



December 8, 2022

LCFS Rulemaking Team
California Air Resources Board
via comment form

Feedback on the November 9, 2022 Public Workshop to Discuss Potential Changes to the Low Carbon Fuel Standard

Climate Action California, 350 Sacramento, 350 Humboldt, Climate 911, and Active San Gabriel Valley are volunteer-based organizations with thousands of supporters concerned about climate change and working for effective, just solutions. We appreciated the thorough presentation at the recent workshop and discussion that followed. Thank you for providing the opportunity to engage.

The Low Carbon Fuel Standard has proven to be a successful tool to transition our fuel pool away from fossil fuels and toward lower carbon fuels that will allow California to move toward carbon net zero and lower criteria pollutant emissions. It is our hope that CARB will continue to focus on those goals, despite the fact that the program has created some very vocal constituencies for, and in some cases against, specific fuels. Every low carbon fuel producer can and will claim that a change that disadvantages them will be an environmental setback. That is not necessarily true, as each fuel has a different impact on the world, and no one fuel is either necessary or sufficient to achieve the program's goals.

Given the goals of the LCFS, credit-generating fuels and activities should be rewarded on only two criteria: (1) carbon intensity, and (2) what effect the fuel or activity has on the desired transition to zero emission transportation. Additionally, the LCFS must not prolong, perpetuate, or exacerbate local pollution. Our comments below flow from those premises.

1. CARB should seek the most ambitious reduction goal possible. Among the three placeholder alternatives on page 26 of the presentation, that would be Alternative C with a carbon intensity (CI) reduction of 35 percent by 2030 and 90 percent by 2045. We do not have sufficient information to support a specific numeric goal that might be even more ambitious, but trust that CARB's analysis can identify an appropriately ambitious but feasible target. Given the current credit surplus, there is an opportunity to draw a non-linear compliance curve that creates extra deficits in the early years.

Feasibility is a highly flexible concept in the context of a market-based program. The history of environmental regulations demonstrates time and again that what is considered barely feasible by experts living in the technological and economic reality of year zero is readily achieved and even surpassed by the technology and markets that exist in year ten.

Accordingly, there is little risk in erring in the direction of stringency, subject to the limit that technological progress and market-driven investment need some time in which to develop. At worst, an "overly" stringent goal temporarily raises credit values until the fuel-producing and fuel-consuming markets respond.

Because the IPCC is giving us 8-11 years to cut GHG emissions by 50 percent if we want to have at least a 50 percent chance of keeping warming to 1.5 degrees C, this and all other options must be front-loaded before 2030. Unfortunately this reality is obscured by the scoping plan's focus on a gradual glide path to 2045. By front-loading alternative fuel deployment LCFS will be in line with climate science. More frontloading than is contained in Alternative C is obviously desirable.

Ideally Alternative C could include the phaseout for negative emissions crediting, particularly for dairy biogas. As discussed below, generously crediting that fuel creates a risk of protecting and prolonging both the livestock industry and fuel combustion.

2. The LCFS program's second goal (promoting fuels that will allow a low or zero-carbon future and reduce criteria pollutants) supports, and we support, a number of concepts that were discussed at the workshop.
 - **Phasing out credits for projects that reduce the CI of petroleum fuels.** That phase out should be part of all three Alternatives. Several California laws and executive orders state a goal to eliminate dependence on petroleum.¹ In the long run, it makes zero sense to support the petroleum industry's continued existence by giving credits for slightly less carbon-intensive ways of producing or refining petroleum. Those are not innovations that will ultimately lead to the innovative low-carbon and zero emission fuels that California needs.

¹ E.g., Pub. Res. Code section 25000.5, which declares that "petroleum use as an energy resource contributes substantially to ... air pollution, acid rain, global warming, and the degradation of California's marine environment and fisheries."

- **Phasing out the “negative emissions” aspects of pathways that capture unregulated, fugitive emissions.** In the short term, capturing methane is a critical goal. But some perverse incentives call for additional scrutiny. In some settings, generous credit calculations for avoided emissions could incentivize *maximizing* emissions, rather than eliminating them. For example, a dairy that could use alternative manure management practices to reduce the generation of methane is currently incentivized to manufacture methane by operating a water-intensive flushed system into a lagoon with an anaerobic digester, turning the manure into a profit center. Instead, that dairy could employ more effective and multi-beneficial practices such as dry manure handling and storage, pasture-based systems, or vermifiltration to reduce the generation of methane.

Moreover, the availability of generous credits for using unregulated fugitive emissions creates a constituency that will resist regulations meant to eliminate such emissions in the first place.

As other commenters have pointed out, the large concentrated animal feeding operations that can economically build a digester have numerous adverse consequences for groundwater, local air quality and odors for neighbors who are often communities of concern for environmental justice. That adverse consequence of LCFS crediting is a legitimate consideration for the LCFS program.

Finally, the system boundary for these facilities may have been incorrectly defined. Given the inputs (such as feed, electricity, ag equipment fuel) and outputs (milk, manure, digestate used as fertilizer, RNG fuel) it may make sense to view a dairy as a facility with co-products, rather than simply to zero in on manure and deem that a waste. Those challenges put the current CI calculations into question and suggest that limiting these pathways may be appropriate.²

The dairy industry faces natural attrition and shrinking herds due to the popularity of plant-based milk alternatives. Given that dairy cows are a significant methane source (from both enteric emissions and the manure), that is a favorable development. The LCFS should not be throwing a lucrative lifeline in the form of generous LCFS credits the sector, especially when those credits are, in effect, directed to the largest facilities that

² With respect to how digesters fit into the overall GHG ecology of the dairies, the literature includes a study of two farms with biodigesters that, after five years, had no less overall GHG emissions than before installation of the digesters. Z. Debruyne, A. VanderZaag, and C. Wagner-Riddle, ‘Increased dairy farm methane concentrations linked to anaerobic digester in a five-year study’ *Journal of Environmental Quality*, 2020; 49: 509– 515.

Part of the problem is that livestock biogas pathways do not treat the gas as a co-product from a meat or milk producing facility with larger life-cycle emissions, including from housing methane-burping ruminants and growing and transporting feed. Statewide, enteric emissions have been calculated to be roughly equal to emissions from manure.

are most problematic to the local environment. Even if digesters were 100% efficient and leak free, the large herds needed to make a digester economical will still produce significant enteric methane emissions, so it is conceivable that in the near future the LCFS credits for dairy digester gas may *increase methane emissions* both by increasing herd size and thus enteric methane³ and by artificially propping up an otherwise shrinking industry. Concerns about “leakage” can be addressed when and if the problem becomes apparent.

Thus, with respect to the two biomethane options presented on workshop slide 31, we would like to see no new fuel pathways approved that include avoided livestock methane emissions beginning in 2025, sooner than suggested for Alternatives A and B. Credits based on avoided livestock methane should also end after ten years for any pre-2025 facility. Moreover, those limits should be included in Alternative C, which includes the most stringent overall CI reductions.

- **Expanding infrastructure crediting to medium- and heavy-duty vehicle fueling.** The infrastructure for charging the larger batteries in larger vehicles poses a significant challenge, and an obstacle to transitioning the fuel pool away from petroleum. We likewise support the scoping plan priority on developing green hydrogen infrastructure for medium and heavy-duty ZEV (option B/C on page 34 of the presentation slides).
 - **Intrastate aviation fuel should be included for both deficits and credits.** Because global aviation emissions are growing at a time when global emissions need to dramatically shrink, supporting cleaner fuels and creating an example for other jurisdictions has a great value.
3. Finally, in keeping with the goal to hasten the transition to zero-emission fuels, CARB should consider an arbitrary credit bonus in some form available to fuels that do not require combustion in vehicles. Liquid and gaseous fuels – even low-carbon ones that are significant improvements on petroleum – do not support new non-combustion technologies. Combustion has additional negative environmental impacts (NOx, SOx, aromatics, etc.) , which non-combustion energy sources do not. At some point in the future, LCFS support for low-carbon liquid fuels and renewable gas will become an obstacle to the adoption of zero-emission vehicles. We do not know when that point will arrive for various fuels, but it is a subject CARB should study now. In the case of RNG, we may have already reached that point; some RNG producers already help finance new NG-burning trucks to create or maintain a market for their fuel. Given the desirability of ZE trucks, all CARB programs should be aligned to support them.

³ A. Younes and K. Fingerma, “Quantification of DairyFarm Subsidies Under California’s Low Carbon Fuel Standard,Arcata, CA.” Study conducted for the Union of Concerned Scientists.(2021).

A related concern with liquid biofuels, to the extent they are produced from crops, is the significant negative impact producing those fuels has on agricultural lands. It appears that producing crop-based biofuels has expanded the kind of intensive, industrial, mono-culture practices that are inconsistent with sustainable farming and other carbon capturing strategies we need to employ for working lands.

Thank you for the opportunity to participate in discussing changes to the LCFS. We look forward to further progress with the amendments.

Sincerely,

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