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2021 IEPR, Volume III “ Renewable Gas and Hydrogen (Docket 21- IEPR-01)

Additional submitted attachment is included below.

CALGREN

Dairy Fuels, LLC



January 27, 2022

The Honorable J. Andrew McAllister, Commissioner
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: 2021 IEPR, Volume III – Renewable Gas and Hydrogen (Docket 21-IEPR-01)

Dear Commissioner McAllister:

Calgren Dairy Fuels, LLC (CDF) submits these comments on Volume III of the *Draft 2021 Integrated Energy Policy Report*, focused on the gas sector. CDF appreciates the Commission's recognition that California will continue to need gas for reliability and other purposes. CDF strongly supports moving to renewable gas and thereby decarbonizing this valuable utility. In support of those efforts, we offer proposed corrections and comments to the chapter of Volume III on renewable gas and hydrogen.

- The definition of biomethane should be expanded.
- The definition of renewable hydrogen should include hydrogen from all biomass, especially carbon negative hydrogen from organic waste, not just electrolytic hydrogen.
- Since the goal is to decarbonize the gas sector, the discussion of renewable gas costs should also include costs per ton of carbon reduction, not just fuel costs.
- The section on firm renewable power from gas should include biogas in addition to hydrogen.

CDF is a private company located in Pixley, CA, in the heart of the Central Valley. With our affiliated companies, we produce a variety of renewable fuels. CDF's focus has been production of biomethane from dairy manure. We currently have 15 dairy manure digesters online, all capable of injecting into the SoCalGas pipeline, we have an additional 8 such digesters under construction, and are in negotiations to add 4 more. We also currently provide injection services for three other dairy manure digester projects that deliver pipeline quality biomethane by truck, with two additional such sites scheduled to be online this summer. In addition, an affiliate of CDF, Pixley Biogas, LLC, operates an anaerobic digester that provides biogas as a process fuel for the production of other renewable fuels at the Pixley, CA complex.

1. Renewable Gas

A. The Definition of Renewable Gas is Too Restrictive.

Chapter 4 states that:

“Renewable gas, also known as biomethane, is biogas that has been upgraded to pipeline quality standards.”¹

This statement is unnecessarily restrictive. Renewable gas is much broader than biomethane. Under state law, the definition of renewable gas also includes biogas in addition to biomethane. In fact, state law explicitly includes both biogas (raw biogas) and biomethane in the term “renewable gas.” For example, SB 1383 requires the Commission to adopt recommendations for the development and use of “renewable gas, including biomethane and biogas” and refers to renewable gas repeatedly with the inclusion of both biogas and biomethane.²

State law also does not require that all renewable gas be upgraded to pipeline quality gas. That is only a requirement for gas that will in fact be injected into the state’s common carrier pipelines. It is not necessary for gas that may be used onsite. Pointedly, state law requires new, small-scale bioenergy facilities use biogas for power production (which does not need to be upgraded to pipeline quality).³ As noted previous, CDF’s affiliate, Pixley Biogas, LLC, produces biogas for use as a process fuel in the production of other renewable fuels. Note that all feedstocks for that biogas are waste products

B. The Description of SB 1383 is Unnecessarily Narrow

Chapter 4 provides an incomplete and potentially misleading description of SB 1383 (Lara, 2016), the state’s Short-Lived Climate Pollutant law. Chapter 4 correctly states that SB 1383 set methane reduction and landfill diversion targets, but that is only part of it. The law sets requirements and for both black carbon and methane reduction. It also includes incentives to reduce dairy methane emissions and to increase the production and use of renewable gas, including both biogas and biomethane. CDF and others are responding to those incentives.

The description of SB 1383 in Chapter 4 should include both the black carbon and the methane reduction requirements and a discussion of how renewable gas can help achieve these goals. It should be broadened to include biomass use and diesel displacement.

¹ Draft 2021 IEPR, Volume III, page 58.

² Health and Safety Code section 39730.8(b). See also sections (c) and (d), which include both biomethane and biogas as forms of renewable gas.

³ SB 1122 (Rubio, 2012), codified in Public Utilities Code section 399.20(f)(2).

C. Cost Comparisons Should Include Cost Per Ton of Carbon Reduction

The Chapter on renewable gas contains helpful cost data but focuses on the costs per MMBtu of renewable gas, ignoring the cost-effectiveness of carbon reductions from renewable gas. The reason to increase renewable gas production and use is not because it is less expensive than fossil fuel gas. It is to reduce carbon emissions. Thus, an evaluation of costs should be scored based upon the ability to achieve that objective. We recommend that a discussion of cost per unit of carbon intensity reduction be included.

The California Air Resources Board provides this information in its 2021 report on the state's climate investments.⁴ In that report investments in renewable gas are the most cost-effective.⁵

D. The Discussion of Firm Renewables Should Include Biogas and Biomethane.

CDF is glad to see the Commission focus on the importance of firm renewables, but that discussion should not be limited to hydrogen.⁶ Biogas and biomethane can also provide firm renewables.

E. Dairy Manure Digester Progress Is Much Higher Than Indicated

Page 60 of the report notes that only 12 dairy manure digesters are injecting into the pipeline. We appreciate how difficult it is to be accurate while projects are actively coming online. Nonetheless, it is important to recognize that the landscape is rapidly changing. CDF is currently injecting biomethane from 18 separate California dairy manure digesters into the pipeline. By the end of 2022 we expect that number to grow to 24. We should be close to 30 by the end of 2023. Please note ours is but one project with a single biogas gathering pipeline and a single pipeline injection point. There are numerous such projects currently underway in California.

2. Renewable Hydrogen, including “Green Hydrogen”

CDF recommends that the Commission expand the scope of hydrogen as discussed in the draft report. Volume III, Chapter 4 focuses on “green hydrogen” and defines it narrowly as the hydrogen produced by splitting water using renewable electricity. The draft report definition mirrors that statutory of “green electrolytic hydrogen”, not necessarily green hydrogen and certainly not renewable hydrogen in general.⁷

⁴ California Air Resources Board, *California Climate Investments – Annual Report to the Legislature*, issued April 2021. Available at:

https://ww2.arb.ca.gov/sites/default/files/classic/cc/capandtrade/auctionproceeds/2021_cci_annual_report.pdf

⁵ Id., Table 2, pages 17-18.

⁶ Draft IEPR, Volume III, page 70.

⁷ SB 1369 (Skinner, 2018) defines “green electrolytic hydrogen,” not all green hydrogen. Public Utilities Code section 400.2.

Renewable hydrogen, an alternative proposed by CDF, can be produced from organic materials including waste products. We acknowledge the temptation to segregate renewable hydrogen into various colors as a shorthand for feedstock and processing techniques. However, it is potentially misleading. Far better to refer to hydrogen as renewable and include a reference to its carbon intensity score.

It also makes no sense to exclude the only carbon negative form of hydrogen – which is hydrogen derived from organic waste – from the definition of green hydrogen.

Lawrence Livermore National Lab, in a recent report, concluded that organic waste to hydrogen with carbon capture and storage is significantly carbon negative. In fact, they found that bioenergy with CCS can provide two-thirds of all the carbon negative emissions needed to reach carbon neutrality by 2045 and recommend production of hydrogen as the most beneficial end use.⁸

The Commission should adopt a definition of hydrogen therefore that encompasses all renewable resources. Some conversion processes, such as steam reforming, emit carbon dioxide, but those emissions can be offset by other reductions, such as the use of carbon negative feedstocks or CCS. The key, in our view, is to gauge such hydrogen on a full lifecycle carbon basis.

Conclusion

CDF supports the inclusion of a chapter on renewable gas in the *2021 IEPR*. However, we believe it is essential that unnecessary restrictions be avoided. Hence, we propose that renewable gas, biomethane, and hydrogen be considered in a context consistent with state laws, policies, and programs. In particular, definitions should include all renewable feedstocks and should be scored and assessed not only on their respective fuel values but also on their decarbonization value.

Sincerely,

Lyle Schlyer
President

⁸ Lawrence Livermore National Lab, “*Getting to Neutral – Options for Negative Carbon Emissions in California*,” 2020.