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Bioenergy Association of California Comments on Non-Energy Benefits Analysis for SB 100

Additional submitted attachment is included below.

November 12, 2021

The Honorable David Hochschild, Chair
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: Comments on SB 100 Workshop on Non-Energy Benefits, Social Costs and Reliability

Dear Chair Hochschild:

The Bioenergy Association of California (BAC) submits these comments on the joint agency workshop held November 1 to consider the Non-Energy Benefits, Social Costs, and Reliability issues related to implementation of SB 100. BAC strongly supports the goals of SB 100 and the Commission's focus on the related issues of Non-Energy Benefits, social costs, and reliability. We continue to be extremely concerned, however, at several omissions in the Commission's ongoing work related to SB 100, including:

- The complete omission of any discussion of Short-Lived Climate Pollutants;
- The cost-effectiveness of SLCP reductions.
- Omission of the non-energy benefits that bioenergy provides, including reductions in wildfire, open burning of forest and agricultural waste, and landfilling;
- The need for more firm renewables for reliability and cost containment; and
- The need for more resource diversity generally.

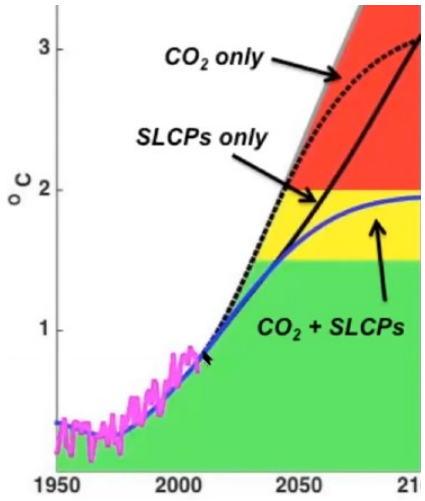
BAC represents 90 local governments, public agencies, private companies, research institutions, non-governmental organizations, and others working to promote sustainable bioenergy development in California to meet the state's climate, clean energy, waste reduction, and air quality goals.

BAC's concerns about the November 1 workshop presentations on SB 100 are described more fully below.

1. **The Commission Must Incorporate SLCP Reductions into SB 100.**

The Commission continues to ignore Short-Lived Climate Pollutants (SLCPs) despite requirements of state law and the growing body of scientific evidence that SLCP reductions are the most urgent climate measure. During the November 1 workshop on non-energy benefits, there was not a single mention of SLCP emissions or the potential to reduce those emissions through implementation of SB 100. This is a shocking omission that must be corrected if the state's actions are to have any benefit for the climate in the next several decades since the science is very clear now that SLCP reductions are the only measures that benefit the climate right away or even in the next 30 years.

The graphic below from UC San Diego's Scripps Institute[1] shows clearly that focusing solely on fossil fuel reductions – which reduce CO_2 emissions – will not benefit the climate until 2050 or later and that only SLCP reductions bend the warming curve right away. The graph also shows that we will need both CO_2 reductions and SLCP reductions to meet our long-term climate goals.



The international climate conference in Glasgow this month has underscored the need to reduce Short-Lived Climate Pollutants, with more than 100 countries committing to steep reductions in methane by 2030. As the United Nations Environment Program (UNEP) stated this very clearly, "Urgent steps must be taken to reduce methane emissions this decade."[2] The head of the UNEP said it even more strongly:

> "Cutting methane is the strongest lever we have to slow climate change over the next 25 years and complements necessary efforts to reduce carbon

[1] https://bendingthecurve.ucsd.edu/.

[2] https://www.unep.org/news-and-stories/press-release/global-assessment-urgent-steps-must-be-taken-reduce-methane

dioxide. The benefits to society, economies, and the environment are numerous and far outweigh the cost. We need international cooperation to **urgently reduce methane emissions as much as possible this decade**."[3]

President Biden and the President of the European Commission also released a joint statement saying that "reducing methane is the single most effective strategy to reduce global warming in the near term."[4]

Governor Newsom has 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."[5]

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."[6] 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.[7] They also call explicitly for accelerating the timeline for meeting the methane and black carbon reduction requirements of SB 1383,[8] including a 40 percent reduction in methane and a 50 percent reduction in black carbon by 2030.[9]

The Commission must incorporate SLCP reductions into all aspects of SB 100 planning to address the single most urgent climate issue and comply with state law.

2. SLCP Reductions are the Most Cost-Effective of All the State's Climate Investments.

Omitting any analysis of SLCP reductions also ignores the most cost-effective of all climate investments. The Commission cannot accurately assess the social costs of carbon without considering all potential carbon reduction types and their relative costs and benefits. Multiple reports from the Legislative Analyst's Office and the Air Resources Board make clear that SLCP reductions are the most cost-effective of all carbon reductions and, therefore, have the lowest social costs of any carbon reductions.

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[3] Id.

[4] See: https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/18/joint-us-eu-press-release-on-the-global-methane-pledge/.

[5] https://calmatters.org/environment/2020/09/california-governor-climate-emergency/.

[6] Kammen, Ramanthan, 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].

[7] Id. at page 4.

[8] Id. at page 4.

[9] SB 1383 (Lara, 2016); Health and Safety Code section 39730.5(a).

ARB's recent report to the Legislature on the state's climate investments to date shows that investment in SLCP reductions are by far the most effective and the most cost-effective of all of the state's climate investments. For example, the report shows that the state's investments in dairy digesters and diverted organic waste projects cut carbon emissions for only $9 and $10 per ton of carbon.[10] That is a tiny fraction of the cost of carbon reductions under the Low Carbon Fuel Standard ($190 to $200 per ton) and many other climate investments.

Reports from the Legislative Analyst's Office reach the same conclusion, finding that the most cost-effective of all the state's climate investments are the investments in organic waste to energy. For example, a report on the state's cap and trade program investments found that the five most cost-effective all related to organic waste and bioenergy.[11] Together, those investments averaged $7 per ton of carbon reduction compared to an average of $57 per ton of carbon reduction for all of the Cap & Trade investments.[12]

The investments in SLCP reductions are also producing some of the largest CO2e reductions overall.[13] This should not be surprising since SLCP emissions are tens to thousands of times more damaging to the climate than CO2, so investments in SLCP reductions provide many times greater benefits to the climate.

It is impossible to consider the social costs of carbon without also considering the cost-effectiveness of different carbon reduction measures. Since SLCP reductions are the most cost-effective of all carbon reductions California has invested in, the Commission should incorporate these costs into the SB 100 analysis as part of the social costs of carbon and other non-energy benefits.

3. Non-Energy Benefits Must Include Reductions in Wildfire, Open Burning, and Landfilling.

BAC also urges the Commission to include the non-energy benefits that bioenergy can provide. Bioenergy is unique among SB 100 resources in its ability to reduce the risk of wildfires, help meet the state's landfill diversion requirements, reduce air pollution from open burning of forest and agricultural waste, support forest health and restoration, and produce organic soil amendments as co-products of bioenergy generation. These non-

[10] California Air Resources Board, *California Climate Investments*, 2021 Report to the California Legislature, Table 2, pages 15-20.
[11] Legislative Analyst's Report to the Assembly Budget Subcommittee No. 3, April 2016.
[12] Id. at page 3.
[13] California Air Resources Board, *California Climate Investments*, 2021 Report to the California Legislature, Table 2, pages 15-20.

energy benefits contribute to public health and safety by reducing wildfire impacts, air and water pollution, soil contamination, and more.[14]

The California Public Utilities Commission has recognized the non-energy benefits of bioenergy for several years. As the CPUC has stated, distributed generation bioenergy projects provide important non-energy benefits "achieving statewide climate, waste diversion, and public safety goals."[15] The CPUC noted that bioenergy projects help meet the landfill diversion and methane reduction requirements of SB 1383.[16] And the CPUC has recognized repeatedly that BioMAT projects help reduce wildfire risks and impacts.[17]

The California Air Resources Board also recognizes the important role that bioenergy plays in reducing SLCP emissions from organic waste and has called for increased bioenergy development to reduce methane emissions from landfills and dairies, as well as black carbon emissions from wildfires and controlled burns.[18] More recently, the Air Board recommended expanding bioenergy production as a preferred alternative to the open burning of agricultural waste in the San Joaquin Valley.[19] Finally, CalEPA and the California Natural Resources Agency found that bioenergy can cut black carbon and methane by 98 percent compared to open burning of forest and agricultural waste.[20]

It is past time for the Energy Commission to recognize the non-energy benefits of bioenergy that California's other state agencies have long recognized and encouraged.

4. The Commission Must Plan for More Firm Renewables and Greater Resource Diversity Generally.

The staff presentation at the November 1 workshop recognized that "Diversity in energy resources and technologies lowers overall costs,"[21] but nothing in the remaining presentations or the Commission's SB 100 planning actually promotes or even expects increased resource diversity in the coming years. BAC urges the Commission to include increases in resource diversity in general and firm renewable power in particular as part of its SB 100 planning. Increasing the generation of firm renewables will be critical to maintain reliability and to reduce overall system costs as we move toward 100 percent renewable power. The CPUC underscored the need for increased firm renewable in its recent Decision in the Integrated Resources Planning proceeding. The

[14] Lawrence Livermore National Lab, *Getting to Neutral – Options for Negative Carbon Emissions,"* January 2020, at page 2.
[15] CPUC Decision 18-05-032, issued in Rulemaking 15-02-020, at pages 17-18.
[16] Id. at page 18.
[17] See, eg, CPUC Decision 18-05-032 at pages 17-18, CPUC Decision 20-08-043 at page 13, and CPUC Resolution E-4922 at page 5.
[18] California Air Resources Board, *Short-Lived Climate Pollutant Reduction Strategy*, adopted March 2017.
[19] California Air Resources Board, *San Joaquin Valley Agricultural Burning Assessment*, approved February 2021.
[20] *California Forest Carbon Plan*, adopted by CalEPA and CNRA in May 2018, at page 130.
[21] Presentation at Joint CEC-CPUC workshop on SB 100, November 1, 2021, slide 11 "Key Take-Aways from Modeling."

CPUC explained that without a requirement for certain attributes, electricity providers will focus on the least cost resources and that may not lead to a diverse or reliable portfolio.[22] As the CPUC noted in Decision 21-06-035, which requires 1000 MW of new, firm renewable power by 2026:

> "While we generally prefer to be technology-neutral, there are instances where too much of a least-cost option leads to its own set of challenges . . . This means a reduction in the system's ability to supply firm and/or dispatchable energy when the grid needs it most."[23]

A recent study by the Energy Futures Initiative found that, based on actual weather data, California experiences 90 days per year with neither enough solar nor wind power.[24] And that study was based on years without heavy wildfire smoke for weeks at a time as California has experienced each of the past three years.

Increasing resource diversity generally increases reliability. As Southern California Edison has noted, "a multitude of diverse clean energy technologies and strategies will be needed" for reliability.[25]

Increasing the generation of firm renewables also reduces the risk that California will continue to deploy diesel backup generators to ensure reliability. As the Placer County Air Pollution Control District has recommended, diesel should be a fuel of last resort since it releases toxic particulate matter emissions.[26] Yet, without increasing firm renewables, California will continue to fall back on diesel as the CPUC just proposed in the Microgrid proceeding.

Increasing firm renewable power will also reduce overall system costs as we move toward the SB 100 goals. A recent study in the Journal of Energy and Climate Change found that increasing firm renewables can reduce overall system costs significantly compared to a grid that relies on intermittent renewables and storage.[27] That study found that:

> "In deeply decarbonized electricity systems with significant shares of variable renewable energy, the availability of at least one firm electricity generating technology can overcome reliability challenges and substantially reduce electricity costs. . . The higher average value of firm resources justifies their higher cost (relative to wind or solar) and explains why these technologies can contribute to a lower overall system cost. . . While having at least one clean firm

[22] CPUC Decision 21-06-035 at page 35.

[23] Id.

[24] "*Optionality, Flexibility & Innovation – Pathways for Deep Decarbonization in California*" Energy Futures Initiative, May 2019. Available at: https://energyfuturesinitiative.org/s/EFI_CA_Decarbonization_Full-b3at.pdf.

[25] Southern California Edison Microgrid Proposal at page 3.

[26] Placer County Air Pollution Control District Comments Comment On Policy Questions And An Interim Approach For Minimizing Emissions From Generation During Transmission Outages, filed September 25, 2020, at page 2.

[27]

> resource can help achieve cost-effective decarbonization of the grid . . . the scenario with all three clean firm resources provides more cost savings relative to the scenarios with each individual clean firm resource alone."[28]

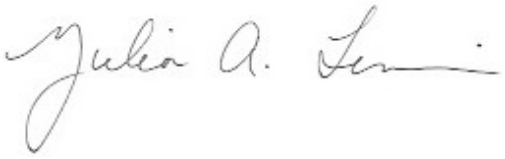
The Environmental Defense Fund underscored this point in recent comments to the CPUC, stating that:

> "Failing to procure clean firm power will require a massive overbuild of solar and wind that will increase rates by about 65 percent in 2045; by contrast using clean firm power California could keep rates similar to those found today."[29]

Given the importance of firm renewables for reliability and overall system costs, the Commission must include firm renewables in its plans for SB 100 implementation. As the study quoted above notes, that should include all forms of firm renewables, including bioenergy, renewable hydrogen, and geothermal. Including all three will provide the greatest reliability, non-energy benefits, and overall costs savings for ratepayers.

Thank you for your consideration of these comments.

Sincerely,



Julia A. Levin
Executive Director

[28] Baik, et al, *What is different about different net-zero carbon electricity systems?,* Energy and Climate Change, 2021. Available at: www.sciencedirect.com/journal/energy-and-climate-change.

[29] *Comments Of Environmental Defense Fund On The 2021 Preferred System Plan Ruling*, filed September 27, 2021 in CPUC Rulemaking 20-05-003, at page 2.