



October 21, 2021

Ms. Rajinder Sahota, Deputy Director  
California Air Resources Board  
1001 I Street  
Sacramento, CA 95814

**Re: Comments on Draft Scenario Inputs for the 2022  
Climate Change Scoping Plan**

Dear Ms. Sahota:

The Bioenergy Association of California (BAC) submits these comments on the draft scenario inputs for the 2022 Climate Change Scoping Plan. BAC appreciates the need to consider a range of scenarios to meet California's climate goals, but is concerned that the draft scenarios presented on September 30 are too narrow and fail to include statutory requirements to reduce black carbon emissions or meet the landfill diversion requirements of SB 1383. BAC urges the Air Resources Board to focus the scoping plan scenarios on the most urgent carbon reductions, including black carbon, to include a broad portfolio of climate solutions, and to move toward lifecycle analyses and performance standards for all climate strategies.

BAC represents more than 80 local governments, public agencies, private companies, and non-profits that are working to convert organic waste to energy. BAC's public sector members include environmental, air quality, waste and wastewater agencies, research institutions, publicly owned utilities, community and environmental groups. BAC's private sector members include energy and technology companies, developers, waste industry, agriculture and food processing, investor-owned utilities, investors, and others.

BAC's specific comments on the September 30 presentations are below.

**1. The Scenarios Should Focus Much More on SLCP Reductions to Benefit the Climate Right Away.**

BAC urges CARB to focus more specifically on opportunities to bend the warming curve right away. The latest IPCC report makes clear that we have much less than a decade to prevent catastrophic and irreversible climate change. It is critical, therefore, to

increase the focus on actions that benefit the climate right away, or at least within a few months or years.

Governor Newsom has also called on the state to step up its climate actions and to do more to make a difference right away. As the Governor stated recently, “We are in a climate damn emergency. . . across the entire spectrum, our climate goals are inadequate. We have to step up our game. As we lead the nation in low carbon green growth, we’ll have to fast track our efforts.”<sup>1</sup>

Climate experts around the state echoed this urgency in a recent paper that states that “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.”<sup>2</sup> The climate experts call for “drastic” reductions in SLCP emissions, which can benefit the climate right away, including eliminating the use of diesel and reductions in methane and black carbon from organic waste.<sup>3</sup> They also call explicitly for accelerating the timeline for meeting the requirements of SB 1383, which currently calls for a 40 percent reduction in methane and a 50 percent reduction in anthropogenic black carbon by 2030.<sup>4</sup>

Climate science is clear that the only measures that reduce warming right away and can do so at large scale are the measures to reduce SLCP emissions.<sup>5</sup> Those measures also have enormous co-benefits for public health and safety by reducing methane, black carbon, smoke, wildfire, toxic air contaminants, water pollution, and other impacts of organic waste disposal and fires, both wild and controlled.<sup>6</sup>

BAC urges CARB, therefore, to prioritize SLCP reductions in the scenarios planning and all other parts of the 2022 Climate Change Scoping Plan. These should be the highest priority “Early Action” items and we need to maximize them as quickly as possible. As presented at the August 17 workshop, the scenarios related to methane and black carbon followed other, far less urgent measures (in terms of how quickly they will benefit the climate) and there was no prioritization among the different sector scenarios or options. This is illogical and counter-productive when goals like vehicle or building electrification (unless done using biofuels) does not reduce SLCP emissions and therefore will not benefit the climate for several decades. We simply do not have that much time left.

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<sup>1</sup> <https://calmatters.org/environment/2020/09/california-governor-climate-emergency/>.

<sup>2</sup> 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].

<sup>3</sup> Id. at page 4.

<sup>4</sup> Id. at page 4.

<sup>5</sup> Presentation of Dr. V. Ramanathan, UC San Diego and Scripps Institute, Presentation June 24, 2021 at MoveLA Symposium on Short-Lived Climate Pollutant Reductions.

<sup>6</sup> Lawrence Livermore National Lab, *Getting to Neutral – Options for Negative Carbon Emissions*,” January 2020, at page 2.

To focus more on SLCP reductions – as the last lever we have left to avoid catastrophic climate change<sup>7</sup> – CARB should make SLCP Reductions the first and highest focus of the Scenarios generally and within each sector scenario, as well as all other sections of the 2022 climate Change Scoping Plan.

## **2. CARB Should Drop Alternative 1 as It Is Not Feasible, Excludes the Most Beneficial Climate Solutions, and Fails to Meet Statutory Requirements.**

BAC urges CARB to drop Alternative 1 as it excludes two of the most beneficial climate solutions and is based on technology choices that are unrelated to carbon emissions. In particular, BAC opposes the exclusion of dairy digesters that, by CARB's own analysis, are both the most effective and the most cost-effective of all the state's climate investments.<sup>8</sup> Alternative 1 would also exclude the use of landfill gas, even though landfills are one of the two largest sources of methane emissions and gas that is captured has to be flared if it is not used. Flaring that gas provides no energy value and has no pollution controls. It would be far better for climate and air quality to use that gas instead to displace fossil fuels and to generate power or vehicle fuels with pollution control technology.

BAC also opposes Alternative 1 because it would exclude the use of biofuels<sup>9</sup> that can provide the greatest carbon reductions and carbon negative fuels. It makes no sense to ban the use of biofuels that can be lower carbon than electricity or hydrogen derived from natural gas. The lowest carbon intensity fuels in the Low Carbon Fuel Standard program are biofuels derived from organic waste, in many cases several times lower carbon than grid electricity or fossil fuel-based hydrogen. Biofuels are also the only available alternative to diesel in heavy duty trucks, meaning they are the best option to reduce the use of diesel in the near term.

CARB should also eliminate Alternative 1 because it is too soon to ban combustion, which is necessary for many industrial processes, may continue to be necessary for energy reliability, and is used to prevent methane emissions from landfills and wastewater treatment facilities that are required to flare any methane that is not used.

BAC also opposes Alternative 1 because it would result in significant emissions leakage by banning certain industries altogether.<sup>10</sup> It makes no sense to ban cement, aviation, or other sectors when those emissions will just be moved to other states (not to mention the impact on California's economy of banning aviation).

BAC supports many elements of Alternatives 2, 3 and 4 that propose broad portfolios of climate solutions, rapid reduction of fossil fuels, carbon capture and storage or

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<sup>7</sup> Id. See, also, Kammen, Ramanathan, Matlock, et al, footnote 2 above.

<sup>8</sup> California Air Resources Board, *California Climate Investments*, 2021 Report to the California Legislature, Table 2, pages 15-20.

<sup>9</sup> Draft scenarios presentation, slide 18.

<sup>10</sup> Draft scenarios presentation, slide 11.

utilization, and deployment of carbon removal strategies. We will need all of these to meet the state's climate goals.

### **3. CARB Should Include the Landfill Diversion Requirements of SB 1383 in All Scenarios.**

BAC is very concerned that Alternatives 3 and 4 relax the deadlines for legally required landfill diversion requirements.<sup>11</sup> CARB does not have the authority to waive statutory requirements, nor should it relax requirements that reduce SLCP emissions, which are by far the most urgent and most beneficial carbon reductions. SB 1383 requires local jurisdictions to divert 75 percent of organic landfill waste by 2025, yet Alternatives 3 and 4 propose only 55 percent diversion in 2025 and not achieving the full 75 diversion rate until 2030. This allows significant continued methane emissions and would violate the requirements of SB 1383.

In addition to proposing a violation of state law, Alternatives 3 and 4 will cause a chilling effect in the industries that provide the alternatives to landfilling – bioenergy, compost, and mulch.

CARB should eliminate Alternatives that would violate state law and slow down investment in facilities that can cut SLCP emissions.

### **4. The Scenarios Should Identify Opportunities for Carbon Negative Emissions.**

While the scenarios present options to achieve carbon neutrality, they do not provide specific options to generate carbon negative emissions, which will be critical to achieve carbon neutrality. This is a significant omission, especially in the electricity, transportation, and industrial sectors, all of which can achieve negative emissions by combining bioenergy with carbon capture and storage or use (BECCS), and in some cases, with bioenergy alone.

According to Lawrence Livermore National Lab and other experts who've considered how to achieve carbon neutrality, achieving carbon neutrality will require a significant investment in negative carbon emissions.<sup>12</sup> LLNL also found that the biggest opportunity for negative carbon emissions in California is from BECCS, which can provide more than two-thirds of all the carbon negative emissions needed to reach carbon neutrality.<sup>13</sup>

Since the science and state policy call for carbon neutrality by mid-century or sooner, it is critical to consider where California can achieve carbon negative emissions to balance out the emissions that cannot be avoided.

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<sup>11</sup> Draft scenarios presentation from September 30, 2021, Slide 14.

<sup>12</sup> Lawrence Livermore National Lab, *Getting to Neutral – Options for Negative Carbon Emissions*, January 2020, at page 2.

<sup>13</sup> Id.

BAC urges CARB, therefore, to include opportunities for negative carbon emissions in the draft scenarios.

## **5. The Scenarios Should Consider the Lifecycle Emissions of SB 100 Eligible Resources.**

The draft scenarios fail to focus on the lifecycle carbon intensity of different resources or opportunities for carbon negative emissions. To achieve a truly zero carbon electricity sector, it is essential to adopt a lifecycle carbon intensity focus, rather than focusing on specific technologies – ie, combustion – that are not related to carbon intensity.

In order to achieve a zero-carbon electricity sector, it will be critical to have significant carbon negative emissions in the sector since most resources are not, in fact, truly carbon neutral. This includes solar and wind power, which have lifecycle carbon intensities between 4 and 40 grams of CO<sub>2</sub>e per kilowatt hour.<sup>14</sup> Batteries also have some carbon emissions on a lifecycle basis. These are due to sourcing the raw materials, manufacturing, installation, land use changes, and disposal or recycling of used batteries and other equipment (turbines, panels, etc.). This wide range of emissions is much more than de minimis and should be included in any plan to achieve zero carbon electricity overall.

Bioenergy, by contrast, can be carbon negative – in some cases, extremely carbon negative – because it reduces SLCP and GHG emissions from organic waste as well as displacing fossil fuels. When carbon capture and storage or use is added, then all forms of bioenergy can be carbon negative.

Given the wide range of carbon intensities for RPS eligible resources, it is critical to include lifecycle carbon intensities of different RPS resources to plan accurately for a zero carbon electricity grid. The scenarios planning, therefore, should consider where there are opportunities for carbon negative emissions, how to drive down emissions from RPS resources that are not carbon neutral or carbon negative, and how to achieve a truly zero carbon electricity grid. Ignoring the lifecycle emissions of different resources will not lead to an accurate assessment of electricity sector emissions.

## **6. Combustion Bans Are Not Feasible, But the Scenarios Should Include Measures to Accelerate the Transition to Non-Combustion Conversion of Organic Waste.**

Alternative 1 in the draft scenarios is not feasible at this time since it would exclude all combustion by 2035. California will need a broad portfolio of climate solutions to meet its rapid decarbonization goals. Rather than pick technology winners or losers, the plan should focus instead on maximizing SLCP reductions and carbon reductions generally, including opportunities for negative carbon emissions. Focusing on specific

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<sup>14</sup> See, <https://www.nrel.gov/analysis/life-cycle-assessment.html>.

technologies that are unrelated to lifecycle carbon emissions should be outside the scope of a climate change scoping plan.

To give an example, a facility that combusts biomethane from dairy waste or diverted organic waste can provide significant negative carbon emissions whether or not the power is from biomethane combustion. Combustion of hydrogen derived from organic waste can also be carbon negative. In fact, combustion of biomethane can provide many times greater carbon reductions than solar or wind power.

Combustion may also be needed to provide thermal energy, power backup generators, and power industrial processes. It is not appropriate to focus on whether or not combustion as a process should be banned in the scoping plan when combustion may provide increased efficiency and other benefits. For example, biomass Combined Heat & Power (CHP) systems that utilize forest waste and other woody materials can provide significant energy efficiency gains by utilizing heat in a productive manner in addition to generating clean electricity. As the first resource in the loading order, energy efficiency benefits should not be discounted in the CARB scoping plan.

Biomass CHP can address a multitude of energy goals, including improving reliability during the net peak period when solar and other intermittent renewables are not available. Biomass CHP is one of the only fully dispatchable renewable resources that is commercially available today. It has the ability to ramp and up down quickly and provide firm capacity to the electric grid. Given the Governor's recent Emergency Proclamation on electric reliability, CARB should not be taking any renewable energy solutions off the table that have the potential to address the state's looming capacity shortfall.

A more appropriate focus would be on how to accelerate the non-combustion conversion of organic waste to energy. Technologies such as anaerobic digestion, gasification, and pyrolysis can be used in place of combustion to convert organic waste to energy. Any questions about combustion should, therefore, focus on the conversion of waste to energy rather than the use of biogas, RNG or hydrogen. BAC supports a transition away from direct combustion of organic waste resources to non-combustion conversion technologies. It is too soon, however, to ban combustion of biogas and hydrogen, although the state should prioritize the demonstration of non-combustion technologies with biogas and hydrogen, including expanded use of fuel cells, linear generators and other non-combustion technologies.

## **7. Bioenergy Should be Included in All Scenarios.**

Bioenergy can reduce the most damaging climate pollutants – SLCPs – and provide more than two-thirds of all the carbon negative emissions needed to reach carbon neutrality.<sup>15</sup> Bioenergy also provides a clean energy option for rural forested communities that are not well suited for typical solar installations. Forest biomass projects, however, are perfectly suited for these locations. Bioenergy projects sited in

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<sup>15</sup> Lawrence Livermore National Lab report, footnote 11 above.

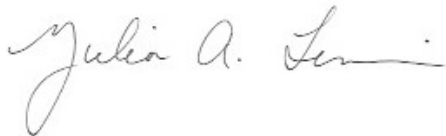
rural communities will ensure those communities that are disproportionately impacted by outages and other extreme weather events are able to access reliable power, while stimulating local economies and contributing to the state's clean energy goals. Rural areas do not have the same access to public services and critical resources as urban areas. They are more severely impacted in emergencies due to resource constraints and geography. These communities are often low-income, or just above California's designated low-income threshold, and at high risk of wildfire and power outages (planned and unplanned), making them particularly vulnerable.

Bioenergy projects provide many other benefits to the state beyond clean energy and resiliency. Local governments can sustainably manage and meet new organic waste management goals as part of SB 1383 (Lara, 2016). California can drastically improve its forest health, fuel reduction and other wildfire mitigation efforts by incentivizing the build out of facilities that can handle processing forest waste and put it to beneficial use locally. Efforts to reduce wildfire risk that are holistic and regenerative, such as forest waste being used to produce clean energy, are high value investments for the state, and the public health and safety of Californians.

The Scoping Plan scenarios should focus much more on bioenergy. It should be a prominent focus of the final scoping plan, with proper weight given to the multitude of climate change and other benefits it provides the state of California.

Thank you for your consideration of these comments.

Sincerely,

A handwritten signature in cursive script that reads "Julia A. Levin". The signature is written in a dark ink and is positioned above the printed name and title.

Julia A. Levin  
Executive Director