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*Comment Received From: Julia Levin  
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## **BAC Comments on Distributed Hydrogen Solicitation**

*Additional submitted attachment is included below.*



October 27, 2023

Mr. Jonah Steinbuck Director  
Energy Research and Development Division  
California Energy Commission  
Sacramento, CA 95814

**Re: Comments on Distributed Hydrogen Solicitation Concept (22-ERDD-03)**

Dear Mr. Steinbuck:

The Bioenergy Association of California (BAC) appreciates the opportunity to submit these comments on the Distributed Hydrogen Solicitation Concept. As the CEC has understood for many years, clean hydrogen will play a critical role in decarbonizing California's energy, transportation, industrial, agricultural and other sectors. At the same time, though, not all hydrogen provides equal or equally urgent benefits to the climate or to public health and safety. BAC urges the Commission, therefore, to focus this solicitation on forms of hydrogen that:

- Reduce Short-Lived Climate Pollutant emissions, the most urgent measure to address climate change;
- Provide carbon negative emissions needed to reach carbon neutrality by mid-century;
- Mitigate wildfire risks and impacts, reduce open burning of agricultural or forest waste, and reduce landfill waste; and
- The Commission should not limit the solicitation to onsite use of distributed hydrogen projects.

BAC represents more than 100 local governments, public agencies, private companies, environmental and community groups, utilities, research institutions, and others working to convert organic waste to energy to meet the state's climate change, clean energy, air quality, public safety, and other important goals. Many BAC members are developing or exploring opportunities to convert organic waste or waste biogas to renewable hydrogen. And several BAC members have received funding from the CEC and/or the Department of Conservation to convert forest waste to hydrogen.

Since the CEC's large-scale hydrogen solicitation is limited to electrolytic hydrogen, the distributed hydrogen solicitation should be limited to, or at least prioritize, hydrogen from

organic waste and waste biogas to maximize climate, public safety, and local air quality benefits.

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

Hydrogen generated from organic waste can reduce SLCP emissions, the most urgent climate solution, and also provide carbon negative emissions needed to reach carbon neutrality. No other form of clean hydrogen provides such important climate benefits.

Climate scientists agree that the reduction of SLCP emissions is the most urgent climate solution because it begins to benefit the climate right away, unlike fossil fuel reductions that take decades to begin to benefit the climate. As the United Nations Environment Program stated, cutting methane and other SLCPs is the strongest lever we have to slow climate change in the next 25 years.<sup>1</sup> The California Air Resources Board has also determined that reductions in SLCP emissions are critical to meet the state's climate goals and begin to cool the climate right away.<sup>2</sup> CARB has also found that methane and other SLCP reductions can provide cost-effective carbon reductions and near-term benefits for public health as well as the climate.<sup>3</sup>

In California, organic waste causes 87 percent of the state's methane emissions and more than 90 percent of its black carbon emissions (including emissions from wildfire),<sup>4</sup> so it is impossible to meet the requirements of SB 1383 or SB 32 without reducing landfilling, pile and decay, and open burning of organic waste. SB 1383 requires a 40 percent reduction in methane emissions and a 50 percent reduction in black carbon emissions by 2030,<sup>5</sup> further underscoring the urgency of these reductions to meet the state's climate goals. Converting organic waste – RPS eligible biomass and biogas – to hydrogen will reduce SLCP emissions, the most urgent climate solution and required by SB 1383.

In addition to reducing SLCP emissions, hydrogen from organic waste is also the only form of hydrogen that can provide carbon negative emissions that will be essential to reach carbon neutrality. Numerous studies have found that California will need significant carbon negative emissions to achieve carbon neutrality since many emissions cannot be entirely eliminated. Lawrence Livermore National Lab found that Bioenergy with Carbon Capture and Storage (BECCS) can provide two-thirds of all the carbon negative emissions needed for California to reach carbon neutrality by mid-century.<sup>6</sup> LLNL also found that converting California's organic waste to hydrogen is by

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<sup>1</sup> United Nations Environment Program, *Urgent Steps Must be Taken to Reduce Methane Emissions This Decade*, May 6, 2021 Press Release.

<sup>2</sup> *Short-Lived Climate Pollutant Reduction Strategy*, adopted by the California Air Resources Board, March 2017, at pages 1 and 22.

<sup>3</sup> California Air Resources Board, *2022 Climate Change Scoping Plan*, at page 10.

<sup>4</sup> *2022 Climate Change Scoping Plan for Achieving Carbon Neutrality*, issued by the California Air Resources Board on November 15, 2022.

<sup>5</sup> Health and Safety Code section 39730.5

<sup>6</sup> Lawrence Livermore National Lab, *Getting to Neutral – Options for Negative Carbon Emissions in California*, January 2020. LLNL-PRES-795982.

far the most beneficial way to provide carbon negative emissions from organic waste and that it provides a cost-effective way to generate carbon negative emissions.<sup>7</sup> CARB's *2022 Climate Change Scoping Plan* also found that BECCS is an essential way to provide carbon negative emissions needed to reach carbon neutrality.<sup>8</sup>

Numerous other studies have confirmed LLNL's analysis, including recent studies by Stanford and Princeton Universities. Stanford's Center for Carbon Storage issued a report in 2022 that BECCS can provide significant carbon negative emissions and that if California used all of its organic waste for energy with CCS, it would reduce California's total carbon emissions by 8 percent.<sup>9</sup> Princeton University, in its study on Net Zero America, also found that BECCS will be critical to achieve carbon neutrality and that hydrogen generated from biomass and biogas with CCS will be an essential part of that.<sup>10</sup>

## **2. Hydrogen from Organic Waste Provides the Greatest Benefits to Public Health and Safety.**

Numerous state agencies and policies recognize the importance of converting organic waste to energy to mitigate wildfires, reduce open burning of forest and agricultural waste, and reduce pollution from dairies and landfills. For example, converting forest waste biomass to hydrogen also helps to mitigate California's wildfire crisis and to restore healthy resilient forests that can sequester carbon. Wildfires have an enormous impact on public health and safety from the fires themselves and from the pollution that they emit. Wildfires also cost ratepayers billions of dollars annually, from the direct impacts they cause to human life, buildings, and infrastructure, as well as the costs of Public Safety Power Shutoffs and other measures to reduce wildfire risks and mitigate their impacts.

California has entered into an agreement with the U.S. Forest Service to remove forest fuel on one million acres annually to reduce wildfire risks and restore healthy, resilient forests. In the *2022 Climate Change Scoping Plan*, CARB has proposed increasing that amount to 2.3 million acres annually, in part to return California's forests to carbon sinks rather than net emitters of carbon. These measures will generate tens of millions of bone dry tons of forest waste biomass that can provide feedstock for renewable hydrogen production. When coupled with carbon captures and storage or utilization, that hydrogen will be carbon negative.

The Department of Conservation received \$50 million for projects that convert forest waste to carbon negative, advanced biofuels. Of the eight grants that DOC has made for planning and permitting of these projects (stage 1 of the funding), six projects are

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<sup>7</sup> Id.

<sup>8</sup> See, *2022 Climate Change Scoping Plan*, Table 2-3, on page 96.

<sup>9</sup> Stanford Center for Carbon Storage and Center for Carbon Removal, *Pathways to Carbon Neutrality in California – the Bioenergy Opportunity*, April 2022, at page 1.

<sup>10</sup> Princeton University, *Net Zero America*, 2021.

intended to convert forest waste to hydrogen. But DOC's funding is a small fraction of what these projects will need. The CEC should also prioritize distributed hydrogen funding to match the DOC grants so these projects can move forward and maximize benefits for public health and safety, the climate, air quality, and forest health.

Hydrogen from organic waste protects public health in many ways besides reducing emissions from wildfires. Converting diverted organic waste to hydrogen helps to reduce air pollution and odors from landfills, dairies and wastewater treatment facilities. A recently approved project in Richmond California, which will convert diverted organic waste to hydrogen and use landfill gas for process energy, will reduce air pollution and the associated cancer risk in the surrounding community up to 6,000 feet from the project.<sup>11</sup> The project will reduce pollution from the landfill itself, the landfill flare, and the diesel trucks that serve the landfill. These are enormous benefits in a highly Disadvantaged Community. Converting agricultural and forest waste to hydrogen instead of piling and burning it also reduces air and climate pollution from pile burning and open field burning. According to the Air Board and CAPCOA, the association of local air districts, converting biomass to energy cuts methane, carbon monoxide, and particulate matter by 98 to 99 percent compared to open burning of that biomass waste.<sup>12</sup>

Hydrogen derived from organic waste provides the greatest benefits for air quality because it reduces air pollution from the landfilling or burning of that waste, in addition to reducing air pollution from fossil fuel use.

### **3. The Distributed Hydrogen Solicitation Should Focus on Hydrogen Projects that Reduce SLCP Emissions, Wildfire Hazards, and Air Pollution, and Should Not Be Limited to Onsite Use.**

#### **a) The Scoring Criteria for Distributed Hydrogen Should Prioritize SLCP Reductions and Carbon Negative Emissions.**

For all the reasons described above, BAC urges the CEC to revise the draft scoring criteria for the distributed hydrogen solicitation. The proposed criteria on page 9 of the Draft Solicitation don't include SLCP reductions, GHG reductions, or carbon negative emissions. On page 7 of the Draft Solicitation, the criteria do include GHG reductions, but do not include SLCP reductions or carbon negative emissions. As noted above, SLCP reductions are far more urgent than GHG reductions and, to the extent that the Commission considers GHG reductions, it should prioritize projects that provide carbon negative hydrogen. These are critical climate goals, and required by state law, that should be the top priorities of the distributed hydrogen solicitation.

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<sup>11</sup> See,

<sup>12</sup> *California Forest Carbon Plan*, adopted by CalEPA and CNRA in 2017, at pages 130, 135; *CAPCOA Biomass Policy Statement*.

b) The Scoring Criteria Should Also Include Benefits to Public Health and Safety, Including Wildfire Mitigation, Reduced Pile and Burn, and Air Quality Benefits.

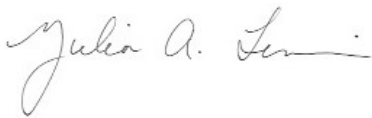
The scoring criteria should also include a category for benefits to public health and safety. Electrolytic hydrogen is valuable for displacing fossil fuels, but it does not mitigate wildfires, help restore forest carbon, reduce pile and burn of forest or agricultural waste, or reduce pollution from dairies and landfills. These are all important public health and safety benefits that should be included in the scoring criteria.

c) The Solicitation Should Not be Limited to Onsite Use of Hydrogen.

BAC urges the CEC not to require that distributed hydrogen be used onsite. Nothing in AB 209 requires that<sup>13</sup> and it would severely restrict opportunities for distributed hydrogen production and use. At most, it should be encouraged, but definitely not required since many potential hydrogen production sites, such as dairies or in forested communities, may not need any additional energy onsite. In addition, many counties' agricultural zoning laws do not allow industrial use of agricultural lands, which excludes energy generation on lands that are zoned for agricultural production. Requiring onsite generation of distributed hydrogen would effectively exclude the possibility of converting agricultural waste to hydrogen, since it cannot be done legally in many counties.

Thank you for your consideration of these comments.

Sincerely,



Julia A. Levin  
Executive Director

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<sup>13</sup> AB 209 (Statutes of 2021, Chapter 251); Public Resources Code section 25664.