February 20, 2024

The Honorable Liane M. Randolph, Chair
California Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: 2024 Low Carbon Fuel Standard Amendments

Dear Chair Randolph:

The signatories of this letter appreciate the opportunity to provide comments regarding the 2024 amendments to the Low Carbon Fuel Standard (LCFS). We strongly support the increased focus by the California Air Resources Board (CARB) on ensuring that the fuels used in the LCFS program are produced in the most sustainable manner. We are strong advocates for rigorous lifecycle accounting (LCA) methods that precisely quantify the lifecycle emissions from biofuels and that recognize and incentivize lower carbon feedstocks. From a LCA perspective, "corn is not just corn." To the contrary, corn and other crops can be grown on soil using a wide variety of techniques and inputs that substantially impact real-world carbon intensity (CI). We encourage the Board to direct staff to dedicate time and resources to analyze the lifecycle issues pertaining to crop-based feedstocks and report back to the Governing Board. This focused research, analysis, and reporting by CARB staff will enable and inform potential expansions to the LCFS regulations to include field-based practices, the recognition of soil organic carbon, and the harnessing of other CI-reducing techniques and technologies with the next update to the LCFS regulations.

The supporters of this letter represent a range of fuels, feedstocks, and technologies including agriculture trade associations, crop input companies, developers of LCFS credits, and other low-carbon fuel industry participants. This diverse group is united in its interest to provide high-quality fuels to the California transportation market with the lowest environmental footprint. This includes practices that encourage producers to reduce nitrous oxide and methane emissions and increase the carbon sequestered in the soil.

In 2018, the Intergovernmental Panel on Climate Change (IPCC) published a Special Report on the impacts of a 1.5°C global warming above pre-industrial levels. This report found that achieving global carbon neutrality by mid-century is critical to avoiding the most catastrophic impacts of climate change.[1] Moreover, the IPCC Sixth Assessment identified land-based emissions mitigation as "the only [sector] in

[1] IPCC, 2018: Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 3-24, doi:10.1017/9781009157940.001.

which large-scale carbon dioxide removal may currently and short term be possible" and that it is "crucial to limit climate change and its impacts."[2] The latest science finds that it is increasingly likely that the 1.5°C target will be exceeded[3] and that large-scale greenhouse gas (GHG) reductions are critical to meeting the target.[4]

Already a leader in the response to climate change, CARB's 2022 Scoping Plan Update details sector-by-sector roadmaps for California to achieve carbon neutrality by 2045 or earlier. One critical roadmap is for the aviation sector, where the scenario includes a transition of 20% of aviation fuel demand to zero-emission technologies by 2045 and sustainable aviation fuel (SAF) for the rest.[5]

The agriculture sector can play a significant role in helping California meet the goal of generating SAF. Practices including optimizing fertilizer application, reducing tillage, using enhanced-efficiency fertilizers, double-cropping and planting cover crops have the potential to reduce the CI of fuels by more than 40 g CO_2e/MJ.[6] These practices are not limited to their GHG benefits; they provide "additional ecosystem service benefits, including watershed protection, increased biodiversity, and improved soil health and fertility."[7]

There is significant opportunity to increase the adoption of these practices on U.S. farmland. A recent study found that no-till or strip-till is practiced on only 30% of cropland.[8] Furthermore, these practices are not always maintained by farmers. While no-till practices were adopted on almost 8 million acres between 2012 and 2017, farmers on more than 5 million acres discontinued no-till during the same period for a net gain of only 3 million acres.[9] Another practice that can reduce GHG emissions, the planting and cultivation of cover crops, has an even lower adoption rate than no-till. Unfortunately, only 5.1% of the approximately 300 million cropland acres planted cover crops in 2017.[10] The LCFS program has the potential to provide a strong and long-term incentive for farmers to implement no-till, cover crops, double-cropping and other similar practices.

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[2] Nabuurs, G-J., R. Mrabet, A. Abu Hatab, M. Bustamante, H. Clark, P. Havlík, J. House, C. Mbow, K.N. Ninan, A. Popp, S. Roe, B. Sohngen, S. Towprayoon, 2022: Agriculture, Forestry and Other Land Uses (AFOLU). In IPCC, 2022: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change[P.R. Shukla, J. Skea, R. Slade, A. Al Khourdajie, R. van Diemen, D. McCollum, M. Pathak, S. Some, P. Vyas, R. Fradera, M. Belkacemi, A. Hasija, G. Lisboa, S. Luz, J. Malley, (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA. doi: 10.1017/9781009157926.009

[3] Mathews, D.H., Wynes, S. (2022) Current global efforts are insufficient to limit warming to 1.5°C. *Science* 376 (6600) 1404-1409. https://www.science.org/doi/10.1126/science.abo3378

[4] Mace, M.J., Fyson, C.L., Schaeffer, M., Hare, W.L. (2021) Large-Scale Carbon Dioxide Removal to Meet the 1.5°C Limit: Key Governance Gaps, Challenges and Priority Responses. *Global Policy* 12 (51) 67-81. https://doi.org/10.1111/1758-5899.12921

[5] CARB (2022) 2022 Scoping Plan for Achieving Carbon Neutrality. https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf

[6] Liu, X. et. al. (2020) Shifting agricultural practices to produce sustainable, low carbon intensity feedstocks for biofuel production. *Environ. Res. Lett.* https://doi.org/10.1088/1748-9326/ab794e

[7] *ibid*.

[8] Pannell, D. J., & Claassen, R. (2020). The Roles of Adoption and Behavior Change. *Applied Economic Perspectives and Policy* 42 (1) 31–41.

[9] Sawadgo, W., & Plastina, A. (2022). The Invisible Elephant: Disadoption of Conservation Practices in the United States. *Choices* 37(1) 1–13.

[10] Wallender, S., Smith, D., Bowman, M., & Claassen, R. (2021). Cover Crop Trends, Programs, and Practices in the United States. https://www.ers.usda.gov/publications/pub-details/?pubid=100550

CARB is also proposing that all crop-based feedstock used for LCFS fuel pathways must obtain third-party sustainability certification by January 1, 2028, under an approved certification system. These certification systems "must consider environmental, social, and economic criteria," an expansive list that is likely to place a significant financial burden and obligations on farmers that elect to continue to supply feedstocks for biofuels production. Given the broadness of these requirements and the significant additional administrative burden this will impose on farmers and the producers who buy from them, we urge CARB staff to clarify the specific environment, social and governance ("ESG") criteria that these certifications are meant to address in the context of crop-based feedstocks and to seek further stakeholder feedback on development of these criteria after this rulemaking. This requirement is consistent with the verification of land use under the EU Renewable Energy Directive (RED). Under international polices such as RED, CORSIA, and RenovaBio, fuel producers are required to collect farm level data and are thus able to benefit from improved farming practices. CARB should also provide a 3-year grace period for any certification system that it plans to suspend or remove, to give stakeholders sufficient time to get certified under a different certification system.

Additionally, sustainability certifications that address these ESG criteria will often also include a rigorous GHG accounting for feedstock CI calculation. For example, both the Roundtable for Sustainable Biomaterials (RSB) and the International Sustainability & Carbon Certification (ISCC) are existing sustainability certification systems that may meet the requirements outlined in Section 95488.9(g); both systems have already developed GHG methodologies for feedstock CI calculation.[11,12] If CARB requires farms to go through the rigorous process of third-party sustainability certification, then we respectfully request that CARB also consider accepting a feedstock CI score that is calculated and verified in accordance with certification system standards. This would provide a mechanism to compensate farmers adopting climate smart practices for the additional work of certification. Specifically, we ask the Board to direct staff to evaluate existing GHG calculation methodologies and develop guidance around feedstock CI calculation.

We are asking the Board to direct staff to investigate how the agriculture sector can be optimized to produce low-carbon biofuels to meet the state's SAF goal. Specifically, we are requesting the Board to prioritize policy discussions and the associated technical analysis related to low-carbon feedstocks for the production of SAF. This technical analysis should include a thorough lifecycle analysis to determine the extent to which supplies of sustainable biofuels produced from various feedstocks can be expanded while not converting additional land to agricultural uses. This technical analysis should be informed by the other primary LCA methodologies including Argonne GREET. To ensure the timely analysis of this information, we request that the Board direct staff to report back to the Board by the end of 2025 on the results of lifecycle analysis and progress toward developing policies to encourage the production of SAF.

For the foreseeable future, liquid fuels will be required to power the majority of airflight thus necessitating a rapid expansion in the supply of SAF. In order to create demand for the fuels with the lowest actual CI possible, ARB needs to account for and incentivize field-based practices. Fortunately, the

[11] RSB GHG Calculation Methodology v2.3 (2017). https://rsb.org/wp-content/uploads/2020/06/RSB-STD-01-003-01-RSB-GHG-Calculation-Methodology-v2.3.pdf

[12] ISCC EU 205 Greenhouse Gas Emissions (2021). https://www.iscc-system.org/wp-content/uploads/2022/05/ISCC_EU_205_Greenhouse-Gas-Emissions-v4.0.pdf

benefits of these sustainable agricultural practices go beyond their GHG savings, positively impacting our water, ecosystems, and soils.

CARB has been an international leader in developing and implementing programs to reduce GHG emissions across the California economy and the inclusion of climate smart agricultural practices will continue the State's leadership throughout the country. We thank CARB for this opportunity to offer these comments and look forward to continued collaboration to implement policies and strategies that further reduce emissions from the transportation sector.

Sincerely,