December 13, 2022

The Honorable Steven S. Cliff
Executive Officer
California Air Resources Board
1001 I Street
Sacramento, CA 95814

**Re: Comments on Proposed Changes to the LCFS Program**

Dear Executive Officer Cliff:

The Bioenergy Association of California (BAC) submits these comments on the November 9 staff presentation on the Low Carbon Fuel Standard. BAC's comments focus primarily on the proposed changes to biomethane under the LCFS. Biomethane provides the lowest carbon fuels and the most cost-effective of all carbon reductions in the LCFS program, in part because biomethane from organic waste reduces Short-Lived Climate Pollutants, the most urgent and beneficial step we can take to address climate change. For these and other reasons, BAC urges ARB to make only those changes that continue to support and accelerate the use of biomethane generated from organic waste and used in California. In particular, BAC urges ARB to:

- Increase the carbon intensity reduction required by 2030 to at least 35 or 40 percent to begin to align the LCFS targets with SB 32, the RPS and other climate policies;
- Continue to include the value of avoided methane emissions except where the methane avoidance is already required by law;
- Require eligible biomethane to be generated and used in California or injected into western gas grid pipelines that flow toward California, consistent with the RPS and SB 1440 programs, but phase this requirement in over nine years, as the RPS did;
- Increase incentives for instate biomethane production and near-zero emission trucks that run on instate biogas; and
- Accelerate efforts to capture and use landfill gas, but not require that it be converted to hydrogen to be eligible under the LCSF.

BAC represents over 100 members, including most of the instate producers of biomethane and bioenergy. BAC members are producing biofuels from diverted organic

waste, dairy manure and agricultural waste, forest waste removed for wildfire mitigation and forest health, and landfill and wastewater biogas. BAC and its members have supported the LCFS from its inception and continue to support the program.

BAC agrees that changes are needed to the LCFS to drive down carbon intensity more quickly and to align the LCFS carbon reduction targets with SB 32 and the state's other climate and clean energy programs. Doing so will require increasing the carbon reduction target – a lot – and both increasing and stabilizing credit prices to give project developers more incentive and more certainty. It will also require continued participation of the lowest carbon fuels, which includes biomethane, biogas and hydrogen generated from organic waste. These are also the only fuels that reduce Short-Lived Climate Pollutants, which should be the state's highest climate priority since it is the only way to begin to cool the climate in the near term.

BAC's comments on the November 9 staff presentation are below.

1. **ARB Should Adopt a Higher Carbon Intensity Reduction by 2030 and 2035.**

The transportation sector continues to be California's largest source of emissions, so it is critical to align the carbon intensity targets in the LCFS program with the state's overall climate goals. Since SB 32 requires a 40 percent reduction in overall carbon emissions by 2030, the Air Board should require the same reduction in the transportation sector. Not only will this help align reductions in the transportation sector with the state's overall climate targets, but it will provide greater carbon reductions sooner, which is significant. Earlier carbon reductions are much more valuable to help to stabilize the climate and begin to reverse climate change.

Alternatives A and B only propose a 30 percent reduction by 2030, which is well behind the requirements of SB 32 and the state's RPS, which requires that 60 percent of California's electricity be renewable by 2030. BAC urges ARB to adopt at least a 35 percent reduction target and, preferably, a 40 percent reduction by 2030 to begin to align the LCFS targets with the requirements of SB 32.

2. **Avoided Methane Emissions Should Continue to Be Included in the Lifecycle Analysis and Credits Unless They Are Required By Law.**

One of the biggest strengths of the LCFS program has been its focus on lifecycle carbon intensity analyses as the most scientific and comprehensive assessment of carbon emissions (and reductions) from participating fuels. In the GREET model and lifecycle analyses in general, avoided emissions are included when they are not otherwise required by law or when there are higher carbon options to comply with a law or regulation. Those are important qualifications to ensure that participating fuels – and their associated carbon reductions – are providing additionality.

ARB should continue to take a lifeycle approach to biomethane and all other fuels participating in the LCFS as the only objective, comprehensive, and science-based approach to assessing emissions, including avoided methane emissions. Setting an artificial end date for avoided methane emissions, whether or not they are required by law – and doing so only for biomethane does not make sense and contradicts the plain language of SB 1383.

First, ARB should not adopt changes for only one type of fuel, which moves the LCFS away from an objective, lifecycle-based program to one that treats different fuels differently. Biomethane is not the only eligible fuel that includes avoided methane emissions in its lifecycle analysis. Electricity, hydrogen, propane, and other fuels can also be generated from organic waste and help to reduce fugitive methane emissions. Why should those other fuels continue to benefit from the value of avoided methane emissions if biomethane cannot? It makes no sense to phase out credits for avoided methane emissions only for biomethane.

It also makes no sense to phase out credit for avoided methane emissions generally. The GREET model already excludes the value of avoided methane emissions that are required by law to ensure that carbon reductions credited under the LCFS are in addition to legally required reductions. To phase out credits for avoided methane emissions in general would exclude carbon reductions from the lifecycle analysis that are not currently required by law. This would hurt the fuels that are providing the biggest carbon reductions and, most important in the near term, the fuels that help meet the requirements of SB 1383 to reduce SLCP emissions. By the Air Board's own analysis, fuels from diverted organic waste and dairies also provide the most cost-effective of all the state's investments in carbon reductions.[1]

Phasing out credit for avoided methane emissions would also slow the state's efforts to reduce SLCP emissions as required by SB 1383. It would likely slow or halt the state's progress in reducing dairy methane, which has been one of the most successful carbon reduction programs in the state.[2] It would also hurt the state's progress in meeting the 75 percent waste diversion requirement of SB 1383 and would encourage cities and counties to choose higher emission but less expensive alternatives such as compost and mulch, instead of the far lower carbon pathway of converting that organic waste to bioenergy.

Phasing out avoided methane credits is not justified by science or law. SB 1383 does not regulate methane emissions from dairies before 2024 and even then establishes several pre-conditions to regulating dairy methane emissions that are unlikely to be met. That means that avoided methane emissions from dairies is additional and should be credited under the LCFS unless and until the state requires specific reductions from

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[1] California Air Resources Board, *California Climate Investments 2022 Mid-Year Data Update,* September 2022, showing that investments in dairy digesters and diverted organic waste cut carbon emissions for $9 and $10 per ton, respectively. ARB's 2021 Annual Report on Climate Investments also showed that investments in organic waste to energy were the most cost-effective of all the state's climate investments.

[2] Id.

dairies. Phasing out avoided methane credits also contradicts the requirement of SB 1383 to develop a mechanism to "reduce the economic uncertainty associated with the value of environmental credits, including credits pursuant to the Low-Carbon Fuel Standard regulations."[3] Removing credits for avoided methane does exactly the opposite of what SB 1383 sought to achieve, which is long-term financial certainty around the value of LCFS credits to reduce SLCP and other carbon emissions.

Excluding avoided methane emissions for diverted organic waste projects is also not appropriate for several reasons. First, SB 1383 only requires that 75 percent of organic landfill waste be diverted by 2025, meaning at least 25 percent will continue to be disposed of in landfills that are major methane emitters.[4] In addition, the regulations adopted by CalRecycle allow several alternatives to landfilling, including compost and mulch production, which are much higher emission than biomethane production from the same organic waste. A comprehensive literature review conducted for the State of Oregon Department of Environmental Quality found that converting organic waste to bioenergy provides 3.5 times greater carbon reductions than converting it to compost.[5] Recent methane monitoring by NASA's Jet Propulsion Lab underscores the difference between bioenergy and compost production. NASA's monitoring found that compost production produces a similar level of methane emissions to all but the leakiest 12 landfills in California.[6] So, even for the 75 percent of organic waste that is diverted from landfills, biomethane provides far greater carbon reductions than the allowable alternatives and the additional carbon reductions (avoided methane emissions) provided by biomethane should receive credit under the LCFS.

Excluding the value of avoided methane emissions from diverted organic waste does is not appropriate when SB 1383 only requires 75 percent of organic waste be diverted from landfills and allows much higher carbon alternatives to biomethane production. At a minimum, the LCFS should continue to include avoided methane emissions from the fraction of organic waste that will still be landfilled and it should give credit to avoided methane emissions from compost since that is an allowable alternative to biomethane production that is much higher emitting on a lifecycle basis.

The Air Board should not phase out credit for avoided methane emissions from biomethane before there is a viable alternative market to ensure that California's progress on SLCP reductions does not slow down or reverse. The November 9 staff presentation proposes to stop adopting new pathways in 2030 for biomethane with avoided methane emissions and to use biomethane instead in hard to electrify end uses. That may make sense at some point, but currently there is no procurement requirement or other market mechanism to move biomethane to hard to electrify end uses. The CPUC's biomethane procurement (SB 1440) program is focused on

[3] Health and Safety Code section 39730.6(d)(1)(B).

[4] Health and Safety Code section 39730.6.

[5] Morris, et al, *Evaluation of Climate, Energy, Soils Impacts of Selected Food Discards Management Systems,* prepared for the State of Oregon Department of Environmental Quality, October 2014, at pages ii-iii.

[6] http://methane.jpl.nasa.gov/. See also: https://www.jpl.nasa.gov/news/a-third-of-california-methane-traced-to-a-few-super-emitters.

residential use and small businesses, which are supposed to be electrified over time. Until California establishes a procurement program focused on hard to electrify or other end uses, and that program is tested and proven to work, the LCFS program should not begin to phase out biomethane pathways. Proposing that change now, when there is no comparable market for biomethane will jeopardize California's progress in meeting the requirements of SB 1383 to reduce methane emissions.

For all these reasons, BAC urges ARB to maintain a lifecycle analysis approach to carbon emissions, including avoided methane emissions, for biomethane and not to set an end date for new biomethane pathways until an alternative procurement program is adopted to ensure that California doesn't backslide on its methane reduction progress.

### 3. ARB Should Phase in a Requirement for Biomethane and Other Fuels To Be Generated in California or Injected into the Western Gas Grid, Consistent with Other State Policies.

BAC supports a requirement for biomethane to be delivered to California, not just injected into the western gas grid, but with a few important conditions. First, the requirement for delivery to California should apply to all fuels under the LCFS, not just electricity and biomethane. Second, the requirement should be phased in over nine years, as the RPS did for electricity generated out of state. And third, the requirement should be for delivery to California or injection into the western gas grid in pipelines that flow toward California, to ensure that eligible biomethane is in fact displacing fossil fuel use in California.

a. <u>ARB Should Require fuels generation in California or Injection in the Western Gas Grid.</u>

The staff presentation on November 9 proposed adding a requirement that biomethane must be injected into the western gas grid to be consistent with the treatment of electricity under the LCFS. BAC supports the goal of this proposal, to require or at least increase the likelihood that eligible biomethane will displace fossil fuel gas in California. As the Air Board notes on its website, the goals of the LCFS are to reduce both the carbon intensity of transportation fuels and our dependence on fossil fuels in California.[7] If LCFS fuels are not delivered to California, they will not reduce the carbon intensity or use of fossil fuels on the road in California.

ARB should adopt a delivery requirement that is aligned with the requirement for biomethane under the RPS and the CPUC's biomethane procurement program adopted pursuant to SB 1440. Both of those programs require delivery to California and benefits to California's environment. The requirement for biomethane under the RPS is set out in Public Utilities Code section 399.12.6(b) and the requirement for biomethane under SB 1440 is in Public Utilities Code section 651(b)(3).

[7] https://ww2.arb.ca.gov/our-work/programs/low-carbon-fuel-standard.

Requiring biomethane to be produced in or physically delivered to California, or injected into the western gas grid in pipelines that flow to California, is the only way to ensure that it does in fact displace fossil fuels used in California. The western gas grid, which is not a defined entity, should include the Rocky Mountain states, western Texas, and everything from there to the west coast. This requirement will also help meet the requirements of SB 1383, AB 1900 (Gatto, 2012), AB 2313 (Williams), SB 840 (Budget, 2016) and other laws calling on state agencies to increase the instate production and use of renewable gas, including biomethane and biogas.

b. The Delivery Requirement Should be Phased in over Nine Years.

BAC urges ARB to phase a delivery requirement in over several years, as the Legislature did with the RPS. The original RPS legislation, enacted in 2002, did not include a delivery requirement. RPS legislation enacted in 2011, however, established a delivery requirement that phased over nine years, between 2011 and 2020. By contrast, the Legislature established a delivery requirement for biomethane under the RPS that went into effect immediately (AB 2196, enacted in 2012) and that left out of state projects stranded.

There are several reasons why it makes sense to phase in a delivery requirement for biomethane. First, several out of state projects have been developed with the expectation of selling into the LCFS market. Giving those projects time to find alternative markets is much more equitable than an immediate exclusion. Phasing in a delivery requirement over several years also gives other states time to adopt their own LCFS programs, as they should. And, finally, phasing in a delivery requirement gives instate producers time to ramp up production of biomethane.

c. A Delivery Requirement Should Apply to All LCFS Fuels, Not Just Electricity and Biomethane.

The same rationale for requiring delivery of biomethane and electricity applies to all fuels under the LCFS. Since the twin goals of carbon intensity reduction and fossil fuel displacement in California apply to all LCFS fuels, ARB should expand this requirement to cover all eligible fuels under the LCFS, not just electricity and biomethane.

d. ARB Should Reevaluate the Phase-Out Timeline to Ensure that There is Adequate Instate Supply.

As part of a nine-year phase-out of undelivered biomethane, ARB should reassess whether there is adequate instate supply at the half-way point. Reassessing this will be important to ensure there is adequate instate or western grid supply and will also make clear whether additional incentives or policies are needed to accelerate production of biomethane that is delivered to California.

e. ARB Should Not Require Pipeline Injection for All Biomethane.

If ARB adopts a requirement for delivery of biomethane to California, or injection into the western gas grid, it should not require all eligible biomethane to be pipeline injected since some projects in California can use the biomethane they generate for onsite vehicle fueling. It is important, therefore, not to inadvertently exclude onsite fueling if ARB moves to require delivery of biomethane more generally (by requiring injection into the western gas grid).

### 4. ARB Should Adopt Additional Incentives to Accelerate Instate Biomethane Production and Should Advocate for Other States to Adopt LCFS Programs.

If ARB is going to limit or phase out biomethane from other states that are not in the western gas grid, then it should increase incentives for instate biomethane production and the trucks that run on that biomethane. Instate projects, as noted above, provide the greatest benefit to California by helping to meet the waste diversion and dairy methane requirements of SB 1383, helping to reduce open burning of agricultural and forest waste, and displacing fossil fuel use in California. Instate projects are much more expensive, however, and therefore need incentives to continue and accelerate biomethane production. As ARB has noted in the *2022 Climate Change Scoping Plan*, California is not currently on track to meet its SLCP reduction requirements and much more action will be needed to meet the requirements of SB 1383.[8] According to ARB's reports to the Legislature on the state's climate investments, the investments in organic waste to energy are the most cost-effective of all climate investments and among the most effective overall.[9] For all these reasons, therefore, ARB should increase incentives for instate biomethane production and for the trucks that run on that biomethane. Doing so will build the instate supply while ARB phases out undelivered biomethane.

To avoid out of state projects from shutting down, which would slow progress on SLCP reductions in other parts of the country, ARB and the Administration should also encourage other states to adopt their own LCFS programs. If other states do not, then valuable projects could be left stranded and the U.S. as a whole could backslide on its methane reductions.

BAC also urges ARB (and/or the CPUC) to adopt renewable gas procurement goals, that enable the use of biomethane and renewable hydrogen for hard to electrify end uses, including stationary sources such as large industrial and manufacturing uses. The current SB 1440 program is limited to residential and small business ("core") customers, many of which will be electrified in the coming decades, so it is important for California to adopt a new renewable gas decarbonization program that will cover the remaining natural gas users in the state. Doing so would help to accelerate California's progress in meeting its SLCP reduction goals and decarbonizing hard to electrify end uses.

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[8] *2022 Climate Change Scoping Plan*, released November 2022, at pages 223-224.

[9] See footnote 1, above.

## 5. ARB Should Not Require Landfill Gas to be Converted to Hydrogen.

BAC strongly supports the development and use of hydrogen, but opposes a requirement that all landfill gas using Book & Claim (B&C) must be converted to hydrogen. While it makes sense in some cases to convert biomethane to hydrogen, it should not be required for all B&C landfill gas. First of all, some B&C landfill gas may be produced and used in California, even if it is not used onsite. If ARB is going to adopt a requirement for B&C landfill gas, it should only apply to B&C projects where the landfill gas is generated out of state and is unlikely to be physically delivered to California. If the landfill gas is generated and used in California, even it uses B&C, there is no reason to require that it be converted to hydrogen.

Converting landfill gas to hydrogen may also increase the carbon intensity of the gas due to emissions from steam methane reformation (SMR) used to convert biomethane to hydrogen. ARB, in its March workshop on hydrogen in the transportation sector, found that landfill gas converted to hydrogen using SMR would have an average carbon intensity of 46,[10] which is higher than the average carbon intensity of landfill gas in California.

If ARB wants to reduce the use of B&C landfill gas, then it should require that out of state landfill gas be converted to hydrogen that is physically delivered to California. If out of state landfill gas is converted to hydrogen but not delivered to California, then it fails to reduce fossil fuel use in California. If landfill gas is generated in California, even if it uses B&C and is used offsite, it will still displace fossil fuel gas and should not be required to convert to hydrogen, which could increase its carbon emissions.

Thank you for your consideration of these comments.

Sincerely,

Julia A. Levin
Executive Director

[10] ARB presentation on the "Role of Hydrogen in California's Zero-Emission Future," March 14, 2022, at slide 4.