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Re: Comments on November 9, 2022, Workshop

Summary of Earthjustice Recommendations

1. Introduction: CARB Must Reform the LCFS to Align with the State's Climate and Environmental Justice Objectives.
2. CARB Should Hold At Least One Workshop Specifically on Environmental Justice, With the Goal of Designing an EJ Alternative for the SRIA.
3. Staff Should Explore Additional Pathways for Restricting and Phasing Out Crop-Based Biofuels.
4. CARB Must Update the CA-GREET Model to Reflect Best-Available Science on Methane Leakage.
5. No New Biomethane Fuel Pathways Should Receive Avoided Methane Credit Starting January 1, 2024.
 - a. CARB's Authority to Directly Regulate Livestock Methane Emissions Render Avoided Methane Credit Unjustified Beyond January 1, 2024
 - b. Awarding Avoided Methane Credit to Unregulated Polluters Harms Communities of Color in California while Undermining State Transportation Goals.
6. If CARB allows book-and-claim accounting for biomethane, it should adopt environmental integrity requirements that are at least analogous with the requirements for low-CI electricity.
7. Consistent with the California Public Utilities Commission, Require Existing and Future Biomethane Projects to Affirmatively Demonstrate No Adverse Air or Water Impacts.
8. To Accelerate Deployment of Medium- and Heavy-Duty Charging Infrastructure, Allow Infrastructure Crediting Pool Up to 10% of Deficits.
9. CARB Should Shift Toward 100% of Holdback Credits Serving Low-Income or Disadvantaged Communities.
10. HRI Funding Should be Restricted to Refueling Stations that Are Consistent with SB 1505 – Meaning They Dispense At Least 33.3 Percent Green Electrolytic Hydrogen.

Appendix A: Sample of Projects Applications with Avoided Methane where Actual Baseline Was Methane Capture for Onsite Combustion

1. Introduction: CARB Must Reform the LCFS to Align with the State's Climate and Environmental Justice Objectives

Earthjustice strongly supports California's goal of achieving carbon neutrality and attaining safe air quality as soon as possible, and in a manner that puts environmental justice at its center. Combustion in the transportation sector is the largest source of greenhouse gas emissions, smog-forming NOx pollution, and disparity in criteria air pollutant exposure. Accordingly, there is no realistic path to achieving our State's goals that does not require a near-total shift to zero emission transportation. This recognition is echoed across State climate and transportation policy. For instance:

- The California Air Resources Board's ("CARB") entire suite of regulatory actions on mobile sources is focused on eliminating air pollution and advancing the transition to zero emissions.
- CARB's Mobile Source Strategy – the State's comprehensive plan for how the transportation sector will comply with the State's obligations under the federal Clean Air Act – points to the need for even faster rates of electrification if attainment in the most polluted air basins is to be met.
- The California Public Utilities Commission ("CPUC"), in denying requests by utilities to purchase natural gas trucks, recognized that "California's express policy is to meet [the State's GHG reduction] goal through widespread transportation electrification."¹
- In another decision eliminating gas line subsidies for methane refueling stations, the CPUC also pointed to its sister agency, the California Energy Commission's ("CEC") which it notes "has shifted focus significantly since 2019 to heavily prioritize zero emission vehicles (ZEVs) over near zero emission vehicles."²
- The CEC's 2022-2023 Investment Plan Update for the Clean Transportation Program, allocated 95% of its record investment toward ZEVs.³
- The State Legislature's clear intent in SB 350 has been to achieve rapid decarbonization through widespread transportation electrification.
- The Governor's Executive Order N-79-20 calls for an end to the sale of internal combustion engine vehicles by 2035, and that by 2045, all vehicles on the road are zero-emission everywhere feasible.

We are therefore disappointed that the LCFS continues to counterproductively incentivize fleet and vehicle owners to adopt dead-end decarbonization strategies that rely on combustion. In 2019, 81.3 percent of LCFS credits "were granted for biofuels, including biomethane, ethanol, biodiesel, and renewable diesel."⁴ The additional fraction of hydrogen funded through LCFS is almost entirely produced from the polluting process of reforming fossil gas near refinery communities.

If the Air Resources Board is to deliver on its mandate of "protecting the public from the harmful effects of air pollution," then it cannot justify such lopsided support for fuels that must be burned in a sector where zero-emission alternatives are not only available, but superior.

This rulemaking presents an unmissable opportunity for CARB to align the LCFS with the goals of rapid, widespread transportation electrification. Earthjustice believes there are several opportunities to reign in over-generation of credits from fuel sources that fail to serve either our climate or air pollution

¹ CPUC, D.19-09-051 at 397-98.

² CPUC, D.22-09-026 at 55.

³ Just \$10 million, or less than 3% of the \$2.9 billion, will be dedicated to low carbon fuels in 2022-2023.

⁴ CEC, 2022-2023 Investment Plan Update for the Clean Transportation Program (Nov 2022) at 70.

goals, while strengthening the program’s focus on speeding the transition to zero-emissions. Unfortunately, in the scenarios presented at the November 9th workshop, Staff offered only partial and unreasonably postponed tweaks that would largely leave fundamental problems in the program unaddressed. Below we explain the necessary and swift corrections needed to align the LCFS with the State’s commitments. At a minimum, we urge CARB staff to ensure these changes are reflected in one of the alternatives used for the Standard Regulatory Impact Assessment (SRIA).

2. CARB Should Hold At Least One Workshop Specifically on Environmental Justice, with the Goal of Developing an Environmental Justice Alternative for the SRIA.

It is vital that CARB Staff work closely with the environmental justice (“EJ”) community to understand their priorities and embed their perspectives in the regulatory alternatives that will be assessed as part of the rulemaking. The LCFS is a complex policy covering multiple energy sources and feedstocks, each presenting unique risks and concerns for EJ and tribal communities. The standard public workshop process is insufficient to provide necessary engagement with these communities and ensure their perspectives are reflected in the rulemaking process.

In each of the past pre-rulemaking workshops that Earthjustice has participated in (including the most recent on November 9th), participation is overwhelmingly lopsided toward industry and trade association representatives, with little representation from public interest stakeholders. This is not surprising – workshop presentations and even their announcement summaries are full of acronyms and jargon that stakeholders without prior experience with the LCFS would find difficult to follow. The most recent workshop was mostly comprised of over 3 hours of public comment virtually entirely from industry stakeholders. This is not a forum that will enable rich engagement from communities most impacted by both California’s pollution crises and the industries the LCFS subsidizes. Many of the fuels supported by the LCFS were vocally opposed by climate and environmental justice groups throughout the Scoping Plan process,⁵ and it would be a mistake to treat a lack of EJ engagement here as any tacit sign of consent.

To help correct this imbalance and promote authentic engagement from affected communities in the LCFS rulemaking process, CARB should host at least one public workshop specifically intended to discuss EJ concerns related to the LCFS. The goal of this workshop should be to:

- Build organizations’ capacities to engage in the remainder of rulemaking process and work from a common set of facts;
- Listen to communities’ concerns related to the current LCFS program and the proposed scenarios; and
- Develop a scenario that can be used in the SRIA to reflect environmental justice communities’ desired goals and objectives for the program.

3. Staff Should Explore Additional Paths for Phasing Out or Restricting Crop-Based Biofuels.

We appreciate that CARB has acknowledged stakeholders’ concerns related to the sustainability of biofuels. The devastating impacts crop-based biofuels pose for forests and other critical ecosystems, endangered species, food costs and food insecurity, indigenous communities, and the safety of environmental activists are well-documented.⁶ At present, it is unclear how Staff’s proposals in the

⁵ See, e.g. CEJA, “Press Release – 73 Organizations Slam CARB Climate Blueprint” (June 2, 2022) <https://caleja.org/2022/06/press-release-73-organizations-slam-carb-climate-blueprint/>.

⁶ See, e.g. Peter Fairley, How to Rescue Biofuels from a Sustainable Dead End, *Nature* (Nov. 16, 2022) <https://www.nature.com/articles/d41586-022-03649-w>.

workshop presentation to “limit” crop-based biofuels would remedy these problems. We propose Staff examine both categorical exclusions and declining caps on crop-based biofuels.

First, we continue to urge Staff to categorically exclude certain crop-based biofuels that have been found to cause deforestation in fragile ecosystems, including soybean oil, as other jurisdictions have.⁷ A recent report found that increased demand for soy is driving the loss of vast swaths of the Amazon rainforest, a vital carbon-sink, and pushing the entire ecosystem closer to collapse.⁸ Soybean oil’s use in fuel markets is growing rapidly, partially in response to bans on palm oil. A fifth of all soy oil produced in 2020 went toward biofuels, a threefold growth in the sector since 2005.⁹ California policy should not encourage soy expansion, which continues to directly threaten sensitive ecosystems and indigenous communities across Brazil.¹⁰

Second, we urge Staff to update its risk assessments of all other feedstocks to incorporate best available information on both ecological and social impacts. When crops are diverted to fuel instead of food, the price of the crop rises.¹¹ A rise in crop prices will entail some combination of 3 different outcomes: more land would need to be diverted to agriculture, practices on existing cropland must intensify to increase yield (i.e. use additional fertilizer), or crop demand will be reduced. The former two options would cause increased emissions, though currently, the land use change model in the LCFS assumes that higher prices will reduce demand.¹² **In practice, reduced demand due to higher crop prices means that the poorest people in nations with least discretion to pay more for food would eat less and be pushed into hunger.** To examine the emissions effects of theoretically foreclosing this grim outcome, researchers fixed consumption in the GTAP model to control against any increase in food insecurity. They found that the impact on deforestation doubled, and land use change emissions increased by 41 percent (or an additional 10 gCO_{2e}/MJ to the iLUC value for ethanol).¹³

Moreover, increased consumption of any lipid-based biofuels risks negative indirect effects beyond that particular crop. For example, new studies point out that increased consumption of soy biofuels in the United States have indirectly increased demand for palm oil to substitute in cooking.¹⁴ Even increased consumption of waste and used cooking oils can divert them from livestock feed or consumer products

⁷ Belgium, for example, recently moved to ban soy oil from its biofuels market. Mongabay, “Belgium bans biofuels made from palm oil, soy” (Apr. 13, 2021) <https://news.mongabay.com/2021/04/belgium-bans-biofuels-made-from-palm-oil-soy/>.

⁸ Maik Marahrens, Fueling Our Crisis (Nov. 4, 2022) https://www.transportenvironment.org/wp-content/uploads/2022/11/Soy_Study_TE_2022_final_embargoed_Friday_4_Nov-1.pdf.

⁹ Id. at 3.

¹⁰ See, also Peter Fairley, How to Rescue Biofuels from a Sustainable Dead End, *Nature* (Nov. 16, 2022) <https://www.nature.com/articles/d41586-022-03649-w>.

¹¹ See, generally, Chris Malins et al., A Guide for the Perplexed to the Indirect Effects of Biofuel Production (Sept. 2014) https://theicct.org/sites/default/files/publications/ICCT_A-Guide-for-the-Perplexed_Sept2014.pdf.

¹² CARB, Low Carbon Fuel Standard Public Workshop (July 7, 2022) at slide 34 https://ww2.arb.ca.gov/sites/default/files/2022-07/LCFSWorkshop_Presentation.pdf.

¹³ Thomas Hertel et al., Effects of US Maize Ethanol on Global Land Use and Greenhouse Gas Emissions: Estimating Market-Mediated Responses *BioScience* (Mar. 2010) <https://doi.org/10.1525/bio.2010.60.3.8>.

¹⁴ 8 Fabio Gaetano Santeramo and Stephanie Searle, “Linking Soy Oil Demand from the US Renewable Fuel Standard to Palm Oil Expansion through an Analysis on Vegetable Oil Price Elasticities,” *Energy Policy* 127 (April 1, 2019): 19–23, <https://doi.org/10.1016/j.enpol.2018.11.054>.

that end up needing substitution.¹⁵ And producer-level fraud is difficult to prevent.¹⁶ Yet CARB’s current iLUC analysis assumes waste feedstocks have zero or small indirect emissions.¹⁷ And as explained above, risks from crop-based biofuels go beyond GHG emissions. For example, a 2022 review of corn-based ethanol under the U.S. Renewable Fuel Standard found that, in addition to increasing the carbon intensity to 24% above the baseline of fossil gasoline, the RFS led to “sizeable increases in associated environmental impacts, including nitrate leaching, phosphorus runoff, and soil erosion.”¹⁸ Additional guardrails on all crop-based biofuels are therefore necessary.

With a revised risk assessment that factors in both updated iLUC uncertainties and more comprehensive social and ecological factors, CARB could sort feedstocks of different origins into different “buckets” of high, medium, and low risk. Caps on these feedstocks could be set at 2019 levels. The higher the risk profile of the feedstock, the more rapidly the “cap” should decline, with the goal of phasing high-risk sources down to zero. A declining cap on higher-risk pathways would help hedge against the wide uncertainty ranges in iLUC from virgin biofuels and introduce precautions on waste lipid fuels where risks are likely underestimated. This mechanism would also shift the LCFS’s support toward investment in sustainable, alternative fuels from genuine waste streams with verifiable origins in the long-term, while funding readily available, low-risk alternatives that best align with State goals: local renewable electricity.

4. CARB Must Update the CA-GREET Model to Reflect Best-Available Science on Methane Leakage.

As we stated in previous comments, continuing to rely on the outdated methane leakage figures discredits the integrity of the LCFS. The November 9th workshop presentation did not indicate any intention by Staff to revise its deficient methane leakage targets. As CARB has acknowledged, a complete lifecycle CI “takes into account GHG emissions associated with all of the steps of producing, transporting, and consuming a fuel.”¹⁹ Yet CARB continues to under-count or omit leakage from several of these stems. Currently, CA-GREET assumes the upstream leakage for conventional natural gas is 1.14% (or 1.21% for shale gas). Across top-down (aircraft and satellite) studies, the median emission rate of methane leakage from production, storage, and transport of gas (“upstream and midstream”) is 2.6%.²⁰ These estimates are significantly higher than official values relied on by the GREET model, which rely on the oil and gas industry’s self-reported estimates to EPA. CARB should revise the GREET model with the best available science on methane leakage – both for the fossil gas and biogas industries. Recent assessments have found that biogas and biomethane supply chains leak twice as much methane as current International

¹⁵ 9 Jane O’Malley, Stephanie Searle, and Nikita Pavlenko, “Indirect Emissions from Waste and Residue Feedstocks: 10 Case Studies from the United States” (Washington, D.C.: ICCT, 2021), <https://theicct.org/publication/indirect-emissions-from-waste-and-residue-feedstocks-10-case-studies-from-the-united-states/>.

¹⁶ See, e.g. ICCT, Setting a Lipids Fuel Cap Under the California Low Carbon Fuel Standard Appendix B: Waste Oil Fraud (Aug 2022) <https://theicct.org/wp-content/uploads/2022/08/lipids-cap-ca-lcfs-aug22.pdf>.

¹⁷ CARB, ISOR – Proposed Re-Adoption of the LCFS (Dec. 2014) at II-12 <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2015/lcfs2015/lcfs15isor.pdf>.

¹⁸ Tyler J. Lark et al., Environmental Outcomes of the US Renewable Fuel Standard (Feb. 14, 2022) <https://doi.org/10.1073/pnas.2101084119>.

¹⁹ CARB, LCFS Basics with Notes (Sept. 2020) at 5 <https://ww2.arb.ca.gov/sites/default/files/2020-09/basics-notes.pdf>.

²⁰ This median estimate excludes the two highest satellite-based estimates as possible outliers. When all studies are included, the median emission rate is 3.7%. Robert Howarth, Methane Emissions from the Production and Use of Natural Gas (Dec. 2022) at 2 https://www.research.howarthlab.org/documents/Howarth2022_EM_Magazine_methane.pdf.

Energy Agency estimates.²¹ The updated CA-GREET assumptions can and should apply to existing fuel pathways under their 10-year crediting period.²²

5. No New Biomethane Fuel Pathways Should Receive Avoided Methane Credit Starting January 1, 2024

We appreciate that Staff will consider the need to phase out avoided methane crediting from biomethane projects. Unfortunately, even in the scenarios where Staff offers to take any action, avoided methane crediting is allowed until 2030. With the 10-year crediting period, this means that projects will continue to receive distorted and excess credits until 2040. **There is no climate or environmental justification for allowing a known accounting defect²³ to continue this long.**

a. CARB's Authority to Directly Regulate Livestock Methane Emissions Render Avoided Methane Credit Unjustified Beyond January 1, 2024

The only rationale CARB staff provide for delaying reform by nearly two decades is the “intent of encouraging development of methane-reducing projects in the near-term to help achieve the SB 1383 methane reduction target.”²⁴ As an initial matter, approximately 70% of the RNG credited under the LCFS was generated out of state, meaning it did nothing to support California’s goal of reducing its in-state short lived climate pollutions.²⁵ Second, to the extent that reducing short-lived climate pollution in California is a policy priority, there are more direct options for tackling them than trying to indirectly incentivize capture by pretending to offset emissions from our transportation pool.

Under SB 1383, CARB has been directed by the Legislature to consider regulations for livestock operations that “shall be implemented on or after January 1, 2024” following determinations (which CARB has not yet undertaken).²⁶ As CARB has acknowledged, projects developed after regulations are in effect would not be eligible for an LCFS carbon intensity that reflects avoided methane emissions, “as the methane reductions associated with those projects would not be additional to the Regulation.” Consistent with its regulatory authority, CARB should directly regulate methane from dairy manure lagoons by no later than January 1, 2024. **At a minimum, CARB should no longer grant these entities the assumption that their methane could otherwise be freely vented in calculating emissions baselines beyond this date.**

The fact that CARB has so far failed to initiate a rulemaking under SB 1383 does not mean that they are infeasible and should not justify the continued presumption that methane will freely be vented into the atmosphere. Methane from dairies or other facilities, just like landfill gas, can be captured and controlled by use of flare or thermal oxidizer. The generation of methane can be avoided entirely in the first instance

²¹ Semra Bakkaloglu et al., Methane Emissions Along Biomethane and Biogas Supply Chains Are Underestimated (June 2022) <https://www.sciencedirect.com/science/article/pii/S2590332222002676>.

²² As CARB has stated, credit generation can vary during the crediting period for a project, including through “the adoption of an updated version of the CA-GREET model.” CARB, LCFS Frequently Asked Questions – Credit Generation for Reduction of Methane Emissions from Manure Management Operations (Sept. 16, 2020) at 3 https://ww2.arb.ca.gov/sites/default/files/2020-09/2020_dairy-swine-manure_crediting_faq.pdf.

²³ See *Association of Irrigated Residents et al.*, PETITION FOR RULEMAKING TO EXCLUDE ALL FUELS DERIVED FROM BIOMETHANE FROM DAIRY AND SWINE MANURE FROM THE LOW CARBON FUEL STANDARD PROGRAM (Oct. 27, 2021) https://ww2.arb.ca.gov/sites/default/files/2022-01/2021.10.27%20Petition%20for%20Rulemaking%20AIR%20et%20al_.pdf

²⁴ See, CARB, Supplemental Workshop Frequently Asked Questions Document (Dec. 2022)

²⁵ Stephanie Searle et al., ICCT Comments on Public Workshop to Discuss Potential Changes to LCFS (Aug. 8, 2022) at 9 <https://www.arb.ca.gov/lists/com-attach/70-lcfs-wkshp-jul22-ws-BWZSNVwCUGJWMIBj.pdf>.

²⁶ SB 1383, Lara. Short-lived climate pollutants: methane emissions: dairy and livestock: organic waste: landfills.

through alternative manure management practices including solid storage and handling. More fundamentally, emissions could be avoided by transitioning away from the relatively recent rise in unsustainable management practices such as mass herd consolidation and confinement that, according to the EPA, are now causing the rise in methane.²⁷ These regulations could deal with issues of cost-effectiveness or leakage by only targeting the largest operators, or phasing in requirements over time.

Any combination of these outcomes can and should be demanded of mega-polluting dairies. Yet despite the fact that the State is not on track to meet its methane reduction goals²⁸ and the Legislative mandate to consider regulating methane pollution from these facilities, CARB has failed to act. If by January 1, 2024, dairies continue to vent their methane into the atmosphere as a baseline, the only entity responsible for this outcome would be CARB itself. It would be improper for CARB to rely on distorted LCFS credits to entice polluters to control their methane emissions instead of exercising its legal authority to regulate methane, which is necessary to protect the environmental justice communities that are overburdened by industrial agriculture pollution.

It is particularly troubling that CARB is considering allowing industry to take credit for avoided methane in pathways approved through 2030 *and* allowing entities to use those pathways for ten years, as this would create a carbon accounting framework that assumes CARB will not regulate agricultural methane pollution until 2040.

b. Awarding Avoided Methane Credit to Unregulated Polluters Harms Communities of Color in California while Undermining State Transportation Goals.

Continuing the status quo past the January 1, 2024 date by which CARB is empowered to regulate dairy methane emissions will perpetuate the harms of the LCFS program. This practice has resulted in disproportionately rewarding the largest livestock operations with the most severe local impacts for disadvantaged communities in California, while at the same time creating the false impression that methane capture equates to carbon removal from California's transportation system.

For example, LCFS currently counterproductively encourages the purchase of CNG trucks even while the State has clearly communicated the need for a total shift to zero-emissions. The negative CI for biomethane creates the appearance that a mixed fleet of CNG and diesel trucks is superior to a fleet of all zero-emission trucks. And while California has stated its intention to increase new, green hydrogen production,²⁹ this pathway will remain far *less* valuable under the LCFS than continuing to use fossil gas derived hydrogen coupled with the purchase of biogas credits.

At the same time, this practice has disproportionately benefitted the economic viability of the largest, most polluting dairy operations, at best perpetuating and at worst accelerating trends of industry consolidation, thus intensifying concomitant pollution. As the USDA has explained, industrial dairy operations maximize their profits by consolidating herd sizes, relying on intensified animal confinement, and importing purchased feed.³⁰ The EPA, in turn, has explicitly named the relationship between profit-

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²⁸ CARB, Analysis of Progress toward Achieving the 2030 Dairy and Livestock Sector Methane Emissions Target (Mar. 2022) at 9 <https://ww2.arb.ca.gov/sites/default/files/2022-03/final-dairy-livestock-SB1383-analysis.pdf>.

²⁹ Governor's Office of Business and Economic Development, "California Formally Announces Intention to Create a Renewable Hydrogen Hub" (May 18, 2022) <https://business.ca.gov/california-formally-announces-intention-to-create-a-renewable-hydrogen-hub/>.

³⁰ James Macdonald et al., USDA Economic Research Service – Changing Structure, Financial Risks, and Government Policy for the U.S. Dairy Industry (Mar. 2016) at 13-16 <https://www.ers.usda.gov/publications/pub-details/?pubid=45522>.

maximizing consolidation and confinement and the shift to liquid manure management systems, which have caused methane emissions to rapidly increase within the sector in recent decades.³¹

Rewarding the practices that generate this methane not only entrenches it, but risks perversely increasing it. Environmental justice communities living adjacent to dairy operations have pointed out that following the installation of digesters, operations have applied for permits to increase herd sizes.³² Recent research commissioned by the Union of Concerned Scientists found that for the largest dairies, the value of LCFS's subsidies could be as large as the value of the milk itself.³³ Even reporting by trade publications for the dairy industry have found that digesters likely provide market signals that lead to increased consolidation.³⁴ The article singles out negative CI values as having "attracted energy companies, private equity firms, industrial conglomerates, and others looking to invest in digester projects."³⁵ They estimate that if profits are \$2 to \$3 per hundredweight, they likely exceed profits from milk: "at that point, milk has become the by-product of manure production."³⁶ Given the challenge of smaller dairy farms participating in digester projects, "the returns from energy generated by large farms may accelerate the growth of the mega-dairy farms." Moreover, while drops in prices and demand historically led to reduced herd sizes (and concomitant emissions), the incentive or contractual obligation to supply manure to digesters means natural herd size reductions would be limited.³⁷ Digesters thus risk counterproductively incentivizing *additional, intentional* methane production.

One crucial environmental concern is that the LCFS encourages agricultural practices that increase ammonia emissions. At least four studies published between 2011 and 2018 concluded that digestion can result in increased ammonia emissions from digestate storage.³⁸ CARB should focus on reducing ammonia pollution because of its severe health consequences. A new study quantified that ammonia emissions from livestock waste and fertilizer application in the United States cause 12,400 deaths a year, with primary PM2.5 emissions – largely from livestock dust – causing another 4,800 deaths per year.³⁹ The greatest damages were mainly concentrated in counties located in California's Central Valley, where ammonia emissions alone cause 1,690 deaths per year – the highest of any State.⁴⁰

Rewarding practices that risk increasing emissions of ammonia from unregulated sources of methane continues a pattern of neglecting authority to control emissions that fall most severely on black and brown communities in California. CARB has argued to the EPA that it is not obligated to regulate ammonia

³¹ "In many cases, manure management systems with the most substantial methane emissions are those associated with confined animal management operations where manure is handled in liquid-based systems... , the shift toward larger dairy cattle and swine facilities since 1990 has translated into an increasing use of liquid manure management systems, which have higher potential CH₄ emissions than dry systems." EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2020 (2022) at 5-12 <https://www.epa.gov/system/files/documents/2022-04/us-ghg-inventory-2022-main-text.pdf>.

³² Comments of Leadership Counsel et al., Re: Low Carbon Fuel Standard Public Workshop (Nov. 5, 2020); <https://www.arb.ca.gov/lists/com-attach/98-lcfs-wkshp-oct20-ws-UDIGaVM9V2kCYVUH.pdf>.

³³ See Amin Younes and Kevin Fingerma, "Quantification of Dairy Farm Subsidies Under California's Low Carbon Fuel Standard" (Sept. 2021), <https://www.arb.ca.gov/lists/com-attach/24-lcfs-wkshp-dec21-ws-AHVSNIhVlpXNQRI.pdf>, p. 19

³⁴ Michael McCully, "Energy Revenue Could be a Game Changer for Dairy Farms" (Sept. 23, 2021) <https://hoards.com/article-30925-energy-revenue-could-be-a-game-changer-for-dairy-farms.html>.

³⁵ Id.

³⁶ Id.

³⁷ Id.

³⁸ See, e.g.

³⁹ Nina G. Domingo et al., Air Quality-Related Health Damages of Food (May 2021)

⁴⁰ SI – Appendix, Fig S4 and Table S2

from large sources such as dairies because it does not consider ammonia to be a precursor to PM2.5 formation. However, as the EPA has acknowledged in proposing to disapprove CARB's PM2.5 Plan, CARB's evidence was "insufficient to establish that ammonia does not contribute significantly to PM2.5 levels above the NAAQs in the San Joaquin Valley" and "that it is appropriate to retain the statutory presumption that ammonia must be regulated as a precursor."⁴¹

While CARB has withdrawn its plan, we are disappointed by the agency's ongoing resistance to regulate emissions from some of the largest polluters in the Nation's most polluted air basin. CARB is neglecting to regulate both the ammonia emissions and the methane emissions of large dairies. Instead, CARB risks exacerbating the region's air pollution by offering LCFS subsidies that rely on environmentally harmful management practices that *continue* the production of methane, and risks *increasing* ammonia emissions. This approach evades accountability for polluters and undermines our climate policies, all while jeopardizing the livelihoods of some of California's most disadvantaged communities.

6. If CARB allows book-and-claim accounting for biomethane, it should adopt environmental integrity requirements that are at least analogous with the requirements for low-CI electricity.

The LCFS regulation's book-and-claim provisions allow entities to generate credits for activities that do nothing to contribute to the "fundamental goal" of the LCFS, which is to lower the carbon intensity of transportation fuels used in California.⁴² Eliminating and book-and-claim accounting for biomethane would be necessary to ensure the regulation actually achieves the claimed reductions in the carbon-intensity of California transportation fuels. Sensible deliverability requirements will bring claimed carbon-intensity reductions closer to real carbon-intensity reductions. Aligning the deliverability requirements for electric and biomethane fuels is one clear improvement.

Entities can only take credit for charging electric vehicles with low-CI electricity delivered via the grid if they procure low-CI electricity that is delivered into a California balancing authority, pursuant to bundled contracts of energy and environmental attributes. The current LCFS regulations allows indirect accounting for low-CI electricity delivered via the grid if it is supplied within a California balancing authority or if it meets the requirements of Public Utilities Code section 399.16(b)(1), which includes renewable energy resources that are scheduled for delivery into a California balancing authority or have a contract to dynamically transfer electricity into a California balancing authority.⁴³ This provision effectively limits book-and-claim accounting for electric vehicle fuel to situations where the an entity procures low-CI electricity that actually reduces the emissions intensity of California electricity. The regulation also limits indirect accounting for low-CI electricity to electricity procured via a contract for electricity supply and retires all renewable energy credits ("RECs") associated with that electricity.⁴⁴ This requirement supports the environmental integrity of the claim because unbundled REC procurements generally do not lead to the deployment of additional renewables.

CARB has multiple options for how it can reasonably align the requirements for book-and-claim accounting for biomethane with those for grid electricity used as a transportation fuel. The most straightforward approach would be to allow book-and-claim accounting only for bundled procurements of biomethane that meets requirements that are equivalent to California Renewable Portfolio Standard

⁴¹ EPA, Federal Register Vol. 87, No. 192 (Oct 5, 2022) at 60500.

⁴² CARB, Staff Report: Initial Statement of Reasons (2018) at VII-4.

⁴³ 17 CCR § 95488.8(i)(1)(A).

⁴⁴ *Id.* § 95488.8(i)(1)(B).

(“RPS”) eligibility.⁴⁵ It would be even-handed for CARB to allow book-and-claim accounting for bundled procurements of energy that is consistent with RPS standards, whether that energy is electricity or methane. Biomethane delivered via a common-carrier pipeline is not RPS-eligible unless it is injected into a pipeline “that physically flows within California or toward the generating facility for which the biomethane was procured under the original contract.”⁴⁶ For purposes of the LCFS, the equivalent would be requiring that the biomethane “physically flows within California or toward the [fueling station or hydrogen production facility] for which the biomethane was procured.” The RPS statute also requires a demonstration that capture and injection of biomethane into a common carrier pipeline provides at least one direct environmental benefit to California.⁴⁷ It is appropriate for CARB to demand any claimed biomethane provide tangible in-state benefits, given that electricity users can only claim low-CI electricity that reduces the carbon-intensity of grid electricity in a California balancing area.

Second, CARB can align the requirements for indirect accounting of low-CI electricity and biomethane by requiring biomethane users to show a complete chain of title between them and the biomethane suppliers with whom they enter bundled procurement contracts. In the gas sector, title for gas transfers via the nomination system, which gas pipeline operators also use to balance the supply and demand of gas over the course of a 24-hour “Gas Day.” For instance, if a gas user in PG&E’s territory wants to take title to 1,000 decatherms (“Dth”) of biomethane from a supplier in PG&E’s territory, the gas user would submit a nomination to PG&E to schedule delivery of 1,000 Dth from its supplier into PG&E’s system the next Gas Day. If the gas user’s nomination matches the supplier’s nomination to deliver the gas into PG&E’s system, PG&E will schedule delivery. The process is similar for gas users to procure gas from out-of-state, but with additional links in the title transfer chain, starting with a nomination for delivery from an interconnecting pipeline system into PG&E’s system. California’s major gas utilities can assign a unique identifier to track a quantity of gas as it is traded. Biomethane does not physically transfer into California when an out-of-state biomethane supplier schedules for delivery into a California gas system. Nonetheless, the scheduling system allows the gas distribution companies to balance supply and demand in their system—roughly analogous to how deliveries of renewable electricity into California balancing authorities enable grid operators to balance supply and demand.

The staff proposal to simply require injection of biomethane into a common carrier pipeline in a western state is insufficient to align the rules for biomethane and electricity. Whereas entities can only claim low-CI electricity if that electricity energizes a power grid in California, including all common carrier pipelines in the western United States would allow entities to take credit for biomethane injected into an out-of-state transmission pipeline that flows *away* from California.⁴⁸ Similarly, this policy would enable entities to claim the environmental attributes of biomethane injected into out-of-state gas distribution systems, even though the gas is never nominated for delivery from the local system into a transmission pipeline for delivery into California.⁴⁹ Crucially, the staff proposal also fails to require bundled

⁴⁵ Cal. Public Utilities Code § 399.12.6(b) (requirements for biomethane contracts entered after March 29, 2012).

⁴⁶ § 399.12.6(b)(3)(A).

⁴⁷ § 399.12.6(b)(3)(C).

⁴⁸ In 2012, the Legislative prevented utilities from exploiting a similar loophole in the Renewable Portfolio Standard, aware that they had previously entered contracts for biomethane that flowed away from California. Assembly Committee on Utilities and Commerce Analysis of AB 2196 (Chesbro 2012) (“Many of the actual biomethane contracts executed involve sources that inject gas into pipelines flowing Eastward, i.e., there is no possibility that either the biomethane could actually be delivered into California or that such transactions will have any impact on the supply of natural gas to California.”).

⁴⁹ Biomethane producers in Wisconsin plan to generate LCFS credits by injecting biomethane into the low-pressure gas distribution system of their local gas utility, abandoning their previous practice of using their biomethane to

procurement of biomethane and its environmental attributes. Unbundled procurement of energy and environmental attributes undermines the integrity of claims regarding the use of renewable resources because unbundled credit purchases generally do not cause additional emissions reductions.⁵⁰

CARB staff are considering new deliverability requirements for biomethane that will take effect in 2025.⁵¹ It is unnecessary to delay new environmental integrity requirements past 2024. Staff seek to provide appropriate transition time for changes to the biomethane requirements to avoid stranded assets and support the use of biomethane in other sectors.⁵² As discussed in Appendix A, several recent pathways for out-of-state biomethane have come from facilities that installed digesters years ago to capture biomethane for electricity generation. CARB can rapidly update the LCFS regulation to exclude book-and-claim accounting for biomethane from such facilities without risk of their digesters becoming stranded assets or failing to capture biomethane.

7. Consistent with the California Public Utilities Commission, Require Existing and Future Biomethane Projects to Affirmatively Demonstrate No Adverse Air or Water Impacts.

Dairy CAFOs in California are some of the largest industrial livestock polluters in the country. Only four percent of all dairy facilities have more than 1,000 cows,⁵³ but in California, average herd sizes for dairies producing biogas is upward of 9,000 cows.⁵⁴ In the Central Valley, the percent of Hispanic residents living within three miles of a large dairy CAFO is 1.54 times higher than the percentage of non-Hispanic Whites.⁵⁵ According to the dairy industry's own monitoring report of wells near large farms, every single well has exceeded the maximum contaminant limit for ground water nitrates (10 mg/L).⁵⁶ Contamination has increased every year that the wells have been monitored, including at dairies that have offered to implement sustainable nutrient management plan.⁵⁷ Since 2012, nitrate pollution in groundwater monitored at wells near dairies increased by 16 mg/L, so that the average is 45 mg/L, *over four times the maximum legal limit*. As the report notes, “[g]roundwater near lagoons exhibited the greatest [total nitrogen] concentration increase over the monitoring period.”⁵⁸ These polluters should not be reaping subsidies through the LCFS until they rectify their water pollution violations.

generate electricity. Chris Hubbuch, Wisconsin State Journal, Biogas: Wisconsin utilities partner with farmers to replace fossil gas (July 19, 2022), https://madison.com/news/local/environment/biogas-wisconsin-utilities-partner-with-farmers-to-replace-fossil-gas/article_a88d7d1f-ec1f-56ed-b5c1-d12d2cd3d814.html.

⁵⁰ E.g., Michael Gillenwater et al, Renewable Energy, Additionality of wind energy investments in the U.S. voluntary green power market (Oct. 2013); Anders Bjorn et al, Nature Climate Change, Renewable Energy certificates threaten the integrity of corporate science-based targets (June 2022), <https://www.nature.com/articles/s41558-022-01379-5>.

⁵¹ Staff Workshop presentation at 32.

⁵² *Id.* at 30.

⁵³ See USDA, 2017 Census of Agriculture 23, Tbl. 17 (2019).

⁵⁴ Precise herd sizes can be hard to determine because California treats this as confidential business information.

⁵⁵ Arbor J.L. Quist et al., Disparities of Industrial Animal Operations in California, Iowa, and North Carolina 5 (2022).

⁵⁶ J.P. Cativiela et al., Summary Representative Monitoring Report (Revised*), CVDRMP, at 6 (Apr. 19, 2019), https://www.waterboards.ca.gov/centralvalley/water_issues/confined_animal_facilities/groundwater_monitoring/smr_20190419.pdf.

⁵⁷ Luhdorff and Scalmanini, Central Valley Dairy Representative Monitoring Program Year 10 Annual Report – 2021 (Apr. 1, 2022) at ES3 (Report available upon request from State Water Board Agency at https://www.waterboards.ca.gov/centralvalley/water_issues/confined_animal_facilities/groundwater_monitoring/).

⁵⁸ *Id.* at ES3.

In D. 22-02-025, the CPUC recognized the unique environmental justice harms posed by dairies in California, stating that “[i]nformation provided by [Leadership Counsel for Justice and Accountability and Sierra Club] clearly establishes that many communities in the vicinity of dairies are already disproportionately burdened by environmental pollution, and community members feel strongly that developing RNG at dairies will perpetuate their adverse environmental impacts on the local community, may allow dairies to continue causing pollution (other than GHG emissions) and may facilitate expansion of dairies, even increasing the local environmental burdens.”⁵⁹ The Commission therefore required SoCalGas to “collect information on whether dairies under RNG contracts for [the] pilot program are in compliance with all applicable air and/r water pollution control standards or requirements, describe any incidents of noncompliance, and explain when and how it was or will be resolved.”⁶⁰ In another Decision, the Commission required utilities to ensure livestock and dairy biomethane facilities that contract with a gas utility operate in a manner that does not cause adverse impacts to air and water quality.⁶¹ We believe these are basic and exceedingly reasonable requirements to place on credit-generating facilities that should apply to all new facilities going forward, and be required for every future reporting period under existing credit pathways. CARB should mirror the reasonable environmental justice safeguards adopted by its sister agency and require facilities that fail to affirmatively demonstrate no adverse impacts to local air and water or otherwise be disallowed from continued credit-generation.

8. To Accelerate Deployment of Medium- and Heavy-Duty Charging Infrastructure, Allow Infrastructure Crediting Pool Up to 10% of Deficits.

As CARB begins reigning in over-generation of credits from sources that do not align with the State’s long-term goals, we also urge Staff to explore new opportunities for the LCFS to speed the urgent transition to zero emissions. We appreciate that CARB has recognized the vital importance of electrifying the medium- and heavy-duty vehicle segment, given their outsized impacts on air pollution especially in communities of color.

CARB should explore how to maximize the potential for the LCFS to aid in speeding and scaling the deployment of zero-emission vehicles, including by allowing infrastructure credit pooling up to 10% of deficits. We expect that there will be a rapid uptake of electric trucks, especially as the forthcoming Advanced Clean Trucks and Advanced Clean Fleets come into force in 2024. Charging stations are needed now in order to support the stable launch of these regulations and guarantee rapid emission reductions. Pooling infrastructure capacity credits up to 10% of deficits will help solve the chicken-and-egg challenge of chargers needing a pipeline of utilization to justify the upfront costs. We look forward to working with CARB staff to ensure the LCFS can enable speed and scale in medium- and heavy-duty charging infrastructure deployment.

9. CARB Should Transition 100% of Holdback Credits to Support Disadvantaged and Low-Income Communities.

We appreciate that currently, CARB dedicates at least 50% of revenues from base credits generated by utilities to supporting transportation electrification in disadvantaged and low-income communities. As transportation electrification among more affluent drivers accelerates, and CARB seeks to ratchet up CI targets, the timing is ripe for CARB to shift towards 100% of these revenues going toward bridging the

⁵⁹ CPUC, D. 20-012-022 (Dec. 22, 2020) at p. 37

<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M356/K268/356268059.PDF>.

⁶⁰ Id. at p. 38.

⁶¹ CPUC, D.22-02-025, Ordering Paragraph 9 at p.58 (Available at <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M454/K335/454335009.PDF>).

transportation-electrification “access gap” for low-income and disadvantaged communities. At the cap of \$200 per ton, LCFS credits passthrough roughly 20 cents a gallon. If the CI target is strengthened to 30% in 2030, the passthrough costs to gasoline could become 60 cents per gallon. While zero-emission vehicles offers significant savings in the form of fueling and maintenance over the life of the vehicle, the upfront costs of electrifying is likely to remain out of reach for low income drivers. Because some of these drivers will remain tethered to rising or volatile gas prices, it is reasonable to direct all resulting holdback funds to speed their transition to the savings that more affluent drivers can likely self-finance.

10. HRI Funding Should be Restricted to Refueling Stations that Are Consistent with SB 1505 – Meaning They Dispense At Least 33.3 Percent Green Electrolytic Hydrogen.

One reason that zero-emission hydrogen production has not scaled in California is that CARB has failed to comply with the Legislative mandate to require a certain portion of hydrogen dispensed for vehicle fueling be produced from renewable electric generation resources.⁶² CARB views the LCFS as “a critical part of the state’s efforts to . . . [a]dvance the necessary technology to achieve deep decarbonization across the Californian economy in the long run.”⁶³ Yet the current LCFS regulation provides no meaningful incentive to advance zero-emission electrolytic hydrogen production, which is likely one necessary technology for achieving California’s deep decarbonization goals. This is because industry can generate *more* credits by producing hydrogen from fossil fuels (matched with the environmental attributes of far-off biomethane to create a legal fiction that the producer is using “carbon negative” feedstocks) than by investing in zero-emission technologies.

In addition to quickly ending the regulation’s flawed book-and-claim policies, the upcoming rulemaking should promote technology-advancement for zero-emission hydrogen by only providing HRI incentives to hydrogen fueling stations that are consistent with the Legislative mandate in SB 1505 (Lowenthal). That bill sought to transform the market so that at least 33.3% of the hydrogen used as a motor vehicle fuel be made from the renewable electric resources identified in Section 399.12 of the Public Utilities Code.⁶⁴ To align with the Legislative goal of SB 1505, CARB should limit HRI incentives to fueling stations that dispense no less than 33.3% renewable electrolytic hydrogen.

11. Conclusion

We appreciate CARB’s commitment to tackling the climate and air pollution crises in our state. We look forward to working with Staff and the Board to reform the LCFS so that it can be an effective tool for ambitious, equitable climate action.

Sincerely,

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⁶² California Health and Safety Code §§ 43869(a)(1)(B), -(a)(2)(B).

⁶³ CARB, Staff Report: Initial Statement of Reasons, Public Hearing to Consider Proposed Amendments to the Low Carbon Fuel Standard Regulation and to the Regulation on Commercialization of Alternative Diesel Fuels (2018) at EX-1, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2018/lcfs18/isor.pdf?_ga=2.205314841.827754155.1671471992-466423198.1662166685.

⁶⁴ California Health and Safety Code § 43869(a)(2)(B).

Appendix A: Sample of Projects Applications with Avoided Methane where Actual Baseline Was Methane Capture for Onsite Combustion

Applicant	Project Type	Project Location	Application Posted Date	Original Digester Construction Date	Original End Use	CI
U.S. Venture	Bio-CNG from Dairy CAFO (B&C)	Yellow Jacket Boxler, Varysburg, NY	12/2/2022	2009	Onsite combustion ⁶⁵	-206.88
FirstElement Fuel	Hydrogen from SMR of Dairy Biomethane (B&C)	Dallman East River Dairy, Brillion, Wisconsin	11/28/2022	2012	Onsite combustion ⁶⁶	-308.67
FirstElement Fuel	Hydrogen from SMR of Dairy Biomethane (B&C)	Jerseyland Dairy, Sturgeon Bay, Wisconsin	11/28/22	2012	Onsite Combustion ⁶⁷	-272.08
Blue Source LLC	Bio-CNG from Dairy Biomethane (B&C)	Green Valley Dairy, Krakow, Wisconsin	11/22/22	2005	Onsite Combustion ⁶⁸	-180.73
Element Markets LLC	Bio-CNG from Swine Biomethane (B&C)	Dalhart Farm, Dalhart, Texas	9/2/22	1997-2001	Onsite Combustion ⁶⁹	-417.96

⁶⁵ U.S. EPA, AgStar-Livestock Anaerobic Digester Database (Accessed Dec. 21, 2022)

<https://www.epa.gov/agstar/livestock-anaerobic-digester-database>.

⁶⁶ Progressive Dairymen, Dallman East River Dairy LLC, (Sept. 21, 2013)

https://www.dvoinc.com/articles/prog_dairyman_newsystemcaptures.pdf noting that the capture system was installed initially to generate electricity on-farm, with remaining portion sold to the local utility.

⁶⁷ AgStar shows that this digester was operational in 2012. According to the Jerseyland Farm’s website, the Methane Digester was initially installed to produce electricity for their neighborhood – “enough energy to supply electricity to over 600 homes.” See, Jerseyland Dairy LLC, “Advancements”

<https://www.jerseylandllc.com/advancements>. In 2019, U.S. Gain purchased the existing digesters and will repurpose them to sell RNG delivered through “virtual pipeline.” See, DMT Clear Gas Solutions, “S&S Jerseyland Dairy” <https://www.dmt-cgs.com/project/ss-jerseyland-dairy-rng/>.

⁶⁸ As the LCFS application acknowledges, Green Valley Dairy began operation of its first digester in 2005, and its second in 2008. Project details confirm these were digesters were designed to support electric power generation. See, Northern Biogas, “Green Valley Dairy Expansion” <https://northernbiogas.com/projects/green-valley-dairy-expansion/>.

⁶⁹ The LCFS application states that the farms “began operations in 1997, 1998, and two in 2001 with anaerobic lagoons installed the same time.” According to AgStar, the original use of these was for boiler and furnace fuel.

