December 9, 2019

Mr. Keith Roderic
Industrial Strategies Division
California Air Resources Board
1001 “I” Street
Sacramento, CA 95814

Re: Support for Proposed Fuel Cell Net Energy Metering Greenhouse Gas Regulations

Dear Mr. Roderic:

I am writing on behalf of the Bioenergy Association of California to urge the California Air Resources Board to adopt the Fuel Cell Net Energy Metering GHG Regulations released on October 22, 2019. The proposed regulations will help to transition fuel cells to utilizing renewable biogas, which will help to meet the state’s *Short-Lived Climate Pollution Reduction Strategy*, the requirements of SB 32, and numerous clean energy and air quality policies.

The Bioenergy Association of California (BAC) represents more than 70 local governments, public agencies, private companies, utilities, community development and environmental groups working to promote sustainable bioenergy development in California. BAC’s public sector members include cities and counties, air quality and environmental agencies, wastewater and solid waste agencies, research institutions, non-profit environmental and economic development groups, and municipal utilities. BAC’s private sector members include energy and waste companies, technology providers, investors, agricultural and food processing companies, an investor owned utility and private investors. BAC members are building sustainable bioenergy projects to provide flexible generation and baseload renewable power, renewably hydrogen for fuel cells, low carbon and carbon negative transportation fuels, pipeline biogas, and combined heat and power.

BAC supports the proposed regulations for several reasons, described below.

1. **California has ample biogas potential from organic waste sources.**

Numerous studies have assessed California's potential to generate biogas from organic waste feedstocks. UC Davis has maintained the state's organic waste database for many years as part of the California Biomass Collaborative. More recent studies by E3 and Lawrence Livermore National Lab have also assessed the state's biogas potential from technically available organic waste feedstocks. According to the E3 study, which has been prepared for the California Energy Commission, relatively low-cost RNG could provide almost half of the gas needed in 2050.[1] Assessments from UC Davis and Lawrence Livermore National Lab also conclude that California can generate substantial biogas supplies from organic waste.

Unfortunately, several environmental groups in their December 2 comment letter mistakenly relied on a much more limited study to conclude that there is not sufficient biogas to provide renewable hydrogen for fuel cells. The environmental groups rely on a biogas study that was limited to a small number of biogas facilities in just a few organic waste sectors. The purpose of the study, which the lead author presented to the California Energy Commission as part of the *2017 Integrated Energy Policy Report* development, was to assess which types of biogas were economically viable under the policies and incentives that existed at the time (the study was developed in 2016). The lead author, Dr. Amy Myers Jaffe, stated to the CEC in its IEPR workshop, that the study was not intended to provide an assessment of total biogas potential in California. The *2017 Integrated Energy Policy Report* makes this clear in presenting the Jaffe study for economic analysis and presenting the broader assessment by UC Davis as the more accurate assessment of total biogas potential.

The environmental groups' reliance on the Jaffe study to argue that there is not enough biogas is misguided. The Jaffe study only looked at a small fraction of the potential for anaerobic digestion in three waste sectors: landfill gas, wastewater, and dairy digesters. The study did not consider the potential for biogas from agricultural, forest, or urban wood waste. Together, these three sectors can provide 80 percent or more of the total instate biogas production. The Jaffe study was intended for economic analysis, not total biogas potential. The study also stated clearly that its assessment of economic viability was based on policies in existence in 2016 and could change with the adoption of new policies and incentives. Since the Jaffe study was completed:

- California has enacted SB 1383, which requires 75% diversion of organic waste and 40% reductions in methane and anthropogenic black carbon, all of which will increase available feedstocks for biogas production.
- California has enacted SB 901 and numerous emergency and executive orders calling for increased forest fuel removal and other vegetation removal to reduce wildfire hazards.
- California has adopted the *Forest Carbon Plan*, which calls for a tripling of forest fuel removal and conversion of that fuel to bioenergy.
- The state has allocated hundreds of millions of dollars in Cap and Trade revenues and other funding to incentivize new biogas projects.

[1] Draft Report at page 29.

For all of these reasons, the environmental groups' claim that there is not sufficient biogas for fuel cells is not supported by the studies that they cite and contradicts more complete studies conducted for the California Energy Commission and others, in particular the E3 study and a more recent assessment by Lawrence Livermore National Lab.

2. Increasing the use of biogas will help to meet the state's climate, air quality, waste diversion, and wildfire reduction goals.

Increasing the use of biogas in fuel cells will help California to meet its Short-Lived Climate Pollutant reduction goals and broader clean energy, air quality, and wildfire reduction goals. In the state's *2030 Climate Change Scoping Plan,* SLCP reductions make up more than one-third of all the climate reductions needed to meet the requirements of SB 32. As the *Short-Lived Climate Pollutant Reduction Strategy* states, we need to quickly accelerate conversion of organic waste to bioenergy and organic soil amendments to meet our SLCP reduction goals. The SLCP Strategy states that:

> **"**The State's organic waste should be put to beneficial use, such as for . . . electrical generation, transportation fuel, and pipeline-injected renewable natural gas. . . . Practical solutions must be developed and implemented to overcome barriers to waste gas utilization for pipeline injection and grid interconnection."[2]

California is currently only using a small fraction of its organic waste. To meet the requirements of SB 1383 and the *California Forest Carbon Plan*, California must quickly increase the conversion of organic waste to energy, including renewable biogas for fuel cells. Production and use of biogas is one of the most effective tools we have to reduce SLCP emissions, which is in turn, the most urgent step we need to take to tackle climate change, since it is one of very few measures that can begin to reverse climate change right away. Instead of trying to restrict biogas end uses, we should be looking for as many potential markets as possible so that California can meet its SLCP reduction goals.

3. Fuel Cells are an Important Part of California's Clean Energy Future.

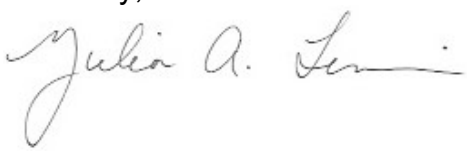
Fuel cells using biogas can also play a critical role in California's clean energy future. Fuel cells natively produce DC power, meaning they are able to efficiently charge electric vehicles, buses, and other DC loads during a grid outage while reducing efficiency losses that occur when converting to AC power. Underground fuel lines reduce the risk of sparks from traditional poles and wires infrastructure, and provide a valuable power diversification strategy to guard against outages. With their modular design, fuel cells are able to continue operating even while individual components are being repaired or replaced. Their leading power density and quick time-to-power can

[2] *Short-Lived Climate Pollutant Reduction Strategy*, adopted March 2017, at page 3.

displace expensive grid infrastructure investments at space constrained sites—urban downtowns, ports, bus depots. Fuel cells can provide load following (flexible or backup generation) power and other services to increase grid reliability. They can also help to make microgrids more reliable by providing power when solar or wind are not available and when batteries are not sufficient. And they can provide these essential services without combustion, resulting in virtually zero criteria air pollutants, which will benefit air quality generally and, especially, in disadvantaged communities.

For all these reasons, BAC supports the proposed Fuel Cell NEM GHG regulations. By annually declining, this data-driven standard will ensure that fuel cells transition to greater use of biogas, thus realizing all the benefits enumerated above. As such, BAC urges the Air Board to adopt this standard on December 12.

Sincerely,



Julia A. Levin
Executive Director