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BAC Comments on Non-Energy Benefits

Additional submitted attachment is included below.



April 30, 2024

The Honorable Siva Gunda, Vice Chair
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: Non Energy Benefits and Impacts in SB 100 Report (23-SB-100)

Dear Vice Chair Gunda:

The Bioenergy Association of California (BAC) submits these comments in response to the April 16 workshop presentations on Non-Energy Impacts. BAC strongly supports the State's work to identify and quantify both the impacts and benefits of different energy resources, but the workshop failed to address some of the biggest impacts and benefits related to public health and safety, the State's climate policies, jobs and economic development, and energy reliability. In particular, none of the presentations on April 16 addressed the following critical issues:

- Opportunities for RPS eligible resources to reduce Short-Lived Climate Pollutant emissions as required by State law.
- The potential to generate carbon negative emissions needed to reach carbon neutrality.
- The opportunity to mitigate wildfire risks and impacts.
- The opportunity to reduce open burning of agricultural and forest waste.
- Energy technologies that can destroy PFAS (also known as "forever") chemicals.
- The opportunity to reduce pollution from landfills and dairies.
- Job creation and economic development from different resource types.

BAC represents about 100 public and private sector members working to convert organic waste to energy in California. BAC's public sector members include cities, counties, Tribes, air quality and environmental agencies, waste and wastewater agencies, public research institutions, community and environmental groups, and a publicly owned utility. BAC's private sector members include energy and technology companies, agriculture and food processing companies, waste haulers, investors, and an investor-owned utility.

BAC urges the CEC to include the following Non-Energy Benefits (NEBs) in its SB 100 analysis.

1. Climate Benefits, Including SLCP Reductions and Carbon Negative Emissions.

Climate change, more than any other issue, is driving the need to transform California's electricity sector. Yet, not all RPS resources provide equal – or equally urgent – climate benefits. It is critical, therefore, to distinguish the different climate benefits that different RPS resources provide, especially those resources that can reduce Short-Lived Climate Pollutant (SLCP) emissions, which is by far the most urgent climate measure, and those resources that can provide carbon negative emissions needed to reach carbon neutrality by 2045.

a) Reduction of SLCP Emissions

Both the California Air Resources Board and climate experts around the globe agree that the most urgent climate solution is the reduction of methane, black carbon, and other Short-Lived Climate Pollutants because that begins to slow climate change right away.¹ As climate experts note, “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.”²

The California Air Resources Board sums it up succinctly by stating that “the science unequivocally underscores the need to **immediately** reduce emissions of short-lived climate pollutants” and that doing so will “provide immediate benefits – both to human health locally and to reduce warming globally.”³ As a result, California's climate plans all call for increased bioenergy production and/or full implementation of the BioMAT program, including:

- CARB's *2022 Climate Change Scoping Plan*
- CARB's *Short-Lived Climate Pollutant Reduction Strategy*
- The *California Forest Carbon Plan*, adopted by CalEPA, the California Natural Resources Agency, and CalFire

Bioenergy and renewable hydrogen generated from organic waste cut methane from landfills, dairies and other decomposing waste and can reduce black carbon by providing an alternative to open burning of forest and agricultural waste. The SB 100 NEB analysis should identify and assess the potential for RPS resources to reduce SLCP emissions as it is the only measure that benefits the climate for the next several decades.

¹ California Air Resources Board, *Short-Lived Climate Pollutant Reduction Strategy*, adopted 2017; *Draft 2022 Climate Change Scoping Plan*, issued by CARB in May 2022.

² 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].

³ *Short-Lived Climate Pollutant Reduction Strategy*, footnote 1 above, at page 22.

b) Carbon Negative Emissions

The Commission should also consider which RPS resources can provide carbon negative emissions needed to achieve carbon neutrality by 2045, as required by state law.⁴ Governor Newsom has also called on state agencies including the Commission to accelerate progress toward California's climate goals, including the goal of carbon neutrality.⁵ Climate scientists agree that reaching carbon neutrality will require carbon negative emissions to offset the emissions that cannot be eliminated.

According to Lawrence Livermore National Lab, California will need to generate 125 million metric tons of negative carbon emissions to reach carbon neutrality.⁶ The Lab found that by far the biggest opportunity to generate carbon negative emissions is from Bioenergy with Carbon Capture and Storage (BECCS), which can provide more than two-thirds of all the carbon negative emissions needed to achieve carbon neutrality in California.⁷ The California Air Resources Board, in the *2022 Climate Change Scoping Plan*, also found that California will need to generate significant carbon negative emissions to achieve carbon neutrality and that bioenergy is one of the biggest opportunities to do so.

The SB 100 NEB analysis should include identification of resources that can provide carbon negative emissions and opportunities to encourage those negative emissions to achieve the requirements of AB 1279.

2. Reducing Catastrophic Wildfire.

The SB 100 NEB analysis should also consider the potential for RPS eligible resources to increase or mitigate wildfire threats. Wildfire is a huge and growing threat to public health and safety, energy reliability, and power costs. Wildfires in the past five years have killed hundreds of people directly and, according to analysis by Stanford University, will kill thousands of people prematurely from the impacts of wildfire smoke. Wildfires also impact water supplies and water quality, energy infrastructure and operations, and forested communities around the state.

According to CalFire, electricity infrastructure and operations cause the majority of California's large wildfires. On the other hand, bioenergy generated from forest waste and other vegetation removed to reduce wildfire risks can reduce the likelihood and severity of wildfires. This is why all of the state's climate and forest plans in recent years have called for increase bioenergy production using forest waste.

⁴ AB 1279 (Muratsuchi, 2022).

⁵ See, <https://www.gov.ca.gov/2021/07/09/governor-newsom-holds-virtual-discussion-with-leading-climate-scientists-on-states-progress-toward-carbon-neutrality/>.

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

⁷ Id.

Several state plans to reduce wildfire risks have called for increased bioenergy, including hydrogen and electricity production from forest waste. That includes the *California Forest Carbon Plan* adopted by CalEPA and CNRA in 2017, Governor Brown's Emergency Order on Tree Mortality, the *Woody Biomass Utilization Plan* adopted by the California Board of Forestry in 2020, and the *Wood Utilization Plan* being developed by the Governor's Wildfire and Forest Resilience Task Force, wood utilization group.⁸

Given the direct connection between electricity generation and wildfires, as well as the opportunity for bioenergy to mitigate wildfire risks and impacts, the SB 100 NEB analysis should include a discussion of the links between different RPS resources and wildfire, especially the opportunity to reduce wildfire risks by converting forest waste to energy.

3. Air Quality Benefits.

The workshop on April 16 did mention air quality as a Non-Energy Benefit, but only addressed the air quality benefits of reducing fossil fuel use. While that is an important benefit of renewable energy, there are many other potential air quality benefits of RPS resources that should be considered as well. Those include air quality benefits of reducing open burning of agricultural and forest waste, reducing methane and particulate matter emissions from landfills, dairies and other waste operations, reducing flaring of landfill and wastewater biogas, and reducing the need for diesel backup generators.

a) Reducing Pile and Burn of Agricultural and Forest Waste

According to CalEPA and the California Natural Resources Agency, converting forest or agricultural waste to energy cuts particulate matter, methane, and carbon monoxide emissions by 98 percent compared to open burning, which is how California disposes of much of its agricultural and forest waste.⁹ Bioenergy can also cut NOx and volatile organic compounds – both of which are precursors to smog - by substantial amounts.¹⁰ CAPCOA, the statewide association of local air districts, found even greater benefits for air quality when converting woody biomass to energy instead of open burning: a 99 percent reduction in particulate matter (PM 2.5) a 95-99 percent reduction in methane,

⁸ 2022 *Climate Change Scoping Plan for Achieving Carbon Neutrality*, issued by the California Air Resources Board on November 15, 2022, at page 99; *California Forest Carbon Plan*, adopted by CalEPA, CNRA, and CalFire in 2017; Governor's Proclamation of a State of Emergency, issued October 30, 2015, Ordering paragraphs 9 and 10; Board of Forestry Joint Institute for Wood Products Wood Utilization Plan adopted November 2020.

⁹ *California Forest Carbon Plan*, footnote 8 above, at pages 130, 135.

¹⁰ Id.

VOCs, and carbon monoxide, and a 40 to 70 percent reduction in smog forming pollutants.¹¹

Both CalEPA and the California Air Resources Board have called for increased bioenergy as a preferred alternative to open burning for air quality as well as climate reasons.¹² Any discussion of NEBs, therefore, should include the air quality benefits of bioenergy compared to open burning.

b) Reducing Air Pollution from Dairies and Landfills

Bioenergy also reduces air and water pollution from dairies and landfills, both of which are large sources of methane emissions (which is an air pollutant that causes smog). According to the California Department of Food and Agriculture, dairy digesters also help to reduce water and soil contamination by moving dairy manure from open piles or lagoons to sealed tanks or covered lagoons. This provides significant benefits to water and soil quality by reducing runoff. It also reduces odors, VOC emissions, and other pollution from dairies.

Bioenergy also reduces air pollution from landfills, both by diverting organic waste away from landfills (which reduces methane and other VOC emissions) and by capturing and beneficially using landfill biogas, which would otherwise be flared. Bioenergy cuts pollution compared to a flare and can then be used to displace fossil fuels. Currently, California flares enough landfill gas annually to displace half a billion to a billion gallons of gasoline or diesel. Converting that landfill gas to energy instead would reduce pollution from the gas flares and displace fossil fuels.

These NEBs should be included in the SB 100 analysis.

c) Reducing the Need for Diesel Backup Generators

The use of diesel backup generators is increasing quickly in California due to concerns about energy reliability. Renewable gas – biogas, biomethane, and renewable hydrogen – are the only true substitutes for diesel backup generators since renewable gas can provide firm, dispatchable power that is available when needed for as long as needed. The air quality benefits of renewable gas compared to diesel are enormous and should be included in the NEB analysis.

4. Destruction of PFAS Chemicals.

The April 16 workshop also omitted any discussion of PFAS chemicals – also known as “forever chemicals” and among the most harmful chemical to human health. Some

¹¹ CAPCOA Biomass Policy Statement at page 1.

¹² CalEPA and CNRA call for increased bioenergy in the *California Forest Carbon Plan*; CARB calls for increased bioenergy in the plan to phase out open burning of agricultural waste in the San Joaquin Valley, the *Short-Lived Climate Pollutant Reduction Strategy*, and the *2022 Climate Change Scoping Plan*.

forms of energy that use very high heat, including pyrolysis and possibly gasification, destroy PFAS chemicals that occur in wastewater, food and food processing waste, and other organic waste sources. According to the US Environmental Protection Agency, pyrolysis can destroy up to 99.96 percent of PFAS chemicals.¹³

Destruction of PFAS chemicals is a potentially enormous Non-Energy Benefit that should be considered in any NEB analysis. CARB, the State Water Board, the Office of Environmental Health Hazard Assessment, and other agencies are all exploring this potential solution to PFAS contamination and the CEC should collaborate in those efforts, at least by acknowledging that some energy technologies such as pyrolysis can be very helpful at destroying or reducing PFAS contamination.

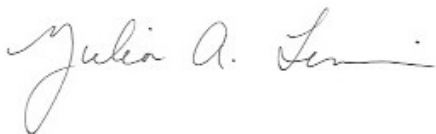
5. Job Creation and Economic Development.

The April 16 workshop mentioned economic impacts, but did not distinguish between different energy technologies and the relative economic benefits that each can provide. Multiple studies have found that bioenergy generates more jobs in total, more permanent jobs, and higher skill and salaried jobs than other energy sources.¹⁴ That makes sense since bioenergy requires ongoing feedstock collection and processing and may require feedstock transport as well. Bioenergy also requires more positions in ongoing operations and maintenance.

Finally, bioenergy facilities are often located in highly rural communities, such as remote forested communities or agricultural regions, that have few if any other economic opportunities. Several Tribes in California are developing bioenergy projects to reduce waste and pile burning, increase energy reliability, and provide jobs and economic development for the Tribes. Bioenergy facilities are also often located in disadvantaged communities, particularly around landfills and wastewater treatment facilities.

BAC thanks the Commission for the opportunity to provide these comments and urges the Commission to include the issues above in its analysis of Non-Energy Impacts and Benefits.

Sincerely,
Julia A. Levin



Executive Director

¹³ https://cfpub.epa.gov/si/si_public_record_report.cfm?Lab=CEMM&dirEntryId=354243.

¹⁴ See, eg, recent reports by Rand Corporation and the Clean Air Task Force on clean energy opportunities in the San Joaquin Valley, both of which found that bioenergy and hydrogen create more jobs, more permanent jobs, and higher skill and wage jobs than solar or wind power.