

June 24th, 2022

RE: International Council on Clean Transportation comments on the **AB 32 Climate Change Scoping Plan**

These comments are submitted by the International Council on Clean Transportation (ICCT). The ICCT is an independent nonprofit organization founded to provide unbiased research and technical analysis to environmental regulators. Our mission is to improve the environmental performance and energy efficiency of road, marine, and air transportation, in order to benefit public health and mitigate climate change. We promote best practices and comprehensive solutions to increase vehicle efficiency, increase the sustainability of alternative fuels, reduce pollution from the in-use fleet, and curtail emissions of local air pollutants and greenhouse gases (GHG) from international goods movement.

The ICCT welcomes the opportunity to provide comments on the Air Resources Board's May AB 32 Climate Change Scoping Plan. We commend the agency for its dedication to assessing its progress towards its climate goals and its willingness to evaluate policy options to meet its targets. The comments below offer a number of technical observations and recommendations for ARB to consider as it reviews the contributions of the Low-Carbon Fuel Standard (LCFS) to its broader climate goals.

We would be glad to clarify or elaborate on any points made in the below comments. If there are any questions, ARB staff can feel free to contact Nik Pavlenko (n.pavlenko@theicct.org) and Dr. Stephanie Searle (stephanie@theicct.org).

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Introduction

The ICCT commends CARB for reviewing the role of the LCFS in achieving California's broader climate targets and for exploring implementation changes to expand and enhance the LCFS program as part of its 2022 Scoping Plan. Our comments pertinent to the scoping plan include a comment on the risks posed by the growing role of virgin vegetable oil under the LCFS and the benefits of a cap on lipid-based feedstocks, as well as on the necessity of a re-assessment of the carbon intensity of dairy biogas-derived fuels.

Cap the Contribution of Unsustainable, Lipid-Derived Feedstocks to the LCFS

Within the fuels sector, the Scoping Plan directs the California Air Resources Board (CARB) to ensure that feedstocks “used to produce low-carbon fuels or technologies do not result in unintended consequences” (p. 154).¹ Additionally, the plan states that “a dramatic increase in alternative fuel production must not come at the expense of global deforestation, unsustainable land conversion, or adverse food supply impacts”.² Meeting increasingly stringent CI reduction targets while mitigating the sustainability risks of alternative fuels will require innovative strategies and policy safeguards over the coming decades. We find that policy safeguards are especially needed for the growing biomass-based diesel (BBD) fuel sector to address uncertain economic and sustainability risks.

The LCFS program supports the diversification of California's fuel market; however, growth has not been distributed evenly across technologies and feedstocks.³ Between 2011 and 2021, BBD fuel volumes (in GGE) grew from 1% to 50% of the state's alternative fuel pool while BBD credit generation grew from 8% to 45%.⁴ Significant growth in BBD markets has not been exhibited by other U.S. states; rather, California has dramatically increased its share of the national BBD fuel pool, illustrated by the green line in Figure 1. The absolute volume of BD and RD consumed in California compared with the rest of the U.S. are converted to diesel gallon equivalent (DGE) and shown in the stacked bars.

¹ California Air Resources Board, “Draft 2022 Scoping Plan Update,” May 10, 2022.

² *Ibid*

³ U.S. EIA, “U.S. Biomass-Based Diesel Tax Credit Renewed through 2022 in Government Spending Bill,” January 28, 2020, <https://www.eia.gov/todayinenergy/detail.php?id=42616>; California Air Resources Board, “LCFS Data Dashboard,” accessed June 16, 2022, <https://ww3.arb.ca.gov/fuels/lcfs/dashboard/dashboard.htm>.

⁴ California Air Resources Board, “LCFS Data Dashboard.”

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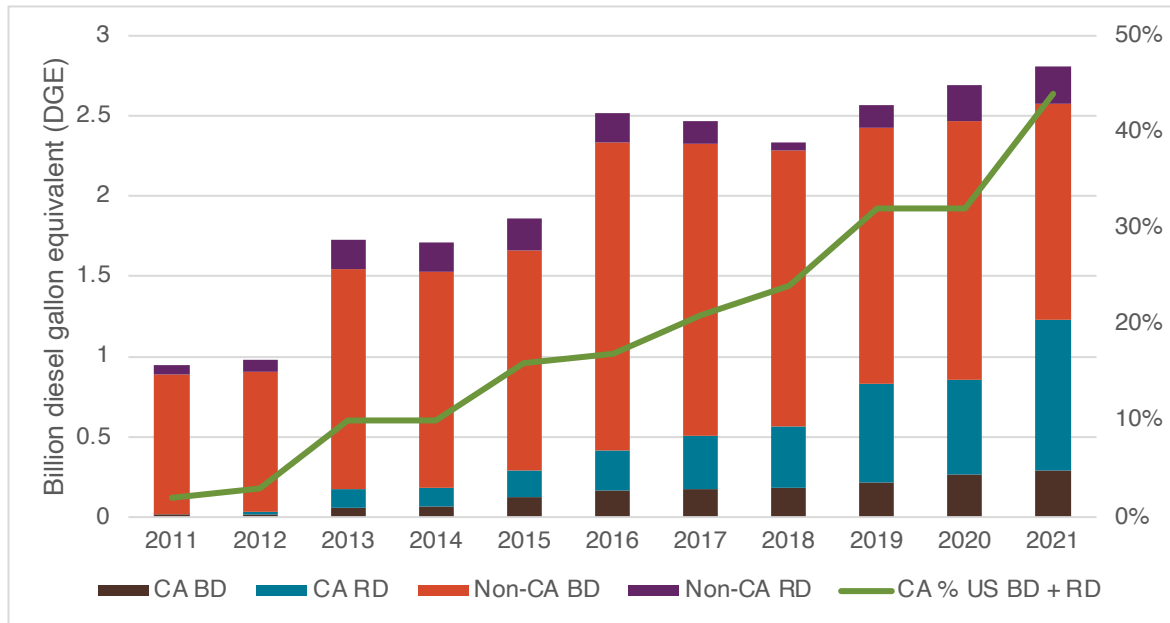


Figure 1. Biodiesel (BD) and renewable diesel (RD) usage trends within and outside California

Other states will be unable to follow California’s example due to significant limitations on the availability of BBD feedstocks (i.e., vegetable and waste oils). This is due to strong demand for vegetable and waste oils in non-BBD markets such as food and livestock feed and in consumer products such as soaps and cosmetics.

Increasing BBD output amidst these supply constraints could exacerbate rising vegetable oil prices,⁵ disrupt trade balances,⁶ and cause unintended GHG emissions from substitute material production, including deforestation and other land use change from increased crop production.⁷ Strong policy incentives for BBD have also shifted the LCFS market from one that primarily generated waste oil feedstocks to one that could become increasingly reliant on vegetable oil feedstocks like soybean and canola. Increased demand for waste oil feedstocks could also lead to fraud from virgin vegetable oil that is falsely labeled as used cooking oil. Several cases of BBD fraud motivated by biofuels policy incentives have already been prosecuted in the U.S. and European Union.⁸

⁵ Food and Agriculture Organization of the United Nations, “FAO Food Price Index,” accessed May 11, 2022, <https://www.fao.org/worldfoodsituation/foodpricesindex/en/>.

⁶ “Soybean 2020 Export Highlights,” USDA Foreign Agricultural Service, accessed May 11, 2022, <https://www.fas.usda.gov/soybean-2020-export-highlights>.

⁷ Chris Malins and Cato Sandford, “Animal, Vegetable or Mineral (Oil)?” (Cerology, 2022).

⁸ European Anti-Fraud Office, “The OLAF Report 2019,” n.d.; U.S. Attorney’s Office Eastern District of Pennsylvania, “Owners Of Lehigh Valley Companies And Their

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Because of the economic and sustainability risks unique to vegetable and waste oil (i.e. lipid) feedstocks, we recommend setting an annual cap on the volume of lipids eligible for crediting within the LCFS credit market. A cap on these feedstocks will mitigate the various economic and sustainability risks associated with BBD fuels while preserving the incentive to improve their per-MJ carbon intensity. Furthermore, it would support a more balanced portfolio of near-zero carbon fuel pathways such as battery and hydrogen fuel cell electric vehicles and liquid fuel produced from second-generation biomass feedstocks. The annual cap could be based on California's current consumption of lipid-based feedstocks (and be revised annually based on the projected growth in BBD feedstock production. To ensure that California does not consume a disproportionate share of the growth of domestic lipid production, upward revisions to the lipid cap based on the the growth of domestic lipid availability could be adjusted by California's share of the national distillate fuel market, which is currently 7%.⁹

Reevaluate LCA Assumptions for Manure-derived Biomethane

Over the past five years, the consumption of biomethane has grown significantly in California and is now one of the largest sources of Low-Carbon Fuel Standard (LCFS) credits, generating approximately 14% of 2021 LCFS compliance.¹⁰ Though the majority of biogas supplied as part of the LCFS comes from landfills, dairy biogas has grown to become the largest source of LCFS credits within the biomethane category since 2020, despite providing a small quantity of fuel (approximately 11% of biomethane volumes in 2020), as shown in Figure 2.¹¹ The primary reason for the high credit value of these fuels is due to the assumption of avoided methane emissions at farms where the methane is captured to produce biogas, as methane has a high-global warming potential (GWP) with approximately 28 times a higher warming impact than CO₂ on a 100-year timeframe. In other words, very high GHG reductions are attributed to manure biogas because ARB's analysis assumes substantial methane emissions would occur from manure management if the manure were not used for biogas. Though reducing methane emissions is a laudable goal, it is critical to ensure that the avoided emissions from methane are directly attributable to the LCFS program and not double-counted towards separate regulations.

Engineer Charged In Green Energy Fraud Scheme," December 21, 2015, <https://www.justice.gov/usao-edpa/pr/owners-lehigh-valley-companies-and-their-engineer-charged-green-energy-fraud-scheme>.

⁹ U.S. EIA, "California Profile," accessed April 6, 2022, <https://www.eia.gov/state/print.php?sid=CA>.

¹⁰ "LCFS Data Dashboard," accessed June 16, 2022, <https://ww3.arb.ca.gov/fuels/lcfs/dashboard/dashboard.htm>.

¹¹ Ibid.

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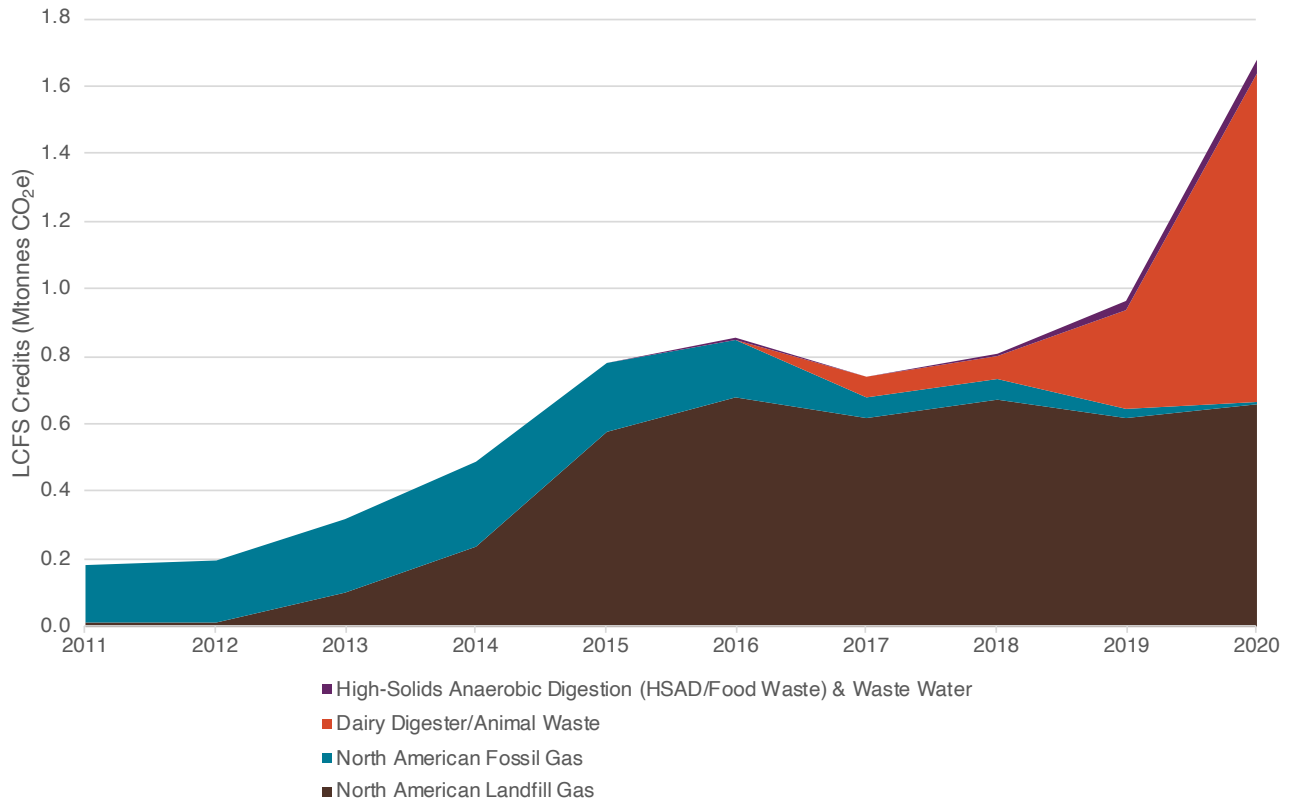


Figure 2: Credit Generation from Biomethane Pathways Under the LCFS, 2011-2020

However, other Californian policies will soon separately mandate a reduction in methane emissions from manure management. The Short-Lived Climate Pollutant (SLCP) Reduction Strategy (SB 1383) mandates a 40% reduction in manure management emissions below the livestock sector’s 2013 emissions by 2030. The law requires California Air Resources Board (ARB) to implement regulations to reduce these emissions after 2024 and provides ARB with flexibility on the regulatory tools used to reduce dairy manure emissions, with the LCFS as one of multiple tools to achieve that goal.¹² Before binding regulations are implemented beginning in 2024, ARB’s SLCP strategy indicates that agencies “will encourage and support near-term actions by dairies to reduce manure emissions through financial incentives, collaboration to overcome barriers, development of policies to encourage renewable natural gas production, and other market support.” SB 1383 also requires that ARB ensures that dairy biogas projects developed prior to the implementation of any methane regulations receive LCFS crediting for at least ten years.

¹² California Code, Health & Safety Code § 39730.7

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Since enteric fermentation emissions (i.e., methane emissions directly from livestock) is difficult to control, the bulk of the sectoral emissions reductions necessary to reach compliance with SB 1383 will need to come from changes in manure management practices.¹³ “Baseline” management practices that may have been suitable prior to 2024 may fall outside the baseline, depending on which specific regulations CARB adopts. For example, one of the first projects to be approved under the LCFS was an open manure lagoon converted to a covered lagoon, with methane capture.¹⁴ It is unlikely that an open lagoon releasing over ~1,000 metric tonnes of methane annually, as in that LCFS application, would be permissible after 2024. Thus, especially after 2024, it is very unlikely that the LCFS will drive the large reduction in methane emissions that manure biogas pathways are currently receiving credit for.

To balance the guarantees of SB 1383 to existing dairy biogas producers while ensuring the integrity of GHG emissions achieved under the LCFS, we recommend that CARB re-evaluate the avoided methane emissions attributable to manure management in its life-cycle assessment of dairy biogas for projects entering operation in 2024 and beyond. The avoided emissions for these pathways would be assessed based on the regulatory requirements and assumptions of manure management practices consistent with the methane reductions required under outside regulations. In a working paper on the development of the SLCP regulations, CARB estimates the post-methane regulation emissions of biogas to be positive in its scenario analysis.¹⁵ A subsequent working paper estimates the updated carbon intensity for the example project from the CARB SLCP plan to be 13 gCO₂e/MJ.¹⁶ Using the Argonne National Lab Greenhouse Gases, Regulated Emissions, and Energy Use in Technologies Model (GREET_2021), we estimate the emissions for dairy biogas to be approximately 19 gCO₂/MJ, assuming that the methane reductions and soil carbon sequestration from digestate are not attributable to the LCFS.¹⁷ This still represents an approximately 80% GHG reduction relative to

¹³ California Air Resources Board (ARB), 2017. “Short-Lived Climate Pollutant Strategy.” https://ww2.arb.ca.gov/sites/default/files/2020-07/final_SLCP_strategy.pdf

¹⁴ California Air Resources Board (ARB), 2015. “Method 2B Application CalBio LLC, Dallas Texas Dairy Digester Biogas (Bakersfield, CA) to CNG (Pathway Code: CNG056)” <https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/2a2b/apps/calbio-rpt-122115.pdf>

¹⁵ California Air Resources Board (ARB), 2017. “Short-Lived Climate Pollutant Strategy.” https://ww2.arb.ca.gov/sites/default/files/2020-07/final_SLCP_strategy.pdf

¹⁶ Hyunok Lee, and Daniel Sumner, 2018. “Dependence on policy revenue poses risks for investments in dairy digesters”, <https://calag.ucanr.edu/archive/?type=pdf&article=ca.2018a0037>

¹⁷ Argonne National Lab, 2021 “Greenhouse Gases, Regulated Emissions, and Energy Use in Technologies Model”, <https://greet.es.anl.gov/>; assuming 100% dairy cow-derived manure, California electricity grid mix, for renewable natural gas as an intermediate fuel.

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conventional, petroleum-derived fuels but more accurately reflects the emissions reductions from displacing fossil fuels.

We recommend in conjunction with a re-assessment of the carbon intensity of dairy biogas pathways, ARB phase out the previous CI's of existing, certified dairy biogas pathways in accordance with the 10-year requirement under SB 1383. After 10 years of crediting, these pathways would be re-certified with a new CI based on an updated counterfactual based on the SLCP methane reduction regulations. Here, ARB would guarantee 10 years of LCFS credit revenue to producers who were certified prior to 2024, whereas producers who begin producing dairy biogas after 2024 use an updated counterfactual. We note that phasing out avoided methane emissions for dairy producers in California based on in-state regulations, but not for manure biogas producers in other states, may place Californian dairy producers at a competitive disadvantage with out-of-state producers. To mitigate the economic risks to in-state producers, and align with SB 1383's provision to include "provisions to minimize and mitigate potential leakage", we therefore recommend applying a uniform phase out of the avoided methane leakage to all dairy biogas producers certified under the LCFS.

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