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BAC Comments on Clean Hydrogen Program

Additional submitted attachment is included below.

December 16, 2022

The Honorable Siva Gunda, Vice Chair
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: Comments on Clean Hydrogen Program (22-ERDD-03)

Dear Vice Chair Gunda:

The Bioenergy Association of California (BAC) submits these comments on the Staff Workshop on December 1 proposing eligibility for the Commission's Clean Hydrogen Program. BAC strongly supports the development of clean hydrogen from all renewable resources and urges the Commission not to exclude any renewable feedstocks from the Clean Hydrogen Program or any of the categories within the Program. The staff presentation on December 1 proposed excluding organic waste-based hydrogen from the large scale, centralized project category, which is not justified under AB 209 and does not make sense since hydrogen from organic waste helps to reduce Short-Lived Climate Pollutants, can provide carbon negative emissions, and costs less than electrolytic hydrogen. BAC urges the Commission, therefore, to include all renewable hydrogen sources as eligible for the Clean Hydrogen Program, including both large, export projects and distributed hydrogen for onsite use.

BAC represents over 100 local governments, public agencies, private companies, utilities, research institutions and non-profit organizations working to convert organic waste to energy to meet the state's climate change, renewable energy, low carbon fuel, and air quality goals. Converting organic waste to energy, including hydrogen, also helps the state to meet the Short-Lived Climate Pollutant reduction requirements of SB 1383 (Lara, 2016), reduce landfill waste, and reduce wildfires and controlled burns.

BAC submits the following comments on the staff presentation on December 1.

1. **Hydrogen Produced from Organic Waste Provides the Greatest Climate Benefits.**

BAC supports all renewable hydrogen, but only hydrogen from organic waste – including biogas, biomethane, and waste biomass – reduces Short-Lived Climate

Pollutant (SLCP) emissions and can provide carbon negative emissions, both of which are essential to meet California's climate goals. While the staff presentation on December 1 states that emission reductions are one of the main goals of the Clean Hydrogen Program, excluding organic waste-based hydrogen from the largest funding category – large scale, export projects – undermines this goal by excluding projects that can reduce SLCP emissions and provide carbon negative emissions.

a) SLCP Reduction is Most Urgent Climate Measure.

Climate scientists agree that reducing Short-Lived Climate Pollutants (SLCPs) is the most urgent step we can take to protect the climate since it is the only one that begins to reverse climate change right away and at scale. Climate experts around the state underscored this in a recent study that found reducing carbon dioxide emissions "while essential, will take two to three decades to have an impact on the steeply warming curve."[1] That is why climate scientists consider SLCP reductions to be the last lever we have left to avoid catastrophic climate change.[2]

As the Air Board's *Short-Lived Climate Pollutant Reduction Strategy* states, "The science unequivocally underscores the need to immediately reduce emissions of short-lived climate pollutants (SLCPs)."[3] The *Draft 2022 Climate Change Scoping Plan* also notes the urgency of reducing SLCPs, stating that "[g]iven the urgency of climate change . . . efforts to reduce short-lived climate pollutants are especially important"[4] and that "efforts to reduce short-lived climate pollutants emissions can provide outsized climate and health benefits."[5]

SLCP reductions, unlike reductions in carbon dioxide emissions, provide immediate and significant public health benefits.[6] Black carbon and methane are both air pollutants that impact air quality and public health significantly. As the *Draft climate Change Scoping Plan* notes, every million metric tons of avoided methane saves 1,430 premature deaths.[7] Black carbon, also known as particulate matter, is even worse for public health and also impacts agricultural productivity, forest health, and precipitation patterns. In other words, not only is SLCP reduction more critical for the climate than other carbon reductions, but it also provides more immediate benefits to public health and the economy than carbon dioxide reductions.

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[1] 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].

[2] Id. See, also, Kammen, Ramanthan, Matlock, et al, footnote 2 above.

[3] *Short-Lived Climate Pollutant Reduction Strategy*, adopted by the California Air Resources Board, March 2017, at page 1.

[4] Id. at page 22.

[5] Id.

[6] Id.

[7] *Draft 2022 Climate Change Scoping Plan*, page 180.

b) Only Waste-Based Hydrogen Can Provide Carbon Negative Emissions Needed to Reach Carbon Neutrality.

Hydrogen from organic waste is also the only form of hydrogen that can provide carbon negative emissions, which will be essential to achieve carbon neutrality. The California Air Resources Board (CARB) study on achieving carbon neutrality, the *2022 Climate Change Scoping Plan*, and a report by Lawrence Livermore National Lab on how to achieve carbon neutrality all point to the need for carbon negative emissions to offset emissions that cannot be eliminated by 2045. In fact, the *2022 Climate Change Scoping* Plan calls specifically for bioenergy with carbon capture and storage (BECCS) as a way to provide carbon negative emissions.[8] According to Lawrence Livermore National Lab, California will need 125 million metric tons of negative emissions to achieve carbon neutrality and bioenergy with carbon capture and storage (BECCS) can provide two-thirds of all the carbon negative emissions needed.[9] LLNL also found that the most beneficial end use of organic waste is hydrogen generation with Carbon Capture and Storage and that that form of BECCS is a very cost-effective way to generate carbon negative emissions.[10]

Given the urgency of reducing SLCP emissions and generating carbon negative emissions, the Commission should not exclude waste-based hydrogen from any part of the Clean Hydrogen Program.

2. Hydrogen Produced from Organic Waste Protects Public Health and Safety.

Hydrogen generated from organic waste can also provide unique public safety and air quality benefits by helping to reduce the risk of wildfires, the state's tree mortality crisis, controlled burns, and pile and burn and forest and agricultural waste. The CPUC has noted on several occasions that forest bioenergy projects protect public safety by reducing the risk of fires (including controlled burns that can become out of control) and of falling trees and tree limbs on people, buildings, roads, and infrastructure. This is why the Governor's Emergency Order on Tree Mortality called explicitly for accelerating the development of new bioenergy projects that use forest waste removed for wildfire mitigation and forest health.[11] Numerous state plans since then have also called for an increase in bioenergy from forest waste to protect public health and safety, including the *California Forest Carbon Plan* adopted by CalEPA and California Natural Resources Agency (CNRA), the *Forest Biomass Utilization Plan*, adopted by the California Board of Forestry, and numerous CPUC decisions.

[8] *2022 Climate Change Scoping Plan*, issued by the California Air Resources Board in November 2022, at page 96, Table 2-3 and page 120.

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

[10] Id. at page 8.

[11] Governor's Proclamation of a State of Emergency, issued October 30, 2015, Emergency Order paragraphs 9 and 10 . Available at: https://www.gov.ca.gov/docs/10.30.15_Tree_Mortality_State_of_Emergency.pdf.

Converting organic waste to hydrogen can also provide important benefits for air and water quality by reducing waste that goes to landfills, dairy and other livestock waste, and the open burning of forest and agricultural waste. According to CalEPA and CNRA, converting organic waste to energy cuts particulate matter, methane, and carbon monoxide by 98 percent compared to open burning.[12] Lawrence Livermore National Lab also found that converting organic waste to energy provides substantial benefits to air and water quality, soil, and more.[13] Bioenergy from organic waste also cuts NOx and other smog forming pollutants substantially compared to open burning.[14]

BAC agrees with the staff proposal to look at emissions on a lifecycle basis and to consider other environmental and public health benefits.[15] Rather than choose or exclude specific technologies and feedstocks, the Commission should set performance criteria and allow all renewable feedstocks to compete for the Clean Hydrogen Program incentives.

3. Nothing in AB 209 or Federal Policy Restricts Clean Hydrogen to Electrolytic Hydrogen.

Nothing in AB 209 suggests or requires that the Commission exclude organic waste-based hydrogen from the large-scale, centralized project funding category. AB 209 defines eligible hydrogen as the hydrogen generated from any renewable feedstock, which includes organic waste and biogas.

Excluding organic waste-based hydrogen from the largest funding category would also undermine the goal of coordinating the Clean Hydrogen Program with federal funding and efforts to promote hydrogen across the country. The December 1 staff presentation states that the Clean Hydrogen Program funding is supposed to be synergistic with federal funding and that state financial incentives can be used to match federal funding.[16] Yet the draft guidance from the US Department of Energy on its Clean Hydrogen Production Standard (CHPS) explicitly includes organic waste and suggests that projects that use organic waste as a feedstock or for process energy should be encouraged.[17] The draft guidance on CHPS calls for diverse feedstocks and emphasizes the role of waste biomass in providing a low carbon feedstock for hydrogen and for process energy.[18]

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[12] "*California Forest Carbon Plan – Managing Our Forest Landscapes in a Changing Climate,"* adopted by the California Environmental Protection Agency, California Natural Resources Agency and CalFire in May 2018, at page 130 and 135, Figure 19.

[13] Lawrence Livermore National Lab, footnote 8 above, at page 1.

[14] "*CAPCOA Policy Statement on Biomass Power Plants"* adopted December 2016, at page 1. Available at: http://www.capcoa.org/wp-content/uploads/2016/12/CAPCOA_Biomass_Policy_Dec_2016.pdf.

[15] December 1 staff presentation on the Clean Hydrogen Program, slide 27.

[16] Id. at slides 5 and 11.

[17] US Department of Energy, Clean Hydrogen Production Standard (CHPS) Draft Guidance, released in October 2022.

[18] Id. at pages 1-3.

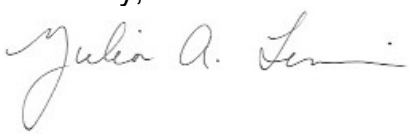
Excluding organic waste-based hydrogen from the largest funding category within the Clean Hydrogen Program would not be synergistic with the federal program. BAC urges the Commission to follow US DOE's example of allowing all renewable feedstocks and setting lifecycle performance-based standards, rather than excluding organic waste-based hydrogen from the large-scale project category of the Clean Hydrogen Program.

Conclusion

The Commission's Clean Hydrogen Program should promote all renewable forms of hydrogen and should not start by excluding a large category of otherwise eligible feedstocks. Hydrogen derived from organic waste can provide the most important climate benefits – SLCP reductions and carbon negative emissions – as well as other benefits to public health and safety. For all these reasons, BAC urges the Commission to set performance-based standards for the Clean Hydrogen Program that mirror US DOE's draft guidance for CHPS and that do not exclude otherwise eligible feedstocks and process fuels.

Thank you for your consideration of these comments.

Sincerely,



Julia A. Levin
Executive Director