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BAC Comments on Draft SB 100 Report

Additional submitted attachment is included below.



December 18, 2020

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

Re: Comments on Draft SB 100 Report

Dear Chair Hochschild:

I am writing on behalf of the Bioenergy Association of California (BAC) to raise several concerns about the Draft SB 100 Report. BAC strongly supports the goals of SB 100, but the Draft Report omits several critical resources and opportunities. BAC urges the Commission to correct at least the following conclusions and omissions:

- The Draft Report erroneously concludes that biomethane and hydrogen are not yet commercially available and/or there is inadequate cost and supply data to include them in the Draft Report.
- The Draft Report erroneously concludes, without any data and in contradiction to the *2017 Integrated Energy Policy Report*, there is inadequate biomethane supply to be used in the power sector.
- The Draft Report does not project any new bioenergy despite numerous state laws and regulations requiring increased bioenergy generation.
- The Draft Report claims that it values resource diversity, but projects a less diverse portfolio over time.
- The Draft Report is not consistent with the state's climate plans in several areas and fails to include costs per ton of carbon reduction, opportunities for carbon negative emissions, opportunities to reduce Short-Lived Climate Pollutants, and other critical climate issues.

BAC represents more than 75 local governments, public agencies, private companies, utilities, research institutions, and others working to convert organic waste to energy to meet the state's climate, air quality, waste reduction, wildfire mitigation, and clean energy policies. BAC's comments on the Draft Report are below.

1. The Draft Report Incorrectly Claims that there is Insufficient Cost and/or Availability Data for Biomethane and Hydrogen.

The Draft Report claims that there is insufficient data about the cost and/or availability of biomethane and hydrogen to include them in the analyses.¹ This statement does not make sense when there are thousands of hydrogen fuel cells in operation in California and hundreds of operating bioenergy facilities, with approximately 200 additional bioenergy facilities in development. By contrast, the Draft Report does include offshore wind in the scenarios, even though there is far less offshore wind development in California than there is bioenergy and hydrogen. In addition, the Draft Report itself found that green hydrogen and biomethane “are gaining breakthroughs and cost reductions as ‘drop-in’ or replacement fuels in natural gas-fired power plants and potential zero-carbon dispatchable generation resources.”² Given this finding, it makes no sense to exclude biomethane and hydrogen due to “insufficient cost data.”

Cost data is readily available for these facilities as most participate in the BioMAT, BioRAM, SGIP, LCFS, or other state programs. For example, cost data for new bioenergy to electricity projects is available on the CPUC’s and the IOU’s websites, by feedstock category. The Commission itself also found and published extensive supply and cost data in the *2017 Integrated Energy Policy Report*, which included an entire chapter on Renewable Gas and devoted dozens of pages to feedstock availability and bioenergy costs.³ More recently, Lawrence Livermore National Lab released a groundbreaking report on how California can achieve carbon neutrality and that report also provides extensive data about the availability of biomass and biogas feedstocks.⁴

The final SB 100 Report should omit the statement that there is insufficient cost and/or supply data for biomethane and hydrogen. The statement is incorrect and easily contradicted by the CEC’s own analyses and many studies and reports that assess availability and costs.

2. The Draft Report Incorrectly Claims that there is Inadequate Biomethane for Power Generation.

The Draft Report states that there is “inadequate supply potential for biomethane in the power sector.”⁵ The statement is not cited and provides no explanation or data to justify it. The conclusion is contradicted by the CEC’s own analysis in the *2017 Integrated Energy Policy Report* and more recent studies by E3, Lawrence Livermore National Lab, the Energy Futures Initiative and others. According to the *2017 IEPR*, California produces enough technically available organic waste and waste biogas every year to

¹ Draft SB 100 Report at page 18, Table 4.

² Draft SB 100 Report, at page 18, footnote 29.

³ *2017 Integrated Energy Policy Report* at pages 243 to 286.

⁴ *Getting to Neutral – Options for Negative Carbon Emissions in California*, Lawrence Livermore National Lab, January 2020.

⁵ Draft SB 100 Report, Table 4, page 18.

generate 351 billion cubic feet of biomethane annually.⁶ The LLNL report, which includes a higher estimate of forest waste and other vegetation removed for wildfire mitigation due to recent legislative and policy changes, estimates that California can generate over 400 billion cubic feet of biomethane annually. This is enough biomethane to generate 20 percent of California's current electricity needs. Just as importantly, biomethane is one of very few renewable resources that can provide dispatchable power and long-duration energy storage, so the issue should not just be about total supply, but value of the resource for reliability, backup power, etc.

The Draft Report also ignores the current use of biomethane for power generation. The state already generates more than 500 megawatts of power from landfill gas and wastewater biogas,⁷ as well as power from dairy methane, diverted organic waste, agricultural and forest waste.

Ironically, E3's own report on carbon neutrality assumes that biomethane will continue to play an important role in California's decarbonization. E3 includes biomethane for electricity generation in two of the three scenarios that they modeled for deep decarbonization, using biomethane in place of natural gas to provide dispatchable power.⁸ E3 also stated that "Most decarbonization pathways show a significant reliance on low-carbon (or zero carbon) liquid and/or gaseous fuels across all sectors of the economy (buildings, industry, transportation, and electricity) in order to meet climate goals, and in particular when targeting net zero emissions. The low carbon liquid and gaseous fuels most often referred to in these studies include, but are not limited to, hydrogen, synthetic fuels, and biofuels (including biomethane)."⁹ It makes no sense, therefore, to omit biomethane from SB 100 planning.

There is more than enough biomethane supply to include in SB 100 models and analyses. Given its operational benefits and its much greater potential to reduce carbon emissions, biomethane should be included in the SB 100 Report.

3. The Draft Report Does Not Project New Bioenergy Production Despite Numerous Laws and Regulations Calling for Increased Bioenergy.

The Draft Report's failure to include biomethane violates the plain language of SB 100, which includes all renewable (RPS eligible) resources, and numerous other laws and regulations that call for increased electricity production from organic waste. Those laws include at least the following:

⁶ 2017 IEPR, Table 20, page 254.

⁷ 2012 Bioenergy Action Plan, adopted by the CEC and 8 other state agencies in August 2012, at page 1.

⁸ *Achieving Carbon Neutrality in California*, E3 Draft Report released August 2020. In Table 1, the Balanced and Zero Carbon Scenarios both assume that biomethane will replace natural gas and provide about 5% of California's power.

⁹ *Id.* at page 27.

- AB 1900 (Gatto, 2012) requires that, to “meet the energy and transportation needs of the state, 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.”¹⁰
- SB 1122 (Rubio, 2012) requires utilities to procure 250 MW of power from new, small-scale bioenergy facilities. It also requires the CPUC 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.”¹¹
- AB 2313 (Williams, 2016) requires the commission to consider options to increase in-state biomethane production and use.¹²
- 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.”¹³
- 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.”¹⁴ 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.”¹⁵
- SB 1440 (Hueso, 2018) requires the California Public Utilities Commission to consider adopting a biomethane procurement program.

In addition, every one of the state’s climate plans calls for increased bioenergy as a way to reduce Short-Lived Climate Pollutant emissions from landfilling, burning, or pile and decay or organic waste, as well as a wildfire mitigation strategy. Just last month, the Office of Administrative Law finalized CalRecycle’s organic waste diversion regulations adopted pursuant to SB 1383 (Lara, 2016, SLCP reduction). The regulations require local jurisdictions to procure bioenergy or compost in place of landfilling, and for biomass waste – the single largest category of organic landfill waste – the only allowable alternative is power generation.

Given the urgency of reducing SLCP emissions and the many laws and climate policies that call for increased bioenergy production to achieve SLCP reductions, the SB 100 Report should include biomethane and hydrogen derived from organic waste resources.

¹⁰ AB 1900 (Gatto, 2012) adding Section 399.24(a) to the Public Utilities Code.

¹¹ SB 1122 (Rubio), Statutes of 2012, Chapter 612, codified at Public Utilities Code § 399.20(f)(2)(D).

¹² Public Utilities Code § 784.2.

¹³ Senate Bill 840 (Budget), Statutes of 2016, SEC. 10, §§ (b) – (i).

¹⁴ Health and Safety Code 39730.8(c).

¹⁵ Health and Safety Code 39730.8(d).

4. The Draft Report Fails to Plan for a Diverse Portfolio of Resources.

While the Draft Report claims that it values resource diversity,¹⁶ the scenarios presented actually reduce diversity by excluding biomethane, hydrogen, and new geothermal resources. Instead, virtually all of the growth will be from just two generation sources – solar and wind – and one form of storage, which is batteries. This is hardly a diverse resource portfolio, nor will it be enough to maintain reliability since batteries cannot provide the long duration storage (weeks or months) that would be required if most of the generation is from intermittent resources.

BAC urges the Commission to include more diverse resource scenarios, including scenarios that include additional baseload and flexible generation renewables, long duration storage, and other carbon free resources.

5. The Draft Report Fails to Value Carbon Negative Emissions or Short-Lived Climate Pollutant Reductions.

As noted above, all of California's climate plans call for increased bioenergy production as a way to reduce Short-Lived Climate Pollutant emissions. SLCP reduction is the single most urgent step to address climate change since – unlike carbon dioxide reductions - it benefits the climate right away. SLCP's like black carbon are also serious public health threats and both black carbon and methane are major contributors to air pollution. Bioenergy (or hydrogen derived from biomass and biogas) is the only RPS eligible resource that cuts SLCP emissions, in addition to displacing fossil fuels. Bioenergy is also the only renewable resource that can provide carbon negative emissions, which will be essential to achieve carbon neutrality by mid-century.¹⁷

The SB 100 Report seems to forget why we are decarbonizing the energy and other sectors, which is to address and reverse climate change. Any analysis focused on decarbonization should, at a minimum, including consideration of the following:

- Opportunities to reduce SLCP emissions;
- Opportunities to help meet the state's climate plans and regulations;
- Opportunities for carbon negative emissions; and
- The costs per ton of carbon reduction.

¹⁶ Draft SB 100 Report at page 24.

¹⁷ Lawrence Livermore National Lab report, footnote above. See, also, United Kingdom plan to achieve carbon neutrality by mid-century, available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/945899/201216_BEIS_EWP_Command_Paper_Accessible.pdf.

BAC urges the Commission to address all four of these carbon issues in the final SB 100 Report. For a transition that is motivated above all by the goal of decarbonization, it is critical to consider the relative costs of carbon reductions. The Draft Report focuses a lot on costs of energy, but never considers the costs per ton of carbon reductions. This leads to the narrow and misguided conclusion that solar, wind, and batteries are the optimal portfolio when portfolios that include bioenergy could provide far greater carbon reductions at a lower cost per ton of carbon.

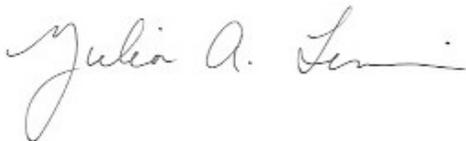
The LLNL report on carbon neutrality makes this quite clear. LLNL found that bioenergy with carbon capture and storage can reduce carbon for a cost between \$29 and \$96 per ton of carbon, with an average cost around \$60 per ton of carbon reduction. That is less than one-third the cost per ton of carbon reduction under the Low Carbon Fuel Standard and around half the cost of carbon reductions from solar and wind power (including the costs of storage or backup generation needed with solar and wind power). The reason is that bioenergy generated from organic waste can provide much deeper carbon reductions - several times greater - than solar or wind power. For example, dairy biomethane has a lifecycle carbon intensity of negative 330 to negative 500 grams of CO₂e/MJ. The California Air Resources Board just determined that biomethane from diverted organic waste has a lifecycle carbon intensity of negative 165 grams.¹⁸ These sources of biomethane provide two to five times the carbon reductions that other renewables provide.

When the primary goal of SB 100 is to decarbonize California's electricity supply, it is critical to consider opportunities to maximize carbon reductions and to focus on the cost-effectiveness of those carbon reductions. To focus solely on the costs of energy, regardless of the amount or type of carbon reductions, goes against the fundamental purpose of SB 100 and the state's efforts to decarbonize our energy sector.

BAC urges the Commission, therefore, to include analyses of the four carbon issues identified above in the final SB 100 Report. BAC also urges the Commission to include biomethane and hydrogen in the SB 100 scenarios and analyses since these resources can provide the greatest carbon reductions while providing dispatchable power, long-duration energy storage and other grid benefits.

Thank you for your consideration of these comments.

Sincerely,



Julia A. Levin
Executive Director

¹⁸ https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/fuelpathways/comments/tier2/d0014_cover.pdf.