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May 10, 2024

Ms. Rajinder Sahota
Deputy Executive Officer - Climate Change & Research
California Air Resources Board
1001 I Street
Sacramento, California 95814

Re: California Bioenergy's Comments on CARB's April 10th, 2024 Public Hearing on the Low Carbon Fuel Standard

Dear Ms. Sahota,

Thank you for the opportunity to provide these comments to California Air Resources Board (CARB) relating to the Low Carbon Fuel Standard (LCFS) Public Hearing which took place on April 10th, 2024. California Bioenergy LLC (CalBio) is appreciative of CARB's efforts over the past several years to develop the LCFS program into one of the most impactful policies to support the transition from fossil fuels to lower carbon alternatives. There are few programs in the world which can boast the significant decarbonization of the transportation sector through sound science and policy. We write these comments from the perspective that the climate emergency demands CARB strengthen the program to support achievement of California's legislatively-mandated greenhouse gas (GHG) reduction targets.

Founded in 2006, CalBio works closely with California dairy farm families, dairy co-ops and cheese producers, CARB, the California Department of Food and Agriculture (CDFA), the California Public Utility Commission (CPUC), the California Energy Commission (CEC), and the U.S. Environmental Protection Agency (EPA). We exist to reduce methane emissions and are committed to enhancing environmental sustainability for all Californians. CalBio's digester projects produce carbon-negative renewable natural gas and electricity, both used as a vehicle fuel to power low-emission trucks, buses, and cars. Our projects create the following in-state benefits:

- Reduce GHGs which help the state achieve the legislated carbon reduction goals.
- Support SB1383 methane reduction goals.
- Produce renewable energy that displaces fossil-derived fuels such as diesel, gasoline, and natural gas.
- Improve local air quality by reducing emissions and formation of H2S, PM, SOX, and NOX.
- Direct investment and job creation in disadvantaged communities.
- Invest in the community by creating scholarships, supporting affordable housing and engaging in community benefits agreements.
- Provide a new revenue stream along with other meaningful benefits to our multigenerational dairy partners.

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In our comments below, we suggest practical and necessary revisions which serve to improve the LCFS program in its ambition to reduce GHG emissions and implement a successful program.

1. **CalBio recommends a 9% stepdown in 2025**

As of Q4 2023, the LCFS credit bank has swelled to more than 23.5 million credits, largely driven by growth in renewable diesel, electricity, and biomethane. The program has become a victim of its own success and now overcompliance threatens to stifle investment making it uneconomic to build new projects under the current market conditions.

In the April 10th, 2024 workshop, CARB covered various scenarios of strengthening a near-term stepdown, showing the current 5%, 7%, 9%, as well as a 5% scenario in which the AAM is triggered twice. In the interest of moving swiftly to a final rule that can be implemented, CalBio recommends a stepdown of at least 9% in 2025. We further recommend that CARB retain the annual rate of CI reductions proposed in the 45-day package to complement increasing the step down in 2025 to 9%. This means that with a 9% step down in 2025 the 2030 CI reduction target should be 34%. However, it is important for CARB to recognize CATS modeling inputs and outputs represents a significant understatement of the reality of low carbon fuel production from operating facilities. For example:

- Our review of industry RD-SAF plants that have recently commenced operation and have announced intentions to direct more supply to California indicates that the CATS model is underestimating supply by approximately 1 billion gallons in 2024.
- Similarly, based on our review of the LCFS quarterly report and built projects, we believe the CATS model is severely underestimating dairy RNG production by at least 92 million gallons (Q4 2023 annualized) in 2024 and 100 million gallons in 2025.
- Of additional importance, we would like to highlight that the CATS model does not include a tailpipe emission factor for RD and biodiesel as the April 10th workshop presentation indicates. In our view, this results in greater credit generation for RD and biodiesel production as ULSD is increased by approximately 6 CI points while RD and biodiesel production are unchanged.
- The combined effects of the above could result in a credit bank increase of greater than 10 million credits in 2024 that is not appropriately recognized or accounted for in CARB's modeling.

The recognition of an oversupplied credit bank is also supported by ICF, an international consulting firm who has been analyzing the LCFS for years. ICF has found that the program could accommodate a near-term stepdown of 10.5-11.5%[1]. A stepdown of this magnitude would lead to further investment in low-

[1] https://www.arb.ca.gov/lists/com-attach/7078-lcfs2024-VDVcNFIyVGsLdFQu.pdf

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carbon fuels delivering millions of tons of additional GHG reductions, consistent with CARB's goals for the program and 2022 Scoping Plan.[2]

2. The Automatic Acceleration Mechanism (AAM) should be allowed to trigger in 2027

Given even a 9% stepdown will not be sufficient to bring the bank down to a level to incentivize carbon reductions, CalBio recommends allowing the AAM to trigger one year earlier. As currently proposed, the AAM will not kick in until 2028 based on the 2026 data.

CalBio does not believe there is any reason to delay implementation of the AAM. Delaying and waiting to review the market performance until 2027 creates the likelihood for excessive bank builds in 2025 and 2026, leading to further stagnation of investment in low-carbon fuels. Such a delay in investment now will make it harder for CARB to achieve its carbon reduction targets in the out-years of the program when decarbonization will be more challenging. In particular, the dairy digester industry is ready to help the state meet its SB1383 methane reduction goals, but the mechanism must be designed properly to achieve those necessary reductions in the future. See our recommendations and rationale below for how the AAM should function.

Specifically, CalBio recommends that the Automatic Acceleration Mechanism be considered on a four-quarter rolling basis, rather than on an annual basis. If the criteria for the AAM are met on a four-quarter rolling basis, then the change in the CI could be implemented on January 1st of the next calendar year after the criteria are met. For instance, evaluating the AAM triggers annually risks missing a bank build and not allowing for a correction for a full 2 years. Consider if the AAM as currently proposed by CARB were in effect in 2022. When evaluating 2022 data in 2023, the conditions triggering the AAM would not have been met which would have led to the bank build in 2023 occurring as it did. The AAM trigger would not occur until May 2024, effective Jan 1, 2025, meaning the depressed market we are observing today would not have been avoided. The AAM as currently proposed is too slow to react to this dynamic of a market. However, if the AAM were allowed to trigger based on a four-quarters rolling basis, the Q1 2023 data would have resulted in a new, lower CI target for January 1, 2024. This approach minimizes the duration of bank builds from 8 quarters to 4 quarters, enhancing market responsiveness.

Lastly, CalBio recommends that the first criteria for the Automatic Acceleration Mechanism be modified such that the mechanism is enacted when the credit bank is more than 2.5 times greater than the quarterly deficits generated on a four-quarter rolling basis (down from the proposed value of 3 times). The reason for this is the first criteria for the AAM would not have been met based on data from 2022 and the market would not have avoided the oversupply of credits we have observed in 2023 and 2024.

[2] https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf

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3. CI True-Ups are Necessary for Proper GHG Accounting

CalBio is appreciative to CARB for proposing a credit True-Up after provisional certification and recognizing the actual GHG reductions that have occurred when a project's CI score decreases. Unfortunately, this approach fails to recognize, perhaps more importantly, the true GHG reductions that should be credited once the provisional certification is achieved relative to the GHG reductions credited while operating under the -150 CI Temporary Pathway for dairy digesters. It is unclear why CARB deviated from this approach in the proposed rule, particularly when it was workshopped in 2022 during which time it proposed adjusting the temporary CI score and did not contemplate adjustments for subsequent verifications.[3]

A key point raised in those workshops was the idea that a True-Up would ease the pressure for CARB to review pathways and alleviate concerns with delays in certification. Considering CARB staffing shortages leading to pathway review times often exceeding 18 months from the time they are submitted, it would be in CARB's own interest to give itself the necessary time to review projects without unfairly discounting legitimate GHG reductions for delays outside the project's control. The Temporary CI has been conservatively set to -150 gCO2e/MJ; this can cost a project millions of dollars while waiting for a return on investment. If this issue is left unresolved, it further poses risks to future investment in projects and reduces the potential for additional GHG reduction opportunities. CARB should be taking steps to encourage development, and credit projects appropriately in the interest of fairness and reflecting true environmental performance.

As it relates to pathways CI score changes, it remains necessary to properly recognize the true environmental performance of all pathways. A project should be able to apply its actual CI score retroactively to the period for which credits were generated at a higher score. Similarly, a project which experiences a CI exceedance to what was previously certified should not be subject to the draconian 4x credit penalties contemplated in the proposed regulation. This rule will only cause projects to report unnecessarily high conservative margins of safety, making already financially challenged projects even more difficult to build, and leaving carbon reduction opportunities on the table. CARB must recognize that CI scores are extremely dynamic at dairy projects given they are based on biological conditions over which the operator has very little control due to shifts in herd populations, temperature, manure management practices, and natural variations in biogas production. An increase in CI is often the result of improved performance and efficiency at a digester, and the project should not be penalized for that. However, CalBio strongly endorses a full credit true-up, in either direction, to maintain proper and true GHG accounting.

[3] https://ww2.arb.ca.gov/sites/default/files/2022-08/August%202022%20Workshop%20Slide%20Deck%20Presentations.v16.pdf

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4. Allow for Book & Claim of RNG to Off-site Electric Generators

An important opportunity for CARB to incentivize additional GHG reductions is to expand the language in §95488.8(i)(2) to allow for the book-and-claim of pipeline-injected biomethane to be used to generate Low-CI electricity as a transportation fuel. Currently, CARB recognizes electricity as a transportation fuel in §95482(b) and moreover in §95488.8(i)(1) recognizes that "Low-CI electricity used as a transportation fuel can be indirectly supplied through a green tariff program…or other contractual electricity supply relationship." This is achieved by REC-matching, where the reporting entity must demonstrate that the low-CI electricity is supplied through book-and-claim accounting to electric vehicle charging provided "that any renewable energy certificates associated with the low-CI electricity were retired in the WREGIS for the purpose of LCFS credit generation" (see §95491(d)(3)). However, in the context of electricity derived from low-CI dairy biogas, this pathway requires the RECs to be created from a generator co-located with the digester.

Given the recognition CARB has for 1) book-and-claim of Low-CI electricity production to be matched to electric vehicles, and 2) RNG injected into the commercial distribution pipeline and withdrawn at a CNG station in California, CalBio argues that by the same logic, RNG injected and withdrawn via book-and-claim should qualify for the purposes of generating electricity. In this construct, RECs generated from an electric generator located off-site from the dairy powered by gas fed through the utility pipeline should similarly be allowed to match RECs to electric vehicles.

This approach aligns with CARB's existing book-and-claim accounting framework and greater GHG reductions could be realized by making this targeted change to the regulatory text that is in keeping with CARB's objectives of supporting the transition to zero emission transportation. As noted, this recommendation is fully aligned with CARB's goals expressed in the Initial Statement of Reasons (ISOR), page 4, which states:

> *"This regulatory update proposal, which is described in detail in this staff report, is focused on the following key concepts:*
>
> - *Increasing the stringency of the program to reduce emissions and decarbonize the transportation fuel sector, which will also aggressively reduce our dependence on fossil fuels;*
> - *Strengthening the program's equity provisions to promote investment in disadvantaged, low-income and rural communities;*
> - ***Supporting electric and hydrogen truck refueling;*** *(emphasis added)*
> - *Incentivizing more production of clean fuels needed in the future, such as low-carbon hydrogen;*
> - ***Supporting methane emissions reductions and deploying biomethane for best uses across transportation;*** *(emphasis added)*

Further on page 6 of the ISOR, it states:

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> *"The purpose of the LCFS regulation is to reduce the carbon intensity (CI) of transportation fuels used in California, thereby reducing GHG emissions, and to **incentivize the production of low-carbon and renewable alternatives, such as low-CI electricity** and renewable hydrogen, and biofuels to displace fossil fuels and allow more energy security in the transportation sector." (emphasis added)*

Further on page 30 of the ISOR, it states:

> *"**Biomethane can play a key role in decarbonizing stationary sources** or other energy applications, and the 2022 Scoping Plan Update identifies additional end uses in the industrial, commercial, and residential sectors; production of hydrogen; and **electricity generation by displacing the need for fossil gas.**" (emphasis added)*

CARB would be remiss to lose this opportunity to encourage and incentivize low-CI dairy biomethane to be used for electricity generation. This will create an additional market for RNG derived from dairy biogas, as CARB has signaled it is seeking to phase it out of combustion in CNG vehicles and "direct biomethane to sectors that are hard to decarbonize or as a feedstock for energy."[4] Directing RNG as a feedstock to electricity production is a readily available solution and further encourages grid resiliency which will be necessary as electric vehicle charging scales in the state.

5. Establish a Temporary CI for Dairy Biogas to Electricity

It is of great concern to CalBio that no Temporary CI for Dairy Biogas-to-Electricity pathways has been established in the LCFS since the program's inception and that CARB has not sought to correct for this in the proposed amendments. The failure to include this provision discriminates and disadvantages in-state dairy digester projects which contribute to California's SB 1383 goals and provide renewable electricity as a grid resource and transportation fuel. As referenced in the ISOR and quoted in CalBio's comments under topic #4 above, one of the *primary purposes* of the LCFS regulation is to incentivize the production of low-carbon and renewable alternatives, such as low-CI electricity.

CARB should correct this oversight given dairy biogas-to-electricity pathways fully reduce methane in the same manner as dairy biogas-to-RNG pathways and thus should be treated equally. Project economics for dairy biogas-to-electricity are generally more challenging than RNG projects given they are currently not eligible to participate under the EPA's Renewable Fuel Standard program or participate in the LCFS and BioMAT simultaneously. Failure to allow electric projects to receive a Temporary CI score further exacerbates the concerns expressed in CalBio's comments under topic #3 by preventing beneficial projects from receiving revenue until the provisional certification is achieved, a process which can last close to two years.

[4] https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf

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It should be noted that CalBio has made significant financial investments in cleaner electricity generating technologies such as Bloom Fuel Cells and Mainspring Linear Generators which convert methane into electricity without combustion. These technologies should alleviate concerns around NOx emissions associated with internal combustion engines. CalBio would be supportive of CARB unlocking the Temporary CI for dairy biogas-to-electricity if it meant requiring the use of a non-combustion technology such as a fuel cell or linear generator.

6. **Grandfather Existing Pathways Certified under GREET v3.0**

CalBio is proposing CARB consider grandfathering in pathways which have already been certified under GREET v3.0. These pathways have already undergone the public review and comment period and should remain under models which have been validated and verified through the end of their crediting periods. It would be administratively burdensome to deviate from the modeling that has been established for existing pathways and require unnecessary adjustments to the information CARB and 3rd party verifiers have already reviewed and approved.

7. **Section 95491.2 Missing Data Provisions requires significant reforms**

The requirements for submitting an Alternate Method Request (AMR) within 10 days after submitting an Annual Fuel Pathway Report (AFPR) as written in Section 95491.2 will be challenging if not impossible to comply with. This is a technical issue and discussion yet important nevertheless to manage projects.

There are often situations when missing data or other situations requiring an AMR are identified after these deadlines and are deemed necessary after review by a verifier after consulting with CARB. For example, we had a case where a dairy temporarily used a diesel vacuum truck to haul manure from a few pens for two weeks of the year. This information was not reported by the dairy owner until the AFPR site visit, which occurred well after the annual AFPR report deadline. CARB's program should be designed around flexibility and the ability to report accurately without prohibiting the ability to generate credits wholly on account of missing this 10-day deadline. Such an approach is overly punitive for small issues that have a negligible impact on the CI and will not solve CARB's well-intentioned approach to reduce staff time reviewing these issues.

A couple of potential suggestions:

- We suggest a more reasonable 30-day deadline from the date a reason for an AMR is identified by the applicant, the verifier, or CARB. This will allow AMRs to be submitted and reviewed throughout the year and not burden CARB staff time all at once, consistent with CARB's goals of
- Alternatively, we suggest a calendar-based requirement that the AMR be submitted no later than 10-days after the August 31 annual verification deadline which will allow the pathway

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holder to complete verification and work with CARB and the verifier to determine an Executive Officer-approved method.

- Note, this appears to be consistent with the intent as stated in the Appendix E: Purpose and Rationale of Proposed Amendments for the Low Carbon Fuel Standard Requirements:
  Providing 10 days after report submittal allows the applicant to ensure they can complete the reporting process and still have up to 10 days to provide the necessary documentation to CARB as part of the alternate method request.

This implies CARB's intent is to allow flexibility on behalf of the pathway holder, but the plain language suggests credits will be invalidated if an AMR is not submitted for an issue that is not known by the pathway holder at the time of the deadline. Furthermore, LCFS credit generators should be afforded the opportunity to work with CARB to "assign a conservative alternate method for use during the missing data timeframe" in the same way that is allowed for deficit generators.

Separately, CARB should specify a lower threshold for "Missing Data" where the requirements to use Table 13 are only triggered if a certain duration or volume of missing data is observed. For instance, if >95% of the data is available, then the default should be that any missing data should be left to a verifier to review and confirm reasonableness rather than prescribing a one-size-fits-all approach. This will reduce the burden on CARB staff while still maintaining a high level of integrity for the data used in a pathway.

Lastly, three out of four data substitution methods in Table 13 require calculations that rely on "quality assured values from the current data year". Using data from the entire data year is unreasonable and will be highly problematic to implement for Quarterly Fuel Pathway Reports. For instance, if there is a metering data outage lasting 20 days covering a period between March and April, according to the guidance this would trigger data substitution requiring use of the "10^{th} or 90^{th} percentile of quality assured value from current data year". However, given that data will continually be collected throughout the remainder of the year, the substituted values will similarly need to change all the way until December 31 of that year. That means potentially every quarter, the previous Quarterly Fuel Pathway Reports which had the affected data period will need to be re-opened to modify values according to the newly collected data. Instead, CalBio strongly recommends CARB limit the substitution to occur using data only within a fixed number of days (30 days before or after), or within the calendar month or calendar quarter as opposed to the entire calendar year (Jan to Dec). Otherwise, this will lead to reporting volumes in the LRT continually needing to be opened up to revise, requiring CARB staff time review and approval for an insignificant change in the number of credits.

CalBio thanks CARB for the opportunity to comment on the LCFS regulations and we look forward to further dialogue on these topics.

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Sincerely,

Andrew Craig
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California Bioenergy LLC