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October 8, 2021

Ms. Laurie ten Hope,
Deputy Director for Research
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: Comments on EPIC 4 Investment Plan

Dear Deputy Director ten Hope:

The Bioenergy Association of California (BAC) submits these comments in response to comments on the proposed EPIC 4 Investment Plan. BAC supports the proposed plan generally, but urges the Commission to add an initiative focused on advanced technology biomass conversion, as required by AB 322 (Salas, 2021). BAC also urges the Commission to include all RPS eligible feedstocks – including biogas and organic waste – in the initiatives focused on green hydrogen, firm renewables, long duration energy storage, and dispatchable generation. Finally, BAC urges the Commission not to limit initiatives to “zero carbon” resources since that eliminates solar and wind power, as well as some forms of bioenergy, which are not zero carbon on a lifecycle basis.

BAC represents more than 80 local governments, public agencies, private companies, environmental and community groups, investors, utilities, research institutions and others. BAC’s public sector members include local air districts, environmental agencies, waste and wastewater agencies, publicly owned utilities, public research institutions, community development and environmental groups. BAC’s private sectors members include energy and technology firms, project developers and investors, investor-owned utilities, waste haulers, food and agricultural producers, and more.

BAC urges the Commission to include advanced technology bioenergy and organic waste-based hydrogen in EPIC 4 to meet the requirements of AB 322, SB 1383 (Lara, 2016) and other climate, air quality, wildfire reduction, and waste reduction policies.

1. AB 322 Requires the Commission to Consider Allocating EPIC to Advanced Technology Biomass Conversion.

Governor Newsom just signed AB 322, which requires the Commission to consider allocating EPIC funding to advanced technology biomass conversion. The Legislation,

which passed with strong bi-partisan and nearly unanimous support, includes several important findings:

“(a) Open burning of forest and agricultural waste is a significant source of air pollution and climate pollution, including short-lived climate pollutants, such as black carbon and methane.

(b) State policy to reduce wildfire risks and restore healthy forests and the Agreement for Shared Stewardship of California’s Forests and Rangelands between the State of California and the United States Department of Agriculture, Forest Service, Pacific Southwest Region, require forest fuel removal on one million acres per year, which will generate millions of tons of forest waste annually.

(c) According to the 2017 Integrated Energy Policy Report, the majority of California’s organic landfill waste is cellulosic biomass that must be converted to energy or mulch to meet the requirements of Section 39730.6 of the Health and Safety Code.

(d) According to the California Forest Carbon Plan adopted by the California Environmental Protection Agency and the Natural Resources Agency, bioenergy cuts black carbon, methane, and particulate matter emissions by 98 percent compared to open burning.

(e) The State Board of Forestry and Fire Protection’s Forest Biomass Utilization Plan recommends allocating 20 percent of Electric Program Investment Charge funding to forest biomass conversion to energy, with priority going to advanced technology projects.

(f) The State Air Resources Board’s plan to phase out open burning of agricultural waste in the San Joaquin Valley calls for public investment of \$15,000,000 to \$30,000,000, inclusive, annually in new bioenergy facilities and other alternatives to open burning of agricultural waste.

(g) Investing Electric Program Investment Charge funding in new and emerging technologies to convert waste biomass to energy, as well as advanced technology emissions controls, will increase the ratepayer, environmental, and public safety benefits of biomass conversion.”¹

AB 322 requires the commission to consider these recommendations and other recommendations by the Air Board, Resources Agency, Board of Forestry, CalRecycle, and the California Department of Food and Agriculture about the need for biomass conversion.²

Given that these agencies have already recommended allocating EPIC funding to advanced technology biomass, the Commission should include an initiative focused on advanced technology biomass conversion in EPIC 4. The Commission can determine later exactly what the focus should be and whether and how much to fund it, but not to include it at all in the next 4-year plan violates the plain language of AB 322.

¹ AB 322 (Salas, 2016), Section 1.

² Public Resources Code section 29711.9(b).

2. The CEC Should Include Organic Waste Based Hydrogen in Initiatives Focused on Firm Renewables, Dispatchable Power, and Long Duration Storage.

BAC strongly supports Initiatives 7, 8 and 9 as critical to maintain reliability while decarbonizing California's electricity supply. These initiatives can also help meet the CPUC's recent Decision calling for 1,000 MW of new, firm renewables (bioenergy and geothermal) and 1,000 MW of long-duration energy storage.³ BAC also supports the explicit inclusion of hydrogen from organic waste and biomethane. We understand, however, that some parties are arguing to exclude hydrogen from organic waste or biogas and/or to require that hydrogen be zero emission. The Energy Commission should reject these recommendations for several reasons:

a. Only Organic Waste Based Energy Can Cut SLCP Emissions, Which is the Most Urgent Climate Mitigation Measure.

As BAC noted in its August 10 comments, reducing Short-Lived Climate Pollutant emissions is by far the most urgent measure to mitigate climate change. In fact, the IPCC's latest report and reports from climate experts around the state only underscore just how urgent SLCP reduction is. Dr. V. Ramanathan at UC San Diego and other climate experts around the state have stated that SLCP reductions are "the last lever we have left" to avoid catastrophic and irreversible climate change.⁴ That is because SLCP reductions are the only measures that benefit the climate right away – or even within the next few decades.⁵ As Dr. Ramanathan, Dr. Dan Kammen from UC Berkeley, and other climate and energy experts explain:

"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."⁶

It is critical, therefore, to do everything we can as fast as we can to reduce SLCP emissions.

Organic waste is by far the largest source of methane and black carbon emissions in California. Converting that waste energy cuts SLCP emissions from landfills, open burning, wildfires, and pile and decay of organic waste. According to the state's *Short-Lived Climate Pollutant Reduction Strategy, California Forest Carbon Plan*, and other state climate plans, converting organic waste to energy can cut SLCPs more effectively

³ CPUC Decision 21-06-035, issued in the Integrated Resources Planning proceeding, Rulemaking 20-05-003, June 24, 2021.

⁴ Presentation of Dr. V. Ramanathan, UC San Diego and Scripps Institute, Presentation June 24, 2021 at MoveLA Symposium on Short-Lived Climate Pollutant Reductions.

⁵ See, <https://bendingthecurve.ucsd.edu/>.

⁶ Kammen, Ramanathan, 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].

than other alternatives such as compost or mulch production. In fact, recent monitoring by NASA's Jet Propulsion Lab found that compost emits similar levels of methane to landfills.⁷ In the case of forest and agricultural waste, CalEPA and the California Natural Resources Agency found that bioenergy cuts both methane and black carbon by 98 percent compared to open burns.⁸

State law also requires significant reductions in methane and black carbon by 2030. SB 1383 requires a 40 percent reduction in methane and a 50 percent reduction in anthropogenic black carbon.⁹ SB 1383 also calls on the CEC and other agencies to adopt policies and incentives to increase renewable gas, including biogas and biomethane, to help reduce SLCP emissions.¹⁰

To meet these legal requirements and reduce the most critical climate pollutants, EPIC should prioritize initiatives that include bioenergy and biochar production to reduce SLCP emissions. Excluding hydrogen and bioenergy from organic waste would violate multiple state laws and undercut the state's climate goals, especially SLCP reductions.

b. Requiring Zero Emission Hydrogen Would Also Exclude Green Electrolytic Hydrogen.

Some parties have called for restrictions on hydrogen – or electricity generally – that would exclude all but “zero emission” power. That would exclude even green electrolytic hydrogen since both solar and wind power have some emissions on a lifecycle basis from raw materials, manufacturing, transport, construction, land use disturbance, and end of life disposal. Those emissions are more than de minimus. According to the US Department of Energy, lifecycle carbon emissions from solar and wind can be 4 to 40 grams of CO₂ per kilowatt-hour of electricity.¹¹

Rather than excluding RPS eligible feedstocks, the Commission should set performance standards that apply equally to all RPS eligible feedstocks and technologies. The Commission should not, however, require zero-emission technologies since that would eliminate virtually all generation.

c. Biogas is Already Flared at Landfills and Wastewater Facilities – Converting it to Hydrogen Would Reduce Combustion.

BAC appreciates the desire to move away from combustion where possible, but calls to eliminate combustion while excluding organic waste-based hydrogen make no sense. California's landfills and wastewater treatment facilities are required to flare any biogas

⁷ See, <https://methane.jpl.nasa.gov/>.

⁸ “*California Forest Carbon Plan*,” adopted by the California Environmental Protection Agency, California Natural Resources Agency and CalFire in May 2018, at page 135. Available at: <http://resources.ca.gov/wp-content/uploads/2018/05/California-Forest-Carbon-Plan-Final-Draft-for-Public-Release-May-2018.pdf>.

⁹ Health and Safety Code section 39730.5(a).

¹⁰ Health and Safety Code section 39730.8(c)(d) and (e).

¹¹ See, <https://www.nrel.gov/analysis/life-cycle-assessment.html>.

that they do not use. Together, California's landfills and wastewater treatment plants flare more than 300 million gasoline gallons worth of biogas annually.

A flare is combustion – with no pollution controls and no energy capture. Flaring biogas is certainly better for the climate than having it released into the atmosphere as methane, but it is still combustion and still a terrible waste. By capturing and using the biogas, even with combustion engines, we can displace fossil fuel gas or diesel and the generators have pollution controls, unlike a flare. If the biogas is converted to hydrogen, then it can be converted to electricity with no combustion at any point – in other words, using biogas to generate hydrogen is the only way we have to *reduce* combustion that would otherwise occur with a flare.

More generally, converting organic waste and biogas to hydrogen is precisely the way that we can move away from combustion, so calling to exclude hydrogen from organic waste while calling to eliminate combustion (or NOx emissions) are mutually exclusive goals that make no sense.

d. Bioenergy Cuts Climate and Air Pollution Dramatically Compared to Open Burning.

BAC supports the calls to prioritize projects that reduce pollution in Disadvantaged Communities and other vulnerable areas of the state. Two of the largest sources of pollution – open burning and diesel – can be eliminated with bioenergy and, especially, with conversion to hydrogen. As noted above, converting forest and agricultural waste to electricity with traditional technology cuts particulate matter by 98 percent. According to CAPCOA, the state association of local air districts, it can cut smog forming pollution by 40 to 70 percent.¹² If that organic waste is converted to hydrogen and used in a fuel cell or linear generator, it can virtually eliminate NOx emissions.

Ironically, biogas and hydrogen from organic waste can provide the biggest reductions in air pollution because they reduce pollution upstream from open burning or pile and decay (which emits methane and other Volatile Organic Compounds – VOC's – that are precursors to smog formation) as well as combustion downstream. Biogas and hydrogen are also the best alternatives to diesel in backup generators, which are proliferating around the state due to pending Public Safety Power Shutoffs and concerns about grid power reliability.

Bioenergy also cuts air pollution from dairies, which seem to be the main focus of opposition from Environmental Justice advocates. According to the California Department of Food and Agriculture, dairy digesters cut air and water pollution substantially – and provide dramatic reductions in methane as well.¹³ Dairy biogas can be converted to carbon negative hydrogen to generate emissions free power while

¹² "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.

¹³ See, https://www.cdfa.ca.gov/oefi/ddrdp/docs/DDRDP_Report_March2021.pdf.

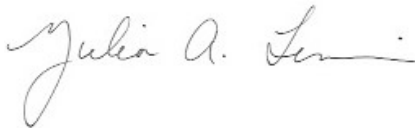
reducing pollution from the dairies themselves. In other words, the digesters cut pollution rather than adding to it.

e. The Commission Should Not Exclude RPS Eligible Feedstocks – Set Performance Standards Instead.

BAC urges the Commission not to exclude RPS eligible feedstocks in the EPIC program – particularly when the conversion of those feedstocks to energy is required by state law to meet urgent climate and air quality requirements. To ensure that EPIC funded projects further local air quality goals as well as broader energy and climate goals, the Commission should instead prioritize projects that provide maximum benefits for climate and local air quality. And the comparison or quantification of impacts and benefits should be done on a lifecycle basis.

Thank you for your consideration of these comments.

Sincerely,

A handwritten signature in cursive script that reads "Julia A. Levin".

Julia A. Levin
Executive Director