removed from eligibility for credit generation. These proposals fail to address the fundamental challenges of fungibility and displacement.

Regarding the certification requirement, the fact that a particular quantum of oil used in biodiesel production is supply-chain certified says nothing about the degree of *displacement* in the market caused by consumption of that quantum, and the effects of that displacement on the environment. For example, if the Phillips 66 refinery were to process 2.5 million metric tons (MMT) of soybean oil per year,<sup>18</sup> it could certify pursuant to CARB’s Staff Proposal that every

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<sup>17</sup> “NRDC Recommendations for Updates to the Low Carbon Fuel Standard” (June 2023). Accessible at <https://ww2.arb.ca.gov/form/public-comments/submissions/4036>. (“2023 Comment”).

<sup>18</sup> 2.5 MMT is the amount of vegetable oil the Phillips 66 project could consume per year operating at full capacity. J. Martin, “A Cap on Vegetable Oil-Based Fuels Will Stabilize and Strengthen California’s Low Carbon Fuel Standard,” *Union of Concerned Scientists* (Jan. 30, 2024) (“Martin 2024”). Accessible at <https://blog.ucsusa.org/jeremy-martin/a-cap-on-vegetable-oil-based-fuels-will-stabilize-and-strengthen-californias-low-carbon-fuel-standard/#:~:text=The%20California%20LCFS%20has%2C%20since,other%20secondary%20fats%20and%20oils>.



barrel of that soybean oil came from suppliers who had not recently cleared forests to grow the soybeans. But that information would have no bearing on the impact of the additional oil crops that would be planted to *replace* some or all of those 2.5 MMT of oil in the food crop market – which could be soybean oil, palm oil, or any combination of fungible oil crops. The planting of those replacement crops may well have devastating deforestation impacts, and merely certifying that the particular oil used by Phillips 66 was responsibly sourced would disclose nothing about such impacts.

The proposal to prohibit credits from palm oil-derived fuels is similarly ineffectual in the face of fungibility and displacement. The problem identified by ICCT and others is not that palm oil is likely to be used *directly* for bioenergy production. Indeed, as CARB Staff acknowledges in the ISOR, the high CI of palm oil production would effectively preclude it from eligibility already. The problem, rather, is that palm oil may well be grown in significant quantities to *replace* the food crop oils such as soybean oil with which it is fungible where the food crop oils are used in large volumes (as they are or will be in the two Bay Area refinery biofuel conversions).

The CARB Staff Proposal fails to take the one step that has the potential to reduce the incidence of palm oil being used as a bioenergy feedstock: requiring supply train tracking for used cooking oil. By requiring tracking only for crop- and forestry-based oils, CARB staff's proposal would exacerbate the existing risk that suppliers will try to pass off virgin palm oil as used cooking oil. This risk is particularly high given that renewable diesel producers are importing used cooking oil – or perhaps purported used cooking oil – from around the world.<sup>19</sup>

CARB's failure thus far to act in a meaningful manner to curb harmful lipid feedstocks is occurring against the background of unexpectedly high bioenergy production and consumption rates and worsening associated impacts, with information continuing to emerge consistent with studies cited in the 2023 Comment. Biodiesel consumption for the first half of 2023 ran well ahead of projections, at a level that CARB modeling did not anticipate prior to 2037. Soybean oil has been a fast-growing feedstock of choice in the renewable diesel industry, prompting

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<sup>19</sup> *Ibid.* See ICCT, U.S. Biofuel Demand and the Potential for Used Cooking Oil from Major Asian Exporting Countries, ICCT February 2023, available at [https://theicct.org/wp-content/uploads/2023/02/US-UCO-potential\\_fs\\_final.pdf](https://theicct.org/wp-content/uploads/2023/02/US-UCO-potential_fs_final.pdf).

investments in US soybean crush capacity instead of exports of whole soybeans to Asia – creating a high risk that the diverted soybeans will be replaced in Asia by soybeans as the cheapest substitute.<sup>20</sup> Aligned with this trend, the Phillips 66 refinery in Rodeo, a potentially enormous user of soybean oil feedstock, has approached completion of its bioenergy conversion project and is slated to begin production this quarter. This one facility – out of the many potentially supported by the LCFS – could potentially consume roughly half of the soybean oil exports of the entire nation of Argentina, the world largest soybean oil exporter.<sup>21</sup> And in keeping with concerns about these trends, recent analysis suggests that consumption of food crop oils in bioenergy production has already contributed to the global food crisis.<sup>22</sup>

These trends create an urgent need to isolate and analyze the potential impact of these specific trends in oil crop consumption to produce bioenergy. CARB, unfortunately, has not yet done that. The analysis of Alternative 1 lumps together feedstock caps with multiple other different potential policy choices and analyzes them collectively. It is impossible to discern from this collective analysis how specifically feedstock caps would affect indirect land-use change and other potential environmental impacts associated with food crop oil production.

We call on CARB to analyze the carbon and ecological impact of feedstock caps separately and in isolation from other types of policy measures, including but not limited to a re-evaluation of CI scores associated with lipid feedstocks; and develop appropriate caps on such feedstocks based upon that analysis. The analysis must take into account not only direct impacts of consumption of particular volumes of lipid feedstock for energy production, but also the indirect and substitution impacts that result from the fungibility of the lipid feedstocks. All such analysis, including modeling results, should be made publicly available with an opportunity for comment before any decision is finalized.

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<sup>20</sup> E. Usset, “High crush margins drive rapid expansion,” *FarmProgress* December 20, 2023, available at <https://www.farmprogress.com/soybean/high-crush-margins-drive-rapid-expansion>.

<sup>21</sup> *Ibid.*

<sup>22</sup> J. Glauber and C. Hebebrand, “Food versus Fuel v2.0: Biofuel policies and the current food crisis,” *International Food Policy Research Institute* April 11, 2023, available at <https://www.ifpri.org/blog/food-versus-fuel-v20-biofuel-policies-and-current-food-crisis>.

**4. Staff recommendations continue to provide LCFS credits to projects that use captured CO<sub>2</sub> to stimulate more oil production, at odds with California’s climate goals and state law.**

Currently, projects that capture CO<sub>2</sub> and then inject the CO<sub>2</sub> into oil wells to stimulate more oil production – a process known as CO<sub>2</sub>-enhanced oil recovery – are eligible for LCFS credits. The Staff Proposal does nothing to change this status quo. NRDC and numerous other parties have urged CARB to eliminate this practice, in line with SB 1314, which finds that incentivizing CO<sub>2</sub>-enhanced oil recovery is incompatible with California’s climate goals.<sup>23</sup> We continue to ask CARB to end this counterproductive practice by removing LCFS credits for projects that utilize captured CO<sub>2</sub> for enhanced oil recovery.

**5. Continue and Enhance the Electric Transportation Provisions in the LCFS**

The new LCFS should continue providing credits for various types of electric transportation, including electric forklifts and light duty vehicles, and should expand incentives for medium and heavy duty (MHD) charging and electric vessels, aircraft, and off-road equipment. Electric transportation technologies are critical to cost-effectively reach California’s climate targets while reducing tailpipe emissions and related impacts to communities, and the LCFS should support their deployment.

*EDU Credit Generation*

The current structure of credit generation, whereby electric distribution utilities earn credits for residential charging, owners of the charging equipment earn the nonresidential credits, and various parties can earn incremental credits, is appropriate and should remain unchanged.<sup>24</sup> If CARB finalizes the proposed provision for owners of charging stations<sup>25</sup> at non-reserved parking spaces at multi-family residences to become credit generators, CARB should place reliability and consumer protections on these charging stations so that the customer experience is improved compared to today. For example, this could include reporting requirements with protections

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<sup>23</sup> Senate Bill 1314 (2022), § 2 (codified at Cal. Pub. Res. Code § 3132).

<sup>24</sup> Examples of non-residential credits include charging of light-duty, medium-duty, heavy duty and non-road vehicles away from home, fixed guideway electrification, and fleet charging of vehicles, marine vessels, material handling equipment, aircraft and similar non-road equipment.

<sup>25</sup> Or their designee such as a charging station provider or operator

against exorbitant charges on EV drivers (i.e., maintaining low operating costs), as well as a high degree of uptime.

We support many of the new proposed provisions on electric distribution utilities (EDUs), but recommend a few changes. While under the proposal, different EDUs are likely to offer LCFS rewards to reduce the purchase or lease price of new and used EV purchases for low-income individuals, EDUs should be required to have the identical eligibility rules in order to minimize confusion for consumers. The proposed five percent cap on administrative costs is premature, particularly for programs focused on outreach to under-served communities, and should instead look to the CPUC definitions and percentages. For example, the current ten percent cap could continue, with the regulatory amendments allowing the Executive Officer to lower it after workshops to examine the details (e.g., impact on small vs large EDUs, impact of credit prices, fixed vs. variable costs, and role of marketing, education and outreach on programs). We also recommend incentives be provided to encourage smaller EDUs to opt into the LCFS so that all areas can be served.

*Medium and Heavy-Duty Fast Charge Infrastructure Program*

We support many of the provisions in the proposed MHD Fast Charge Infrastructure (FCI) program. Unfortunately, the program rules are inadequate to maximize the potential business case for infrastructure, including near-term use cases such as drayage, short-haul and delivery trucks. While public charging locations are the focus of the MHD FCI program, more favorable rules are needed to help shared depots and fleets which struggle to find grid capacity, favorable zoning, permissive leases and sometimes land. Specially, LCFS should allow locations anywhere in California especially for shared depots, or within 5 miles from a corridor rather than just 1 mile. Sites should be able to have a mix of charging levels to meet different customer needs and be as large as 15 MW. Sites should also be allowed to be as large as 100 connectors to allow for future scaling as seen on the light-duty charging infrastructure side. Single fleets should also receive the same credit formula as public locations and shared depots. Finally, we also recommend the proposed cap on prior quarter deficits be raised to 5% based on the California

Energy Commission’s analysis.<sup>26</sup> In this nascent stage, we need to focus more on near-term use cases. CARB has time to do course corrections in a few years in the next LCFS rulemaking.

#### *Light-Duty Fast Charge Infrastructure Program*

The LCFS has helped to spur the build-out of the initial, public-access fast-charging infrastructure needs for passenger vehicles as the state transitions to 100% Zero Emission Vehicle requirements by 2035. Based on discussions with numerous charging infrastructure providers, the FCI provisions have been critical for improving the business case for public fast charging stations. But we must continue to scale up public-access to charging infrastructure even more quickly. The FCI provisions that provide capacity credits for direct current fast charging (DCFC) for light-duty (LD) vehicles under the current program rules (e.g., cap of 2.5% of prior quarter deficits, 2.5 MW sites and locations statewide) should continue to 2035. The proposed LD FCI program ending in 2030 (e.g., cap of 0.5% of prior quarter deficits, four chargers per site, 1 MW per site and limited locations) should be rejected. Reliability and interoperability requirements should be added as soon as possible.

#### *Including Other Categories of Electric Transportation*

Finally, CARB should allow more types of electric transportation technologies to earn credits in the LCFS. Currently other fuels can earn credits for most end-use applications, but many types of electric vessels, aircraft, and off-road equipment cannot because they lack an approved Energy Economy Ratio (“EER”). Companies investing in emerging electric technologies, many of whom are start-ups, do not have the expertise and funds to go through the detailed application to CARB for an EER. The solution is for CARB to establish conservative default EERs (e.g., 3.0) in LCFS Table 1 that can be used by these emerging electric transportation technologies. This default set of EERs would incentivize electrification in hard-to-reach electric transportation applications such as mining equipment, agricultural equipment, forest equipment, boats, marine vessels,

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<sup>26</sup> According to the CEC’s AB 2127 analysis, the state will need about 11,600 MW of MHD charging by 2030. See <https://efiling.energy.ca.gov/GetDocument.aspx?tn=247323> for November 2022 CEC workshop for more detail. We believe the proposed MHD FC program will deliver less than 1/10<sup>th</sup> of that need. The sum of the total MHD charging capacity based on this forecast was calculated to be 2,900 MW and 11,600 MW by 2025 and 2030, respectively, by taking the sum-product of the number of chargers and their respective power rating. See AATE primary scenario, Appendix H, Table H-1.

ferries, aircraft, locomotives, tow-tractors, sweepers and other off-road equipment. In addition, because a 3.0 EER is not optimal, some industries would still be motivated to submit an application to CARB in order to establish a higher, more favorable EER. We are also supportive of excluding from this default EER certain end-uses such as golf carts and indoor sweeper/scrubbers that are already electric. We also support the Earthjustice proposal for changing the fixed guideway crediting so that they receive a larger credit for this type of electric transportation including their pre-2010 projects, and for a “VMT multiplier” for zero-emission transit and school bus projects, as both of these serve a critical public need for priority communities. Supporting the development of clean, electric transportation technologies is essential to meeting California’s climate goals while reducing air pollution and health harm to vulnerable communities.

## 6. Conclusion

Numerous environmental justice and environmental organizations, alongside hundreds of public commenters, have called on CARB over the past year to improve the LCFS Program in alignment with California’s urgent climate and air quality objectives. The LCFS Program can serve as a critical tool to accelerate the transition to electric vehicles and zero-emissions heavy-duty transportation in a way that delivers meaningful benefits to communities – but only if CARB addresses the distortionary policies that continue to undermine the program.

Sincerely,

**Kiki Velez**

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