July 9, 2021

The Honorable Liane Randolph, Chair
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Comments on the 2022 Climate Change Scoping Plan – June, 2021 Workshop Presentations

Dear Chair Randolph:

The Bioenergy Association of California (BAC) submits these comments on the Climate Change Scoping Plan presentations made at the June 8-10 workshops. BAC strongly supports the state's climate goals and many BAC members are developing or operating bioenergy projects that provide the largest and most cost-effective of all carbon reductions. BAC is happy to see the added focus on carbon neutrality and on Natural and Working Lands in the 2022 Climate Change Scoping Plan. We are very concerned, however, at the lack of focus on bioenergy in the electricity and transportation sectors and urge both ARB and the CEC to include a much greater focus on bioenergy in the Scoping Plan as it moves forward.

Including bioenergy and biofuels in the Scoping Plan is critical to:

- Meet the SLCP reduction requirements of SB 1383;
- Provide the most immediate benefits to the climate and the only ones that reduce global warming right away;
- Provide carbon negative emissions needed to achieve carbon neutrality;
- Provide the most cost-effective carbon reductions of any state investments;
- Reduce black carbon, toxic particulate matter, and smog forming emissions from diesel trucks and backup generators;
- Reduce pollution from wildfires and open burning of agricultural or forest waste;
- Provide renewable power that can fill in when solar and wind are not available, provide long-duration storage, and provide greater energy reliability.

The Bioenergy Association of California (BAC) represents more than 80 public agencies and private companies that are working to convert organic waste to energy to meet the state's climate change, clean energy, air quality, wildfire reduction, and waste reduction goals. BAC's public sector members include cities and counties in California, air quality and environmental agencies, waste and wastewater agencies and associations, public

utilities, community and environmental groups. BAC's private sector members include energy and technology companies, utilities, waste haulers, agricultural and food processing companies, investors, and others.

BAC's recommendations for the 2022 Scoping Plan are described below.

I. SCOPING PLAN MUST CONTINUE TO FOCUS ON SLCP REDUCTIONS.

The Air Board should make SLCP reductions the highest priority in the 2022 Climate Change Scoping Plan as they are the only reductions that benefit the climate right away and time is running out to avoid catastrophic climate change. Climate change is happening more quickly and more destructively than was predicted even a few years ago. In its most recent climate assessment, the IPCC said we have about a decade left to reduce warming or we face catastrophic and irreversible climate impacts. More recently, climate scientists have said that we have only six to seven years left to slow warming or we will go beyond a 1.5 degree Celsius increase that will trigger very dangerous feedback loops. If we focus only on carbon dioxide reductions, we will not begin to reverse global warming for several decades or more and the damage to human life, ecosystems, and the economy will be staggering and largely irreversible.

In a presentation on SLCP reductions in late June, Dr. V. Ramanathan from UC San Diego and the Scripps Institute stated that we have much less than 10 years left to bend the warming curve.[1] He also said that the only lever we have left to make a difference in that time frame is reducing SLCP reductions.[2] Dr. Ramanthan, along with experts from Environmental Defense Fund and ClimateWorks Foundation, said we must go all out – and fast - on SLCP reductions by doing the following:

- Eliminate diesel use right away since it causes black carbon emissions and other climate pollution
- Reduce wildfire emissions and open burning of forest and agricultural waste
- Reduce methane from livestock and from landfill waste
- Reduce HFCs[3]

Scientific experts also agree that these same steps will provide enormous benefits for air quality, public health, agricultural productivity, forest health, and more.

BAC also urges ARB to include emissions from human caused wildfires in the 2022 Scoping Plan. SB 1383 requires a 50 percent reduction in anthropogenic (human caused) black carbon emissions by 2030.[4] For any large fire, CalFire determines what

[1] Presentation by Dr. Verrabhadran Ramanathan, UC San Diego, on June 24, 2021, at MoveCA's symposium on SLCP Reductions.
[2] Id.
[3] Id.
[4] Health and Safety Code section 39730.5.

the cause of the fire was, so it would not fall on ARB to determine whether any particular fire is anthropogenic or not. When CalFire does determine that a fire is caused by power lines, motor vehicles, or other human causes, then ARB must include those emissions in its plan to meet the anthropogenic black carbon reduction requirement of SB 1383. The critical first step is to classify and treat human caused wildfire emissions as anthropogenic, beginning with the 2022 Scoping Plan.

BAC urges ARB to make SLCP reductions the central and paramount focus of the 2022 Climate Change Scoping Plan as they are by far the most urgent and most beneficial of all climate mitigation measures.

II. BIOENERGY PROVIDES THE MOST COST-EFFECTIVE CARBON REDUCTIONS

The California Air Resources Board 2021 report on the state's climate investments shows quite clearly that bioenergy provides very cost-effective carbon reductions.[5] By the Air Board's own analysis, the two most cost-effective of all the state's investments in carbon reductions are the investments in dairy digesters and bioenergy from organic waste diverted from landfills, which reduce carbon at a tiny cost of only $9 and $10 per ton, respectively.[6] Investments in other forms of bioenergy are also among the most cost-effective of all climate investments.

This is consistent with Lawrence Livermore National Lab's recent report on carbon neutrality, which also found that the most cost-effective means to achieve carbon neutrality is maximizing bioenergy with carbon capture and storage, along with investments in Natural and Working Lands and direct air capture.[7] The LLNL report found that the negative emissions from bioenergy are very cost-effective, on average $50 to $60 per ton of negative emissions.[8] That is significantly less than the cost of many of the state's climate investments.

III. BIOENERGY IS CRITICAL TO ACHIEVE CARBON NEUTRALITY

Lawrence Livermore National Lab's report on carbon neutrality found that bioenergy with carbon capture and storage (BECCS) can provide more than two-thirds of all the carbon negative emissions needed to achieve net carbon neutrality by mid-century.[9] LLNL found that California generates enough organic waste to generate 84 million

[5] California Air Resources Board, *California Climate Investments*, 2021 Report to the California Legislature, Table 2, pages 15-20.
[6] Id.
[7] *Getting to Neutral – Options for Negative Carbon Emissions in California*, Lawrence Livermore National Lab, January 2020, at page 8.
[8] Id at page 8.
[9] Id at page 2.

metric tons of carbon negative emissions annually.[10] This is by far the largest opportunity for negative carbon emissions in California.

Many other reports have reached the same conclusion.[11] According to the International Energy Agency, BECCS can generate up to 8 billion metric tons of negative carbon emissions annually – equivalent to about one-quarter of all global climate pollution.[12] It is hard to overstate how significant a contribution BECCS can make to our climate efforts and how urgent it is.

BECCS is absolutely critical to achieve carbon neutrality and we need to accelerate its development now. We urge ARB to include BECCS in the Scoping Plan, especially in the sections on negative emissions and carbon neutrality.

IV. NEED TO INCLUDE BIOENERGY IN ELECTRICITY SECTOR PLAN.

BAC is very concerned that the CEC's presentation on the electricity sector projects zero growth in biomass energy or hydrogen and omits biogas entirely. This contradicts numerous state laws that call for increased bioenergy and renewable gas and also ignores recent CPUC decisions calling for increased bioenergy for reliability purposes.

Some of the laws and policies calling for increased biopower include:

- SB 1122 (Rubio, 2012) requires 250 MW of new, small-scale bioenergy generation.
- The Governor's Emergency Order on Tree Mortality, which calls for accelerated development of Forest BioMAT projects.
- CalRecycle's regulations to implement the waste diversion requirements of SB 1383 allow only two alternatives for diverted biomass waste – conversion to electricity and mulch.
- The *California Forest Carbon Plan*, adopted by CalEPA and CNRA, calls for increased forest biomass to energy to reduce open burning of forest waste.
- The *Forest Biomass Utilization Plan*, adopted by the Board of Forestry in November 2020, calls for many measures to increase forest biomass utilization.
- The Air Board's plan to phase out the open burning of agricultural waste in the San Joaquin Valley (adopted February 2021) calls for increased bioenergy development as an alternative to open burning of agricultural waste.

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[10] Id.

[11] See: https://www.iea.org/commentaries/going-carbon-negative-what-are-the-technology-options; and https://psci.princeton.edu/tips/2020/11/15/preventing-climate-change-with-beccs-bioenergy-with-carbon-capture-and-storage.

[12] International Energy Agency: https://www.iea.org/commentaries/going-carbon-negative-what-are-the-technology-options.

In addition, numerous state laws call for increased biogas production and use, including:

- AB 1900 (Gatto, 2012) requires that "the commission shall adopt policies and programs that promote the in-state production and distribution of biomethane. The policies and programs shall facilitate the development of a variety of sources of in-state biomethane."[13]
- SB 1122 (Rubio, 2012) requires the commission to "encourage gas and electrical corporations to develop and offer programs and services to facilitate development of in-state biogas for a broad range of purposes." [14]
- AB 2313 (Williams, 2016) requires the commission to consider options to increase instate biomethane production and use.[15]
- SB 840 (Budget, 2016) states that for "California to meet its goals for reducing emissions of greenhouse gases and short-lived climate pollutants, the state must . . . increase the production and distribution of renewable and low-carbon gas supplies."[16]
- SB 1383 (Lara, 2016) requires state agencies to "consider and, as appropriate, adopt policies and incentives to significantly increase the sustainable production and use of renewable gas, including biomethane and biogas."[17]
- SB 1383 also requires the Commission to "consider additional policies to support the development and use in the state of renewable gas, including biomethane and biogas, that reduce short-lived climate pollutants in the state."[18]
- SB 1440 (Hueso, 2018) requires the California Public Utilities Commission to consider adopting a biomethane procurement program.[19]

The CPUC has also called for increased bioenergy in several recent decisions to maintain reliability while expanding the use of renewable power. Those decisions include:

- Requiring 1,000 MW of bioenergy or geothermal in the Integrated Resources Planning proceeding.[20]
- Allowing biogas and hydrogen from biomass in the Self-Generation Incentive Program.
- Proposing a biomethane procurement program for the gas utilities that will include biomethane from biomass pursuant to SB 1440 (Hueso, 2018) and AB 3163 (Salas, 2020).

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[13] AB 1900 (Gatto, 2012) adding Section 399.24(a) to the Public Utilities Code.

[14] SB 1122 (Rubio), Statutes of 2012, Chapter 612, codified at Public Utilities Code § 399.20(f)(2)(D).

[15] Public Utilities Code § 784.2.

[16] Senate Bill 840 (Budget), Statutes of 2016, SEC. 10, §§ (b) – (i).

[17] Health and Safety Code § 39730.8(c).

[18] Health and Safety Code § 39730.8(d).

[19] Public Utilities Code § 651(a).

[20] Proposed Decisions in R.20-05-003, issued June 2021.

In the Integrated Resources Planning proceeding, the CPUC underscored the need for resource diversity to maintain reliability and to spur development of additional firm, renewable power.[21] Biomass, biogas, and geothermal are the only sources of firm, renewable generation and California is going to need them all to maintain reliability in the electricity sector.

Biogas and hydrogen generated from organic waste can also provide long duration energy storage, which will be needed during multi-day grid outages, extreme weather events, prolonged periods of wildfire smoke, rain, or drought. Given the increasingly severe and widespread impacts of climate change, California must have long duration storage that can provide sufficient power when multiple grid impacts occur simultaneously and for multiple days or weeks at a time. Bioenergy and renewable gas can provide that long duration energy storage without having to resort to fossil fuels or rely on exports from other states that are also becoming more vulnerable to climate change impacts.

Including bioenergy in the electricity sector also increases resource diversity, which lowers the cost of the RPS portfolio as a whole.[22] Several studies have reached the same conclusion since increased diversity also increases reliability and prevents reliance on resources that will only be used occasionally. If California over builds solar, wind or batteries, the marginal costs of the resources that are only used occasionally will be very high and will contribute disproportionately to the portfolio costs.
We agree with the CEC's presentation that additional study and planning for reliability is critical.[23] Resource diversity and long duration storage will be essential to maintain reliability, as will the expansion of firm, renewable power (both baseload and dispatchable). A recent report by the National Renewable Energy Lab underscored the need for firm, renewable power to maintain reliability.[24]

BAC urges the CEC to include bioenergy – both biomass and biogas – in the electricity chapter of the Scoping Plan. Bioenergy can provide the only carbon negative form of renewable power, a form of firm renewable generation, and long duration storage. Increasing bioenergy will reduce emissions and boost reliability by diversifying California's RPS portfolio. The CPUC noted in its IRP Decision that California's clean energy leadership is only helpful if it is successful and success absolutely depends on reliability.

[21] Id. At pages 37-38.
[22] CEC Staff Presentation on SB 100, June 2, 2021, slide 21.
[23] Id.
[24] See, https://www.nrel.gov/analysis/los-angeles-100-percent-renewable-study.html, at pages 12-14.

V. NEED TO INCLUDE BIOFUELS IN TRANSPORTATION SECTOR

BAC supports the Governor's Executive Order on Zero-Emission Vehicles, but that Order makes clear that ZEVs will not be available in all vehicle classes for several decades. The Order does not call for new medium- and heavy-duty vehicles to be zero emission until 2045, and even then, only "where feasible." As noted above, waiting until 2045 or later to get diesel trucks off the road is unacceptable from a climate change and a public health perspective. To reduce SLCP emissions and NOx right away, California must prioritize the elimination of diesel-powered vehicles.

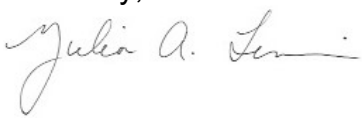
Powering medium- and heavy-duty trucks with biomethane from organic waste can cut climate pollution by 50 to 600 percent compared to diesel emissions. More importantly, using biomethane in heavy duty vehicles cuts the most damaging SLCP emissions. And, by ARB's own analysis, these carbon reductions are among the most cost-effective of all climate investments.[25]

When heavy duty trucks are developed that can run on electricity or hydrogen, then biomethane can also be used to produce renewable power and hydrogen that are carbon negative. The Governor's Executive Order makes clear, however, that that could be decades away still. And even if fuel cell or battery electric trucks are developed sooner, they may not be commercially viable for years or decades. Meanwhile fleets are buying new trucks now and continuing to buy diesel. It simply makes no sense to ignore carbon negative or low carbon biofuels that can replace diesel right away and provide the greatest reductions in SLCP emissions of any fuel on the market, including electricity and hydrogen.

For all these reasons, ARB should include low carbon and carbon negative biofuels in the transportation chapter of the 2022 Climate Change Scoping Plan.

Thank you for your consideration of these comments.

Sincerely,



Julia A. Levin
Executive Director

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