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BAC Comments on Hydrogen for 2023 IEPR

Additional submitted attachment is included below.

September 22, 2023

The Honorable Patty Monahan,
Lead Commissioner, 2023 IEPR
California Energy Commission
1416 Ninth Street
Sacramento, CA 95814

Re: Comments on Hydrogen for the 2023 IEPR and SB 1075 Report

Dear Commissioner Monahan:

The Bioenergy Association of California (BAC) appreciates the opportunity to submit comments on the Commission's September 8 hydrogen workshop. BAC strongly supports the Administration's efforts to accelerate clean hydrogen development, but is very concerned that the CEC's presentation on hydrogen was limited to electrolytic hydrogen only and omitted any analysis or discussion of hydrogen from organic waste and biogas. This contradicts the plain language of SB 1075 and the presentations by GO-Biz, CARB, and the CPUC, all of which explicitly included biogenic hydrogen. For the reasons below, BAC urges the CEC to expand its analysis and recommendations for SB 1075 and the 2023 IEPR to include hydrogen from organic waste and biogas.

BAC represents over 100 public agencies and private companies working to convert organic waste to low carbon, renewable energy, including hydrogen. BAC's public sector members include cities and counties, waste and wastewater agencies and associations, research institutions, community and environmental groups, and a publicly owned utility. BAC's private sector members include energy technology firms, project developers, the waste industry, agriculture and food processing companies, investors, an investor-owned utility, and others.

BAC submits these comments to urge the Commission to include hydrogen from organic waste and biogas in its analysis for the SB 1075 report and the 2023 IEPR. Doing so is necessary to comply with SB 1075 and to be consistent with the ARCHES application, CARB and the CPUC planning, and funding provided from the CEC and Department of Conservation for projects to convert organic waste to hydrogen.

a. SB 1075 Requires Inclusion of Organic Waste and Biogas Feedstocks.

SB 1075 explicitly includes organic waste and biogas as eligible feedstocks for green hydrogen. As SB 1075 states, "It is the intent of the Legislature to develop a leading

green hydrogen industry in California in order to . . . support forest management, short-lived climate pollutant and waste management goals . . ."[1] SB 1075 also references the Lawrence Livermore National Lab report on getting to carbon neutrality that found that California's waste biomass streams could generate 4 million tons of green hydrogen annually.[2] And SB 1075 notes that "Capturing and productively using methane, and productively using wood waste, to displace fossil fuel use to generate electricity and for transportation fuel can help eliminate short-lived climate pollutants while also reducing harmful exposure to diesel particulate matter and other air quality pollutants."[3]

The Legislature would not have included multiple references to organic waste, methane capture, wood waste, waste biomass, forest management, etc. in SB 1075 if it had not intended to include these organic waste and biogas feedstocks in the SB 1075 report. The SB 1075 report must, therefore, include organic waste and biogas to meet the Legislature's express intent to support forest management, methane reduction, and waste management goals.

b. <u>Hydrogen from Organic Waste Provides the Greatest Climate and Air Quality Benefits.</u>

At the joint agencies' September 5 workshop on SB 1075, Tyson Eckerle of GO-Biz stated that we should "leverage hydrogen to best meet our climate goals." Hydrogen from organic waste and biogas can provide greater climate benefits than any other form of clean hydrogen because only biogenic hydrogen reduces SLCP emissions and can provide carbon negative emissions.

Climate experts around the world, including CARB, have recognized that reducing SLCP emissions is the most urgent step we can take to address climate change because it is one of very few measures that benefits the climate right away.[4] According to the *2022 Climate Change Scoping Plan*, 86 percent of California's methane emissions come from organic waste and the vast majority of black carbon emissions comes from wildfires and open burning of forest and agricultural waste.[5] Both the *Short-Lived Climate Pollutant Reduction Strategy* and the *California Forest Carbon Plan* found that converting that organic waste to bioenergy instead cuts black carbon and methane emissions dramatically. According to the *Forest Carbon Plan*, converting forest waste to energy cuts both black carbon and methane by 98 percent compared to open burning or wildfires.[6]

[1] SB 1075 (Skinner, 2022), Section 1 (b).
[2] SB 1075, Section 1, finding 16.
[3] SB 1075, Section 1, finding 5.
[4] *Short-Lived Climate Pollutant Reduction Strategy*, adopted by the California Air Resources Board, March 2017, at pages 1 and 22; see, also, https://www.unep.org/news-and-stories/press-release/global-assessment-urgent-steps-must-be-taken-reduce-methane.
[5] *2022 Climate Change Scoping Plan,* at page 226, Figure 4-12.
[6] *California Forest Carbon Plan*, adopted by CalEPA, CNRA, and CalFire in 2017, at pages 130 and 135.

Biogenic hydrogen is also the only form of hydrogen that can be carbon negative. The Legislature recognized this explicitly in SB 1075, finding that the "Lawrence Livermore National Laboratory report, 'Getting to Neutral,' highlights gasification of biomass to hydrogen as the most promising strategy for achieving negative carbon emissions in California."[7] The *2022 Climate Change Scoping Plan* also highlights the need for BECCS – bioenergy with carbon capture and sequestration – as an important strategy to provide carbon negative emissions needed to reach carbon neutrality by 2045 as required by state law.[8]

CARB has also found repeatedly that the state's investments in organic waste to energy are the most cost-effective of all the state's climate investments, reducing carbon emissions for a small fraction of the cost of most other types of climate investments. In particular, CARB's recent reports have found that investments in dairy digesters and diverted organic waste projects cut carbon for the tiny cost of just $9 and $10 per ton, respectively, which is less than one-fifth the average cost of carbon reductions using the Greenhouse Gas Reduction Fund.[9]

Hydrogen from organic waste and biogas also helps to cut air pollution from wildfires, pile and burn of forest or agricultural waste, landfills, and dairies. Hydrogen from forest waste helps to reduce the risk and severity of wildfires, which are now a major source of air pollution in California, as well as controlled burns in the forest and pile and burn of biomass removed from the forest. Using agricultural waste also reduces pollution from open burning or decay of that waste. And converting dairy manure or diverted organic waste to hydrogen helps to reduce methane emissions – a precursor to smog as well as a powerful SLCP – and other air pollutants from dairies and landfills.

c. <u>Excluding Biogenic Hydrogen Would Undermine Important State Policies.</u>

Converting organic waste to hydrogen will help California to meet important state policies, including wildfire mitigation, landfill diversion, and dairy methane reduction. Excluding biogenic hydrogen will undermine these goals and contradict recent funding decisions by the CEC and Department of Conservation (DOC). Earlier this year, both the CEC and DOC made grants to projects that will convert forest biomass to hydrogen to mitigate wildfire risks and produce carbon negative biofuels. DOC will be making much larger grants in the second phase of its $50 million program to promote advanced biofuels production from forest waste biomass. It makes no sense to exclude these state funded projects to produce carbon negative hydrogen from the CEC's analysis of green hydrogen.

In addition, CARB has approved a pathway under the LCFS for conversion of dairy manure to hydrogen and CalRecycle recently approved an organic waste to hydrogen

[7] SB 1075, Section 1, finding 16.

[8] *2022 Climate Change Scoping Plan*, at pages 220-222.

[9] See, eg, California Air Resources Board, *California Climate Investments 2022 Mid-Year Data Update,* September 2022.

project under its SB 1383 regulations, which require the state to divert 75 percent of organic waste away from landfills by 2025.

Failing to include biogenic hydrogen in the SB 1075 analysis or the 2023 IEPR would undermine these important efforts to reduce wildfires, Short-Lived Climate Pollutant emissions, and landfill waste.

d. The CEC's Analysis Should be Consistent with GO-Biz, CARB, and the CPUC.

The GO-Biz, CARB, and CPUC presentations at the Air Board's September 5 workshop on SB 1075 all included biogenic hydrogen.[10] In fact, CARB's presentation showed that biogenic hydrogen will be the largest source of clean hydrogen in 2030 and will provide more than one-third of all the hydrogen used in California in 2045.[11]

The CPUC presented a definition at the SB 1075 workshop that is consistent with SB 1075, the *2022 Climate Change Scoping Plan*, and the U.S. Department of Energy. That definition is:

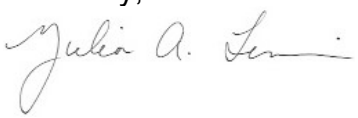
> "Hydrogen which is produced through a process that results in a lifecycle (i.e., well-togate) greenhouse gas emissions rate of not greater than 4 kilograms of CO2e per kilogram of hydrogen produced and does not use fossil fuel as either a feedstock or production energy source."[12]

This definition is consistent with the U.S. Department of Energy's draft guidance on the Clean Hydrogen Production Standard and would allow all RPS eligible feedstocks including organic waste and biogas. By including a lifecycle carbon intensity standard, it will also encourage the lowest carbon intensity forms of hydrogen and, in the case of hydrogen from organic waste or biogas, will encourage the development of BECCS, which can provide carbon negative emissions.

For all these reasons, BAC urges the CEC to broaden its analysis of green hydrogen for the SB 1075 report and the 2023 IEPR.

Thank you for your consideration of these comments.

Sincerely,



Julia A. Levin
Executive Director

[10] Presentations at the SB 1075 workshop on September 5, 2023: GO-Biz presentation, slides 9-12; CARB presentation, slides 8-9; CPUC presentation, slide 12.
[11] CARB presentation at the SB 1075 workshop, slide 9.
[12] CPUC presentation at the SB 1075 workshop, slide 12.