November 8, 2021

Greenhouse Gas Reduction Program
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Comments on 4th Cap & Trade Investment Plan for Years 2022-2025

Dear GGRF Program:

The Bioenergy Association of California (BAC) submits these comments on the Draft Investment Plan for 2022-2025. BAC supports the goals of the Draft Plan, but urges the Air Board to focus much more on the most urgent, beneficial, and cost-effective climate solutions. Above all, BAC urges the Air Board to prioritize:

- Short-Lived Climate Pollutant reductions in every sector as the most urgent of all climate measures;
- Diesel reductions in the transportation and electricity sectors;
- Organic waste utilization; and
- Research & Development of the different alternatives to landfilling, pile and decay, or pile and burn of organic waste

BAC represents more than 85 local governments, public agencies, private companies, and non-profits that are working to convert organic waste to energy. BAC's public sector members include environmental, air quality, waste and wastewater agencies, research institutions, publicly owned utilities, community and environmental groups. BAC's private sector members include energy and technology companies, developers, waste industry, agriculture and food processing, investor-owned utilities, investors, and others.

BAC's specific comments on the Draft Investment Plan are below.

1. SLCP Reductions Should be the Highest Priority in the Investment Plan.

The international climate conference in Glasgow this month has underscored the need to reduce Short-Lived Climate Pollutants, with more than 100 countries committing to steep reductions in methane by 2030. As the United Nations Environment Program (UNEP) stated this very clearly, "Urgent steps must be taken to reduce methane emissions this decade."[1] The head of the UNEP said it even more strongly:

> "Cutting methane is the strongest lever we have to slow climate change over the next 25 years and complements necessary efforts to reduce carbon dioxide. The benefits to society, economies, and the environment are numerous and far outweigh the cost. We need international cooperation to **urgently reduce methane emissions as much as possible this decade**."[2]

President Biden and the President of the European Commission also released a joint statement saying that "reducing methane is the single most effective strategy to reduce global warming in the near term."[3]

Governor Newsom has called on the state to step up its climate actions and to do more to make a difference right away. As the Governor stated recently, "We are in a climate damn emergency. . . across the entire spectrum, our climate goals are inadequate. We have to step up our game. As we lead the nation in low carbon green growth, we'll have to fast track our efforts."[4]

Climate experts around the state echoed this urgency in a recent paper that states that "decarbonization measures, while essential, will take two to three decades to have an impact on the steeply warming curve. The need for speed is great and it is a race against time."[5] Climate experts call for "drastic" reductions in SLCP emissions, which can benefit the climate right away, including eliminating the use of diesel and reductions in methane and black carbon from organic waste.[6] They also call explicitly for accelerating the timeline for meeting the methane and black carbon reduction requirements of SB 1383,[7] including a 40 percent reduction in methane and a 50 percent reduction in black carbon by 2030.[8]

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[1] https://www.unep.org/news-and-stories/press-release/global-assessment-urgent-steps-must-be-taken-reduce-methane

[2] Id.

[3] See: https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/18/joint-us-eu-press-release-on-the-global-methane-pledge/.

[4] https://calmatters.org/environment/2020/09/california-governor-climate-emergency/.

[5] Kammen, Ramanthan, Matlock, et al, "*Accelerating the Timeline for Climate Action in California,"* submitted to Environmental Research Letters, 2021. Available at: https://arxiv.org/abs/2103.07801 [arxiv.org].

[6] Id. at page 4.

[7] Id. at page 4.

[8] SB 1383 (Lara, 2016); Health and Safety Code section 39730.5(a).

Climate science is clear that the only measures that reduce warming right away and can do so at large scale are the measures to reduce SLCP emissions.[9] Those measures also have enormous co-benefits for public health and safety by reducing methane, black carbon, smoke, wildfire, toxic air contaminants, water pollution, and other impacts of organic waste disposal and fires, both wild and controlled.[10]

BAC urges CARB, therefore, to prioritize SLCP reductions in the 4th Cap & Trade Investment Plan. To focus more on SLCP reductions – as the last lever we have left to avoid catastrophic climate change[11] – CARB should make SLCP Reductions the first and highest focus of the Investment Plan.

2. According to ARB's Own Analysis, SLCP Reductions are the Most Effective and the Most Cost-Effective of all Climate Investments.

ARB's recent report to the Legislature on the state's climate investments to date shows that investment in SLCP reductions are by far the most effective and the most cost-effective of all of the state's climate investments. For example, the report shows that the state's investments in dairy digesters and diverted organic waste projects cut carbon emissions for only $9 and $10 per ton of carbon.[12] That is a tiny fraction of the cost of carbon reductions under the Low Carbon Fuel Standard ($190 to $200 per ton) and many other climate investments.

The investments in SLCP reductions are also producing some of the largest CO2e reductions overall. This should not be surprising since SLCP emissions are tens to thousands of times more damaging to the climate than CO2, so investments in SLCP reductions provide many times greater benefits to the climate.

3. The Investment Plan should Prioritize Diesel Reductions to Reduce SLCP Emissions, NOx, and Toxic Air Contaminants.

Climate scientists call for eliminating diesel right away since it is a major source of black carbon emissions (as well as toxic air contaminants and smog-forming pollution).[13] The single biggest opportunity to reduce SLCP emissions in the transportation sector is to replace diesel with carbon negative biomethane from organic waste. This not only reduces black carbon from diesel combustion, but also reduces methane and/or black

[9] Presentation of Dr. V. Ramanathan, UC San Diego and Scripps Institute, Presentation June 24, 2021 at MoveLA Symposium on Short-Lived Climate Pollutant Reductions.

[10] Lawrence Livermore National Lab, *Getting to Neutral – Options for Negative Carbon Emissions,"* January 2020, at page 2.

[11] Id. See, also, Kammen, Ramanthan, Matlock, et al, footnote 5 above.

[12] California Air Resources Board, *California Climate Investments*, 2021 Report to the California Legislature, Table 2, pages 15-20.

[13] Presentation of Dr. V. Ramanathan, UC San Diego and Scripps Institute, Presentation June 24, 2021 at MoveLA Symposium on Short-Lived Climate Pollutant Reductions. Dr. Ramanathan calls for eliminating "soot" and eliminating diesel powered vehicles.

carbon emissions from the organic waste that is converted to RNG. Given the urgency of reducing SLCP emissions, this should be the highest focus in the transportation sector. Eliminating diesel use should be a near-term goal in and of itself. Increasing use of biomethane to reduce SLCP emissions should be another explicit goal of the transportation.

The Investment Plan should also prioritize reductions in diesel use in the electricity sector, where diesel backup generators are being deployed more and more often to ensure energy reliability. Since diesel is a source of anthropogenic black carbon emissions, the Investment Plan should include funding to replace or avoid deployment of diesel in backup generators and other uses. Renewable gas, including biogas and hydrogen from organic waste, can provide the same reliability services with far lower – and often carbon negative – emissions.

Given the urgency of reducing SLCP emissions and toxic air contaminants, CARB should prioritize the phase-out of diesel in the Investment Plan.

4. Invest in Projects to Reduce Emissions from Waste Biomass.

California is making great strides to reduce emissions from dairies and from the digestible part of organic landfill waste. California is far behind, however, in addressing its biomass waste – including urban wood waste and other cellulosic waste going to landfills, agricultural, and forest waste. California's biomass waste makes up more than 80 percent of its organic waste. Meeting the state's SLCP reduction requirements is impossible unless the state quickly steps up efforts to address its biomass waste.

At the SLCP workshop, CARB staff asked what the highest and use of biomass waste is. That question was considered and answered in Lawrence Livermore National Lab's report on carbon neutrality.[14] The LLNL study found that the highest and best use of biomass waste is converting it to Bioenergy with Carbon Capture and Storage (BECCS), which provides the greatest carbon reductions from forest biomass (and other biomass waste). In fact, LLNL's assessment found that BECCS can provide more than two-thirds of all the carbon negative emissions needed to reach carbon neutrality.[15] LLNL found that the most beneficial alternatives for biomass waste are converting it to hydrogen to use in place of diesel in heavy duty trucks or converting it to electricity. In both cases, the byproduct is biochar, which provides permanent carbon sequestration.[16]

Increasing the use of biomass waste - rather than landfilling, burning, or piling and leave to decay – is critical to reduce SLCP emissions. To accelerate the beneficial use of waste biomass, BAC recommends adopting specific recommendations for each biomass sector as follows:

[14] Lawrence Livermore National Lab, *Getting to Neutral – Options for Negative Carbon Emissions in California,* January 2020.
[15] Id. at page 2.
[16] Id. at page 50.

a. Strategies and funding to reduce biomass waste going to landfills.

SB 1383 requires that 75 percent of all organic landfill waste be diverted by 2025. According to both UC Davis and Lawrence Livermore National Lab, non-digestible organics make up more than half – about 85 percent - of all organic waste going to landfills. It is mathematically not possible to divert 75 percent of all organic landfill waste without diverting a large portion of the non-digestible waste, meaning that California must focus much more on the biomass waste currently being landfilled.

BAC urges CARB to include funding for alternatives to biomass waste going to landfills in the Investment Plan. Waste diversion is a critical part of the state's SLCP requirements and cannot be achieved without addressing biomass waste in addition to digestible organics.

BAC also urges CARB to include R&D funding to better quantify and continue to drive down the lifecycle emissions from alternatives to landfilling, including different forms of bioenergy, compost, mulch and other alternatives. Recent data from NASA's Jet Propulsion Lab shows that emissions for some of the alternatives may be much higher than previously thought – as high as landfills themselves in some cases[17] – so better quantifying and developing strategies to reduce those emissions will be critical to achieving the state's methane reduction requirements.

b. Need to identify and incentivize the most beneficial alternatives to open burning of agricultural waste.

BAC supported CARB's plan to phase out the open burning of agricultural waste in the San Joaquin Valley since open burning is a significant source of black carbon emissions and other climate and air pollutants. While CARB's plan identifies bioenergy as one of the preferred alternatives to open burning of agricultural waste, the funding provided for those alternatives in 2021 is limited to non-stationary sources and compost production, which is not suitable for many kinds of agricultural waste.

BAC urges CARB to include funding for noncombustion bioenergy from agricultural waste that would otherwise be open burned or piled and left to decay, both of which release SLCP emissions.

c. Need to fund the most beneficial alternatives for forest waste.

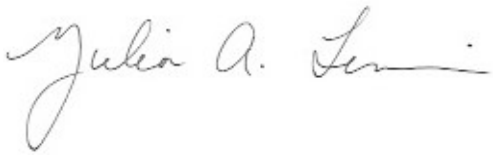
BAC also urges CARB to include funding for alternatives to open burning of forest waste. According to the *California Forest Carbon Plan,* adopted by CalEPA and CNRA, bioenergy cuts black carbon and methane emissions 98 percent compared to open burning of forest waste. Both the *Forest Carbon Plan* and the *Forest Biomass Utilization Plan,* adopted by the Board of Forestry in 2020, offer many suggestions for alternatives to open burning, including bioenergy and other wood products.

[17] See, https://methane.jpl.nasa.gov/, showing that some compost facilities emit as much methane as landfills.

BAC urges CARB to include funding for forest biomass utilization, as recommended by the Board of Forestry in the *Forest Biomass Utilization Plan*, in the 4th Investment Plan. This is especially important since SB 901 (Dodd, 2018) and the Forest Stewardship Agreement between California and US Forest Service require forest fuel removal on 1 million acres annually. This could lead to an enormous increase in SLCP emissions from prescribed fire, pile and burn, or pile and decay if the state does not fund biomass utilization projects and prioritize those biomass projects that can provide carbon negative emissions.

Thank you for your consideration of these comments on the 4th Cap & Trade Investment Plan.

Sincerely,



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