



December 21, 2022

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

RE: November 9, 2022 Public workshop to Discuss Potential Changes to the LCFS.

Dear Ms. Laskowski,

The Brazilian Sugarcane and Bioenergy Industry Association (UNICA) appreciates the opportunity to submit feedback on some of the topics presented to stakeholders during the workshop on November 9, 2022. We applaud CARB's transparency and its willingness to engage with outside stakeholders like UNICA. Our member companies will continue to offer input and collaborate with your staff to ensure our data and positions help inform your deliberations.

UNICA is proud of the decade-long role we've played in helping California reduce transportation-related GHGs and believe there is much more work to do to meet the ambitious goals established by California's policymakers. Improvements to the Low Carbon Fuel Standard will do much to set the stage for success, sending market signals that spur pivotal investments that influence the international low carbon fuels market beyond just California.

We have come a long way together since the creation of the LCFS. As California has made remarkable climate progress, so too has the Brazilian ethanol industry. Since the last program revision, our industry has innovated and invested in more efficient production processes resulting in an even lower carbon intensity biofuel that is utilized in markets across the world. We support the adoption of the more aggressive CI reduction goals for 2030 reflected in Alternative B and C, which will require the increased utilization of low carbon biofuels, like Brazilian ethanol, and we stand ready to do our part to help supply this transition.

Most of UNICA's recommended LCFS changes were presented in our Sept. 19, 2022, [letter](#)¹ to CARB, but today we would like to focus on a few topics we believe still need special attention and/or clarification. They are as follows:

- UNICA aligns itself with the comments made by stakeholders across the biofuels industry at the November 9 workshop that an arbitrary cap on crop-based biofuels represents an untested manipulation of the credit market that is the foundation of the progress LCFS has made to date. Biofuels have generated

¹ Letter from UNICA to CARB: <https://www.arb.ca.gov/lists/com-attach/64-lcfs-wk-shp-aug18-ws-B3BXPgFyWGADdgNr.pdf>

roughly half of the CI reduction to date and continue to play a central role in the program. Introducing arbitrary limits to the program will create uncertainty and stifle progress to serve a goal that should otherwise be advanced through the system of incentives at the heart of California's climate policy.

- Biofuels should continue to be a versatile tool for policymakers in California to achieve carbon neutrality in the decades ahead. The International Renewable Energy Agency (IRENA) stated that to achieve the energy transformation, the global demand for biofuels must increase from about 36 billion gallons in 2019 to nearly 100 BG in 2030 and 172 BG per year in 2050. Biofuels are a proven solution to curb GHG emissions from fossil fuel in light duty vehicles and will also serve as a feedstock to biofuels used to decarbonize aviation and maritime transport.
- The recently published Advanced Clean Fleet rule acknowledges that trucks will require use of biofuels for decades into the future, so the LCFS credit market should continue to reflect that dependence on affordable low carbon liquid fuels for the foreseeable future, and this expected growth would be undercut by such a cap. Similarly, as internal combustion passenger vehicles will continue to be driven in California past 2035, ensuring a robust biofuel market to be fairly scored and compete under the program will continue to push the evolution of that particular market in a more sustainable direction.
- During the workshop, comments were made by staff on what type of fuels needs support now and what doesn't need support on an ongoing basis. The desire to move quickly on this rulemaking should not overlook the fact that certain fuel supply chains have already been established under the LCFS but need further investment and market stability to reach their full potential in terms of lifecycle CI reduction and market adoption. Fuel producers need a strong, stable program in order to continue to deliver the low carbon fuels now and even lower carbon fuels of the future. Staff appropriately recognizes that there is a natural upper limit in the current blend wall for ethanol in the gasoline fuel pool, so ethanol should not be included in any arbitrary limits on biofuels. Still, we agree that more aggressive CI reduction targets in the near-term would be served by building on the progress biofuels have already provided and the market should determine how credits are adjusted, not an arbitrary limit.
- In Brazil, since 2003, when flex-fuel technology was launched, ethanol has avoided the emission of 600 million tons of CO₂ into the atmosphere². This is equivalent to approximately 3.8 million hectares per year of the Atlantic Forest or 2.2 million hectares per year of forest area in the Amazon Rainforest³. Additionally, the emissions avoided from ethanol consumption is equivalent to the GHG emissions of the agricultural sector in 2020⁴.

² UNICA, 'Setor sucroenergético', 2020. <https://unica.com.br/setor-sucroenergetico/> (accessed Mar. 15, 2021).

³ Warwick Manfrinato, Edson Vidal, and Pedro Brancalion, 'Como calcular as emissões de Gases de Efeito Estufa (GEE) produzidas no transporte de veículos? Como compensar suas emissões utilizando-se de árvores ou florestas?', 2020. https://esalqplastrop.com.br/capa.asp?pi=calculadora_emissoes#:~:text=Assim%2C%20o%20carbono%20estocado%20por,kg%20por%20%C3%A1rvore%20ao%20ano (accessed Sep. 28, 2022).

⁴ SEEG, 'Sistema de estimativa de emissões de gases de efeito estufa', 2022. <http://seeg.eco.br/>

- During the presentation of the California Transportation Supply (CATS) Model, we noticed that sugarcane ethanol was not included in the model. Given that California is the main consumer in the US of ethanol from Brazil and given the low carbon intensity of this fuel and the contributions it can make to the LCFS, we would like to understand why it was not part of the model, and respectfully request that it is added. We are available to provide any information staff need to add our fuel into the CATS model.
- It is imperative that the modeling be updated to reflect the best available science for complete lifecycle emissions for ethanol, including land use improvements, realistic assessment of shipping, and other items listed on our September 19th letter linked above. We have provided significant data to support these suggestions and remain committed to updating them as needed by CARB staff.
- Given all of CARB's modeling is based on E10, we would like to encourage the long-term considerations that will be brought by the approval of E15 in California and potential higher adoption of flex fuel vehicles in the state. The US already has a significant FFV fleet and minimal investment would be needed to increase the consumption of E85. The LCFS can and should give consumers of all economic background choices at the pump. Ethanol can continue to help California achieve its climate change goals while improving air quality and maintaining the program's equity. Internal combustion engines will most likely be the option of many, especially those in disadvantaged, low-income areas in the state, so allowing for more space for this biofuel in the program is a smart policy decision.
- We continue to stress the importance of the program being open to all fuels and all technologies regardless of its national origins. This is smart policy from an energy security perspective as well as an international trade perspective that has influenced progress beyond the borders of California.
- Regarding land use in Brazil, sugarcane accounts for less than 1% of the national territory and is far from deforestation hotspots, such as the Amazon. According to the EU-Joint Research Center study⁵, there is very low correlation between indirect land use change (ILUC) and sugarcane expansion, and sugarcane ethanol is classified as a low-risk biofuel by the EU. Currently, sugarcane is the commercial technology with the highest energy yield per occupied area and it is entering a new era that focuses on using energy from the whole sugarcane, which makes it possible to multiply production without the need for additional land. The main factors that would enable the expansion of sugarcane ethanol are an increase in sugarcane productivity in the field and increased use of agro-industrial waste: straw, bagasse, vinasse and filter cake, intended for the production of 2G ethanol, bioelectricity, and biomethane.
- Also, recent expansion has been mostly over degraded pastureland. We have observed a technological transformation in the existing areas where conventional harvesting has been substituted by green harvesting, with higher soil protection and other benefits. Both changes (in new and existing areas) lead to GHG uptake from the atmosphere to terrestrial carbon stocks. We encourage

⁵<https://publications.jrc.ec.europa.eu/repository/handle/JRC117364>

more detailed review of this progress and are committed to transparency in our operations.

- Furthermore, in the last decade, more than 100% of the corn expansion in Brazil is from second crop. This expansion does not require additional land. Thus, the second crop is not responsible for the direct land use change. And regarding the indirect land use change, it is important to highlight that while the corn goes to ethanol production, it also produces DDG. DDGs are typically used as a protein-rich animal feed, replacing soybeans, and reducing the need for additional land for agriculture.
- Added to the already known decarbonization potential of biofuels, the carbon capture and storage (CCS) from fermentation and boilers can further contribute to the goals of GHG reduction. Currently, the CARB protocol allows the validation of a fuel linked to a CCS, but for cases of ethanol abroad, the Protocol is not clear and leaves gaps as to its acceptance. We encourage CARB to make clear on the rule making what are the steps and criteria that must be followed by foreign biofuel producers in order to further enhance the decarbonization potential related to biofuels.
- Globally the bioenergy demand is increasing simultaneously with the demand for sustainable feedstocks with low land-use change. Which requires new technologies to allow higher productivity per hectare, not only from an agricultural but also an industrial perspective. Brazil is one of the greatest bioenergy producers and has been a leader in developing sustainable strategies to increase productivity in the field and using residues as feedstocks for bioenergy. Some examples are livestock intensification, which released degraded pasture for production, and second cropping, which allows for the same area to produce twice a year avoiding the expansion of agricultural areas. On an industrial level, Brazil implemented technologies for residues, like the use of vinasse as fertilizer on the field; bagasse and straw for bioelectricity; straw and other lignin products for ethanol 2G; and more recently, the use of vinasse and filter cake for biogas and biomethane production. Besides that, ethanol has great potential to be part of the solution for hard-to-abate sectors, such as SAF. In this sense, the recognition of all this potential by strategic markets such as California is crucial for enabling the sugarcane industry in Brazil to unlock new investments in this direction and keep developing and improving the technologies.
- IPCC, IEA and FAO highlight that there are great synergies between biofuels and food security. Decades of research show that the main drivers of food insecurity are driven by distribution problems, poverty, corruption, war and conflict, natural disasters, and climate change, rather than by shortages in global foo

production capacity^{6 7 8 9}. Globally, the food price index was found to have a higher correlation with the price of crude oil and 96% of the volatility can be explained from the price of oil and the world population¹⁰.

- We agree 100% that combating deforestation is one of the most important challenges ahead. Therefore we should use science in our favor, instead of applying simplistic assumptions.
- We look forward to discussing in more details the three modeling scenarios presented during the workshop. UNICA supports strong targets as long as all fuels are accurately scored in the program, allowing them to fairly compete in the LCFS market.

CARB has a unique opportunity to improve the LCFS and help California achieve its air quality and climate goals in the very near future. Please count on the Brazilian sugarcane industry as a willing partner in this important work.

Sincerely,



Leticia Phillips

Representative-North America



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⁶ L. A. Schulte *et al.*, 'Meeting global challenges with regenerative agriculture producing food and energy', *Nature Sustainability*. Nature Research, 2021. doi: 10.1038/s41893-021-00827-y

⁷ A. Allee, 'Cross-national analysis of food security drivers : comparing results based on the Food Insecurity Experience Scale and Global Food Security Index', Springer, 2021.

⁸ K. Pawlak and M. Kołodziejczak, 'The role of agriculture in ensuring food security in developing countries: Considerations in the context of the problem of sustainable food production', *Sustainability* (Switzerland), vol. 12, no. 13, Jul. 2020, doi: 10.3390/su12135488.

⁹ R. K. S. Thurow, *Enough: Why the World's Poorest Starve in an Age of Plenty*. 2009.

¹⁰ D. S. Shrestha, B. D. Staab, and J. A. Duffield, 'Biofuel impact on food prices index and land use change', *Biomass Bioenergy*, vol. 124, no. August 2018, pp. 43–53, 2019, doi: 10.1016/j.biombioe.2019.03.003.