August 8, 2022

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

Dear Dr. Laskowski:

The Clean Fuels Alliance America (Clean Fuels)[1] and California Advanced Biofuels Alliance (CABA)[2] appreciate the opportunity to provide comments on the July 7th Low Carbon Fuel Standard (LCFS) workshop to discuss potential changes to the LCFS program. Clean Fuels and CABA have been longtime supporters of the state's overall climate and air quality improvement goals and have collaborated frequently with CARB staff toward achieving those goals. We continue to support California's efforts to decarbonize its economy, especially the transportation sector, with a comprehensive all-of-the-above suite of measures.

Our California member producers and marketers support over 3,900 well-paying jobs in the state and about $960 million in economic activity each year. Further, the biodiesel, renewable diesel, and sustainable aviation fuel supplied to the state by our California and national members are collectively the single largest source of GHG reductions in the LCFS, providing nearly half (44-45%) of the carbon reductions) since 2017, more than any other fuel including electricity, and 42% since the start of the LCFS. Our fuels have grown to the point where fully a third (33%) of each gallon on average of diesel fuel consumed in the state in 2021 – and 44% of the diesel pool in Q1 2022 – consisted of our industry's low-carbon fuels.[3] Our sustainable replacements for petroleum diesel have been a major factor in driving California's continuing large-scale transformation of transportation from petroleum based toward a carbon neutral

[1] Clean Fuels (formerly the National Biodiesel Board) is the U.S. trade association representing the entire supply chain for biodiesel, renewable diesel, and sustainable aviation fuel. The name change reflects our embrace of all the products Clean Fuels members and the U.S. industry are producing, which include biodiesel, renewable diesel, sustainable aviation fuel, and Bioheat® fuel for thermal space heating. Our membership includes over 100 farmers, producers, marketers, distributors, and technology providers, and many are members of environmental organizations supportive of state and local initiatives to achieve a sustainable energy future.

[2] California Advanced Biofuels Alliance is a not-for-profit trade association promoting the increased use and production of advanced biofuels in California. CABA represents biomass-based diesel (BMBD) feedstock suppliers, producers, distributors, retailers, and fleets on state and federal legislative and regulatory issues.

[3] See LCFS Quarterly Data Spreadsheet (dated July 31, 2022).

system. More to the point, our liquid diesel replacement fuels remain the only viable, commercial scale alternatives to petroleum for the next several decades in the most difficult-to-decarbonize sectors: heavy duty on- and off-road, marine, rail, and aviation.

We will have additional comments on other aspects of the staff's presentation in the coming days but wanted to focus our comments in this letter on two specific items: the pre- and post-2030 carbon intensity reduction targets and the suggestion to cap vegetable oil feedstocks.

Strong Support for More Aggressive Pre- and Post-2030 Carbon Intensity Reduction Targets

We generally support adoption of more stringent pre- and post-2030 targets. Increasing the stringency of the LCFS targets will bolster the market signal that has incentivized innovations and billions of dollars in investments by the alternative fuels industry.[4] We reserve further comment on specific targets pending publication by CARB staff of the underlying modeling, data and assumptions in support of any such proposed targets. With that said, we have supported and continue to support LCFS targets that facilitate the complete displacement of roughly 3.4 billion gallons of petroleum displacement with biomass-based diesel within the 2030-2035 timeframe.[5]

Strong Opposition to Suggested Cap on Vegetable Oil Feedstocks

At the July 7th workshop,[6] CARB staff requested feedback on a number of questions related to a suggested cap on vegetable oil feedstocks (rearranged below for clarity):

1) Should staff consider a cap on crop-based biofuels?
2) If so, what mechanisms could staff consider or implement as part of the upcoming rulemaking?
3) What are the potential risks of increased use of crop-based biofuels?
4) What data sources or studies should staff review to evaluate potential impacts of future growth in crop-based biofuels?

The suggested cap was premised ostensibly on a concern, expressed without elaboration or supporting documentation, that increasing lipid-based feedstock for biofuels may result in food and fuel "conflicts" and, therefore, CARB should consider an upper limit on biofuel volumes from lipid-based feedstocks. Staff noted further that the suggestion follows similar actions in the European Union. The stakeholder recommendation was for CARB to evaluate the need for adjustments "to avoid deforestation, land conversion, and adverse food supply impacts."[7]

[4]See, e.g., $2B investment to expand World Energy's Paramount facility to include sustainable aviation fuel (SAF). Green Air News, accessed August 8, 2022.
[5] See Clean Fuels & CABA joint comment letters dated May 3, 2022 and June 17, 2022.
[6] References to the "workshop" "or "staff presentation" are to the slides presented by staff at the July 7, 2022, CARB workshop unless otherwise noted.
[7] *Id.*, workshop slide 33.

1) Should staff consider a cap on crop-based biofuels?

We strongly oppose such a cap on vegetable oil feedstocks because it is unwarranted, not based on sound science, would chill substantial investments in the LCFS, and be counterproductive to California's climate change and carbon neutrality objectives.

(A) The existing lifecycle assessment framework makes a vegetable oil cap unwarranted

The suggested cap is driven ostensibly by stakeholder concern regarding a "food and fuel" issue. As an initial matter, we note that global food prices are the result of a complex and highly interwoven set of factors well beyond the use of vegetable oil in biofuel production. Factors such as geopolitical events, wars, famines, droughts, and climate change, to name a few, play substantially greater roles in shaping food prices than biofuel feedstock production. Indeed, a study by Purdue University[8] found that doubling the price of soybean oil results in only minor retail food price increases (see attached infographics). And, to the extent such minor impacts can occur, they must be considered in context with the substantial environmental, public health, and economic benefits biomass-based diesel fuels provide to California and the U.S. Our fuels provide a 4% reduction in overall diesel fuel prices;[9] support more than 65,000 jobs, $2.5 billion in wages, and $17 billion in overall economic activity;[10] and reduce GHG emissions by an average of 74%, among numerous other benefits.

The "food and fuel" concern was first raised in the original 2009 rulemaking,[11] and again in the 2011[12] and 2015[13] rulemakings. CARB definitively addressed this issue when it incorporated into the 2009 LCFS rulemaking the groundbreaking use of the Global Trade Analysis Project (GTAP) model and related models[14] to infer potential impacts from the growing of feedstocks used in the production of some biofuels. Since then, the GTAP modeling framework has provided the foundation for addressing "food and fuel" and other concerns related to indirect land use change (ILUC) impacts. CARB's subsequent refinement of the GTAP modeling system was developed through a comprehensive, multi-year public vetting process, including the convening of an Expert Working Group (EWG) under direction from the CARB Board.[15] The EWG met eight times since its formation in 2010, and its nine technical subgroups met numerous

[8] Lusk, J.L. (2021). *Soybean Oil Prices and Retail Food Costs.* Center for Food Demand Analysis and Sustainability, Purdue University, for the United Soybean Board.
[9] Kruse, J. (2022). *The Offsetting Impact of Expanded Diesel Production Biomass Based on Diesel Prices,* World Agricultural Economic and Environmental Services, for Clean Fuels Alliance America.
[10] LMC International (2019). *The Economic Impact of the Biodiesel Industry on the U.S. Economy,* for National Biodiesel Board (now Clean Fuels Alliance America).
[11] See "Food vs. Fuel" comments and staff responses, December 2009 LCFS Final Statement of Reasons, starting at 403.
[12] See October 2012 LCFS Final Statement of Reasons, at 102.
[13] See, e.g., October 2015 LCFS Final Statement of Reasons, noting that the proposed 2015 rulemaking, which was informed by the EWG's work, was developed "using the best available economic and scientific information…"
[14] Indirect land use change is, by definition, indirect and therefore cannot be observed directly. Inference via GTAP modeling shows that the assumed ILUC impacts were grossly overestimated at the beginning of the program and could be 90% less than the original estimate.
[15] See Board Resolution 09-31, at 15.

times to tackle specific issues, including food consumption issues.[16] In addition to being informed by the EWG, the Board also commissioned two independent peer reviewers from MIT and Yale University to conduct "bottom up" and "top down" evaluations of changes to the GTAP model made by Purdue and CARB staff's ILUC modeling; the peer review analyses were presented to the EWG and CARB for their consideration.[17]

The result of the comprehensive effort described above was to estimate the impacts on carbon intensity from indirect land use change from biofuel production, a metric which accounts for modeled impacts on food prices, among other impacts. Indeed, the concern for food price impacts was the primary driver for the incorporation and continued updating of the GTAP modeling framework in the LCFS. Notably, the estimated ILUC value for soy biodiesel was originally assessed by CARB's GTAP modeling for the 2009 rulemaking to be 62 g CO2e/MJ, which was subsequently lowered to 29.1 in the 2015 rulemaking. Recent modeling by Argonne National Laboratory and Purdue University suggests the current ILUC estimate for soy is within the 6-8 g CO2e/MJ range, an estimated 90% reduction from the original 2009 ILUC score assessed for soy.[18]

Further, the Board's modeling in the 2015 rulemaking already accounts for an increase in soy, canola, and palm biomass-based diesel of about 1.6 billion gallons.[19] Since California already consumes over 1.1 billion gallons of waste-oil biodiesel and renewable diesel,[20] an increase of 1.6 billion of vegetable oil-based biodiesel and renewable diesel is well within the modeling CARB staff recently conducted as part of its "preferred scenario," which modeled 2.4 billion gallons of biomass-based diesel as part of the scenario for achieving carbon neutrality by 2045.[21] It's important to note that, in adopting the 2015 LCFS rulemaking, CARB's Board found that "no reasonable alternatives to the proposed LCFS…would be more effective at carrying out the purpose for which the regulation is proposed or would be as effective and less burdensome to affected entities…".[22] The Board's Final Environmental Analysis for the 2015 LCFS rulemaking explicitly accounted for concerns expressed and analyzed regarding land use change and food price impacts.[23]

In short, the LCFS already accounts for the "food and fuel" concern, CARB's Board determined that the concern is best addressed through the use of GTAP modeling to assess an appropriate ILUC score for crop-based biofuels, and that the ILUC scores for soy and canola have consistently decreased as the science for ILUC modeling has been refined over the years. Thus, placing a cap on vegetable oil feedstocks is unwarranted – there is no need to replace a

[16] See Detailed Analysis for Indirect Land Use Change, at I-5.
[17] Ibid.
[18] Chen, R., Qin, Z., Han, J., Wang, M., Taheripour, F., Tyner, W.,... & Duffield, J. (2018). Life cycle energy and greenhouse gas emission effects of biodiesel in the United States with induced land use change impacts. Bioresource technology, 251, 249-258.
[19] See Detailed Analyses for Indirect Land Use Changes, op cit. at I-8 (Table H-1).
[20] LCFS Quarterly Data Spreadsheet, op cit.
[21] See AB 32 GHG Inventory Sectors Modeling Data Spreadsheet, see Alt. 3 under tab "Energy Demand."
[22] CARB Board Resolution 15-36 at 4.
[23] 2015 Final Environmental Analysis, at 34-38.

modeling framework that has been in place and has worked since 2009 with an arbitrary cap that is not based on sound, robust science but is instead based on speculation and a highly-politicized European approach. Instead, CARB should include in its upcoming rulemaking an update of the datasets used in the GTAP modeling to reflect the recent scientific developments and real-world observational data.

(B) The suggested cap is not based on sound science

As noted, the LCFS already uses the gold standard for lifecycle assessments (LCAs) in clean fuel programs (e.g., the use of GREET, GTAP-BIO, AEZ-EF, etc.). The LCAs in the low carbon fuel standard have been developed through a process that has undergone ten or more years of public and scientific vetting and refinement. By contrast, Europe's approach is unscientific, driven by anti-biofuel interests, established through state-by-state negotiations, and highly politicized.

Proposals for CARB to consider an arbitrary vegetable-oil cap, based on European developments, have no place in a science-based program. The LCFS has used essentially the same science-based LCA framework since 2010 to assess carbon intensity scores and gauge the potential impacts and benefits of the various fuels participating in the LCFS. CARB has been a leader in the regulation of transportation fuels through the LCFS and its groundbreaking, science-based lifecycle assessment framework. The state has no need, and would be ill-served, to replace that robust, scientific foundation with the haphazard and unscientific process Europe employs for addressing transportation fuel GHG emissions.

(C) A cap would chill investments in low carbon fuels

As noted, the LCFS has employed for over ten years the same LCA framework based on rigorous and publicly vetted science. This has helped provide regulatory certainty, enabling billions of dollars' worth of investments and capital financing to enable the innovations in fuel production needed to meet the LCFS requirements (e.g. soybean crush plants, new standalone biodiesel, renewable diesel, and SAF production facilities,[24] storage infrastructure, etc.). These investments have been made in direct response to the market signal provided by the LCFS. Adopting a vegetable oil cap sends the wrong signal to low carbon fuel producers that California regulatory programs cannot be relied on to make substantial investment decisions since the state is willing to replace a science-based framework with a politicized and arbitrary mechanism. Further, a cap of any kind could have unintended consequences, such as incurring a disproportionately harmful impact on smaller, in-state producers which have the lowest carbon fuels in the market (e.g., a cap could constrain supplies of all feedstocks, not just crop-based ones, making it harder for smaller in-state producers to procure sufficient feedstocks to continue operating).

[24] See, e.g., World Energy's $2B investment in SAF expansion, Green Air News, op cit.; $1.1B investment in Diamond Green Diesel joint venture, Louisiana Economic Development; the millions of dollars invested in the recently completed expansion at Crimson Renewable Fuels (Bakersfield, CA), https://www.lelezard.com/en/news-20337763.html.

(D) A cap is counterproductive to California's climate change and carbon neutrality goals

As noted, the Scoping Plan update shows CARB needs to at least double the current biomass-based diesel volumes from 1.22 billion gallons in 2021 to 2.42 billion gallons in 2030 to meet the 2045 carbon neutrality target under the staff's "preferred scenario." Indeed, a recent U.C. Davis paper showed that, in the absence of deep and rapid electrification, the only way California reaches its 2030 targets and beyond is to scale up the effective biomass-based blend rates from 24% (2020) to 60-80% by 2030,[25] which cannot be done solely with current waste oil feedstock supplies. If vegetable oil feedstocks are capped, and alternatives to biomass-based diesel and SAF cannot meet the projected need (as shown in the Scoping Plan's "preferred scenario"), the only remaining fuel available that can provide the high energy density needed in the heavy duty on- and off-road sectors is petroleum distillate. It is hard to imagine how increasing reliance on petroleum fuels, rather than decreasing it, serves the climate and air quality needs of California.

2) If cap is warranted, what mechanisms could staff consider or implement as part of the upcoming rulemaking?

As noted above, a cap is not warranted, particularly for biofuels used in the difficult-to-electrify heavy duty sectors – California will need both waste based and co-product/surplus vegetable oil feedstocks to keep petroleum in the ground and meet the energy demands of the heavy-duty on- and offroad sectors while the state aggressively electrifies everywhere else it can. The state should be singularly focused on doing everything it can to keep from adding large quantities of new carbon into the atmosphere vis-à-vis by keeping fossil fuels in the ground. By necessity, this means increasing reliance on biofuels done in a way that is scientifically robust and defensible (i.e. with the current LCA framework, updated with latest science) while electrifying everywhere it can.

3) What are the potential risks of increased use of crop-based biofuels?

A better question to ask is: What are the risks of decreased use of biofuels? The Scoping Plan update shows the limits of over-reliance on electrification, and the state's analysis and modeling leaves little room for other fuels besides biomass-based diesel fuels to make a meaningful impact. Thus, in the absence of a substantial increase in biomass-based diesel and SAF, the only other fuel that can provide the high energy-density demand, especially in the most-difficult-to-electrify sectors, are petroleum distillates and related high carbon fossil fuels. Capping vegetable oil feedstocks can therefore lead to a shortfall in the supply of high energy density fuel, a gap which would otherwise be filled with petroleum fuels.

[25] Bushnell, J. et al. (2019). *Uncertainty , Innovation, and Infrastructure Credits: Outlook for The Low Carbon Fuel Standard through 2030*, at iv.

4) What data sources or studies should staff review to evaluate potential impacts of future growth in crop-based biofuels?

The LCFS is already built on a solid LCA foundation that accounts for both direct and indirect/induced emissions. That LCA framework has been established through a rigorous scientific process resulting from extensive, public and scientific vetting. The existing ILUC framework already works well to minimize feedstocks that can lead to deforestation and other significant harms (e.g. palm-based fuels). The only question for CARB to consider, therefore, is not how to replace that long-established and well-vetted framework, but how soon can the underlying datasets and assumptions in the ILUC framework be updated to reflect the latest science from Argonne, Purdue, and other reputable academics, which CARB has relied on and which has provided the last 10+ years of regulatory certainty in the LCFS. As noted, the current science shows the ILUC impacts from soy and canola have been substantially overestimated, and CARB should accelerate its efforts to incorporate that latest science to ensure the scientific integrity of the LCFS.

Conclusion

We strongly support a more stringent set of pre- and post-2030 CI reduction targets. With that said, we are deeply concerned with and are strongly opposed to any proposed cap on vegetable oil feedstocks as being unwarranted, not based in sound science, would chill ongoing and future investments, and is counterproductive to California's climate and carbon neutrality objectives. Instead of pursuing this line of inquiry further and introducing more uncertainty into the LCFS market, we strongly encourage CARB to focus on adopting more stringent CI targets and update the science, datasets, and assumptions underpinning the existing LCA framework as expeditiously as possible in the upcoming rulemaking.

Thank you for your consideration of these comments. We look forward to continuing our strong collaboration with CARB and staff.

Sincerely,

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Clean Fuels ALLIANCE AMERICA

THE CLEAN FUELS INDUSTRY:

Vital to Our Communities, Economy, Country, and Planet

Clean fuels are good for our farmers, our rural and urban communities, our economy, our country, and our planet. They deliver benefits such as lower emissions and fuel prices and better air quality. They reduce our reliance on fossil fuels and imports of petroleum from other countries.

The clean fuels industry is essential and vital, delivering these significant benefits:

OUR ECONOMY:

More than **65,000 JOBS**

$2.5 BILLION in wages and **$17 BILLION** in economic impact

A **4% REDUCTION** in overall diesel fuel prices

OVER 10% of the value of a U.S. bushel of soybeans

OUR COMMUNITIES:

More than **456,000 FEWER/REDUCED** asthma cases per year

More than **142,000 FEWER** sick days per year

Over **$7.5 BILLION** in avoided health costs annually

SOURCE: Trinity Consultants and Clean Fuels Alliance America

OUR PLANET:

REDUCES greenhouse gas emissions by an **AVERAGE OF 74%**

SOURCE: Argonne National Laboratory

FOOD AND FUELS

Some industries have expressed concerns about the price of fats, oils, and grease, which are used for both fuels and food. Some important points to keep in mind:

- Supply chain costs, including the cost of diesel fuel, impact the cost of food. Availability of clean fuels reduces the overall price of diesel transportation fuels. *(Source: World Agricultural Economic and Environmental Services)*
- Maintaining a fair market value for fats, oils, and grease ensures a lower overall market price for protein in the food market and lower costs for food away from home.

DOUBLING THE PRICE OF SOY OIL RESULTS IN ONLY MINOR RETAIL FOOD PRICE INCREASES:

0.34% INCREASE in the price of bread

0.48% INCREASE in the price of spaghetti and macaroni

1.54% INCREASE in the price of American cheese

1.84% INCREASE in the price of cookies

2.6% INCREASE in the price of potato chips

Source: American Soybean Association

The clean fuels industry is an essential part of our economy that delivers benefits to farmers, rural and urban communities, our country, and our planet.

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