



James L. Sweeney  
Professor

Management Science & Engineering  
Huang Engineering Center, Room 258  
475 Via Ortega  
Stanford, CA 94305-4121

May 6, 2019

Lisa M. Gillmor, Mayor  
City Council Members  
City of Santa Clara

Dear Mayor and Council members,

I understand that the City of Santa Clara is planning to vote on a resolution that would essentially ban all behind-the-meter electricity generation that uses energy-efficient fuel cells. I understand that the resolution would technically allow fuel cells, but would require them to use only in-state biogas as their energy source. Much of the rest of this letter explains that the requirement to use only in-state biomass is tantamount to banning all behind-the-meter fuel cells.

I am James (Jim) Sweeney, Stanford Professor of Management Science and Engineering; Senior Fellow of the Stanford Institute for Economic Policy Research; Senior Fellow of the Precourt Institute for Energy; and until recently, Director of Stanford's Precourt Energy Efficiency Center.

In 2018, I chaired the steering committee for the California Council on Science and Technology (CCST) report, *Biomethane in California Common Carrier Pipelines: Assessing Heating Value and Maximum Siloxane Specifications*.<sup>1</sup> The report, completed at the request of the California legislature, documented the current availability, market, economics, and technical specifications for pipeline injected biomethane — the exact fuel this resolution seeks to require all onsite electricity generators to utilize.

The first issue is that at present there are only two commercially operating biomethane developments connected to pipelines in California, CR&R and Point Loma. Because of the high costs and long development timelines to bring these projects to market in California, the current supply of in-state biogas is extremely limited.

---

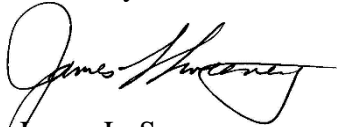
<sup>1</sup> <https://ccst.us/publications/2018/2018biomethane.pdf>

Second, the combination of California's Low Carbon Fuel Standard and the Federal Renewable Fuel Standard provides massive incentives for biomethane suppliers to sell all biomethane (from in-state or out of state) ONLY for transportation uses, such as to power heavy-duty trucks or buses. These two programs provide large subsidies for biomethane, but only for biomethane used for transportation, not for the generation of electricity. These incentives are stackable, that is biomethane products can benefit from both the federal and state incentives if that biomethane is used for transportation.

These incentives have led our CCST team to conclude that "The current value of the Federal and State incentives far exceeds the market value of the biomethane. **Financial incentives through the California Low Carbon Fuel Standard (LCFS) and the Federal Renewable Fuel Standard (RFS) programs can be a factor of up to 18 times greater than the commodity value of the biomethane itself** [emphasis added]."<sup>2</sup> The result: biomethane is prohibitively expensive if used for electricity generation. Taking into account the asymmetric federal and state subsidies, it is simply not economical to utilize biomethane for non-transportation purposes, such as to generate electricity through fuel cells

Although I couldn't be there with you in person, I wanted to make it clear that, in practice, the proposed resolution would effectively prohibit any behind-the-meter technology, if the resolution requires such technologies to use renewable gas. The requirement that the renewable gas be sourced from within California simply amplifies the prohibition.

Sincerely,



James L. Sweeney

---

<sup>2</sup> <https://ccst.us/publications/2018/2018biomethane.pdf>, pg 79