

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE
STATE OF CALIFORNIA

Order Instituting Rulemaking to Establish Policies, Processes, and Rules to Ensure Safe and Reliable Gas Systems in California and perform Long-Term Gas System Planning.

Rulemaking 20-01-007

(Filed January 16, 2020)

COMMENTS OF ELECTROCHAEA
ON THE WORKSHOP REPORT AND STAFF RECOMMENDATIONS

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Pursuant to the October 2, 2020, *Assigned Law Judge’s Ruling Issuing Workshop Report and Staff Recommendations, Seeking Comments, and Modifying Proceeding Schedule*,

Electrochaea submits these comments.

I. INTRODUCTION

Electrochaea appreciates the Energy Division Staff’s thoughtful analysis in its *Workshop Report and Staff Recommendations* (Workshop Report). As a technology company that enables the creation of grid-quality, renewable natural gas, Electrochaea supports the Commission’s response to the future of California’s natural gas system, and its efforts to ensure safe and reliable natural gas service at reasonable rates.

Renewable natural gas (RNG), such as that enabled by Electrochaea in its power-to-gas process using excess renewable energy, offers practical solutions to support gas reliability issues and California’s efforts to significantly slow climate change. RNG produced using Electrochaea’s process is methane, which is synthesized by a biocatalyst.

The Workshop Report and the Track 1A and Track 1B presentations do not directly address the alternative sources of natural gas in California over the next 25 years. RNG can play an important role in the energy transition by replacing fossil gas, utilizing excess renewable resources. RNG can be freely substituted for fossil-derived natural gas within the State's delivery, storage, and end-user assets. RNG thereby promotes greater utilization of the State's growing capacity of renewable resources, as well as increases the reuse of CO₂.

II. COMMENTS: TRACK 1B, Issue 2

These comments focus on Energy Division Staff's recommendations for Track 1B, Issue 1 and 2, and primarily on the creation of a Renewable Balancing Tariff.¹ First, the Commission should consider incentivizing renewable resources using the California Air Resources Board's (CARB) Low Carbon Fuel Standard (LCFS) credit methodology model for end uses in addition to transportation. Second, the Commission should also contemplate the economics of cost-effective RNG and other renewable fuel sources to accelerate the transition away from fossil sources of natural gas.

A. Using the LCFS as a Model: Supporting Investment in Renewable Natural Gas Resources Can Help Address Natural Gas Price Spikes

To avoid future natural gas price spikes, such as those which occurred in 2017 and 2018, Energy Division Staff directs SoCalGas and PG&E to develop a Renewable Balancing Tariff proposal.² The Workshop Report states, "[t]his tariff would allow gas utilities to optimally plan their daily pipeline and storage operations and establish the cost of gas for electric generators."³ It was noted that the increased decarbonization of the electricity grid has resulted in increased

¹ Workshop Report, at 41.

² *Id.*, at 41-42.

³ *Id.*, at 41.

unpredictability for both the gas and electric grids. Mismatch between gas supply and demand is a major contributor to electricity price volatility.⁴

Rather than erring toward additional procurement of fossil-sourced gas to close this gap, the Commission should consider the value of increased RNG for ramping needs over the next decade. The resulting long-term market signal for an increased reservoir of RNG would provide incentives to RNG developers to supply non-fossil RNG to meet intraday ramping needs, using existing generation assets while increasing the RNG composition in California utilities' gas networks. Presenters agreed in the Track 1B workshop that while average daily gas throughput is expected to decline in the future, peak demand for natural gas is not likely to decrease.⁵

Over the next few decades, the Commission has the opportunity to promote cost-effective renewable natural gas and, at the same time, lower the carbon footprint of the gas grid in support of the State's climate goals. In the immediate term, the transportation sector appropriately deserves priority and focus, though over time the opportunity, indeed requirement, to broaden incentives to other sectors must be addressed.

Consequently, in evaluating PG&E and SoCalGas's proposed Renewable Balancing Tariffs, the Commission should consider features and lessons learned from the LCFS. The LCFS program is designed to decrease the carbon intensity of California's transportation fuel pool and incentivize low-carbon and renewable alternatives.⁶ The methodological foundation of this program, which focuses on a lifecycle analysis of the various participating fuels, can be adopted or integrated into a similar incentive program for increasing renewable fuels on the gas grid.

⁴ Workshop Report, at 27-28 (Ms. Dandridge and Mr. Peress representing SoCalGas/SDG&E discussed electricity price volatility when gas supplies do not meet gas demand.

⁵ *Id.*, at 20 ("Mr. Olson from E3 chimed in and stated that storage will mitigate some of the hourly fluctuations but not all of it. He believes **average daily throughput will decrease but peak use will not necessarily decrease**. Mr. Beach agreed with this statement.") (emphasis added).

⁶ California Air Resources Board website, Low Carbon Fuel Standard, available [here](#).

Rewarding generators that utilize fuels with a carbon index below a certain benchmark can spur the development of renewable fuel sources, which in turn will bring costs down, and provide additional longevity for these existing generating resources operating with reduced climate impact. The Commission has the opportunity to develop a tariff framework that recognizes the potential for a two-way relationship between the natural gas and electric grid: not just the electric grid's reliance on the gas system for reliability in the face of increasing intermittent generation resources, but also the potential for the gas grid to utilize the growing supply of low cost or otherwise curtailed renewable electric generation to develop clean replacements for natural gas. Renewable hydrogen is now recognized as an alternative solution, but without existing infrastructure for distribution and storage or compatibility with many current generation assets; its use will require significant system-wide expenditures. In the near term, RNG, which is readily manufactured from renewable hydrogen, is scalable to meet our immediate needs and is fully compatible with existing infrastructure and markets. Electrochaea looks forward to participating in the planned workshop to discuss the opportunity to develop these market mechanisms.

B. Cost Effective RNG is Key to Providing Just and Reasonable Natural Gas Rates

An important factor of this proceeding is ensuring that natural gas rates remain just and reasonable, and that ratepayers are not penalized with utility rate-bases supporting under-utilized or stranded gas system assets.⁷ The achievement of this goal concurrent with realization of the State's climate goals necessitate a significant role for near-term and cost-effective RNG.

Electrochaea believes the Commission's benchmarking should consider a target of \$100-\$150/ton of CO₂ to spur significant development of RNG in California. LCFS incentives

⁷ *Order Instituting Rulemaking to Establish Policies, Processes, and Rules to Ensure Safe and Reliable Gas System in California and Perform Long-term Gas System Planning*, Jan. 27, 2020, at 13.

equivalent to this target have been successful in stimulating development of projects throughout North America to harvest methane from biogas, wastewater treatment, anaerobic digesters and landfills to meet the State’s transportation sector emission goals. While California is consistently on the forefront of implementing effective climate policies and related market mechanisms, there are some international examples that the Commission may also wish to consider.

For example, Sweden implemented a carbon tax in 1991, which results in the costs of CO₂ pollution being paid by the polluter.⁸ This “polluter-pays-principle” is a cost-effective means to develop clean energy resources that has reduced CO₂ emissions by 25% in Sweden, while their economy has grown by 60% since the introduction of the tax. The effective rate is currently 110 EUR/ton, now equivalent to \$128/ton. An additional result is that today in Sweden, more than 90% of the compressed gas used in vehicles, and in local gas grids, is renewable natural gas derived from biogas plants.⁹ Other European countries also have robust RNG markets, with Germany leading the way with 195 biomethane plants operating in 2017.¹⁰ France’s incentive scheme has resulted in the highest growth rate in the number of plants per country.⁹

Public options, as used in some US power markets, can also be effective in providing economic incentives for renewable energy supply. For example, Switzerland has a robust renewable natural gas market, which is marked by a willingness of customers to pay premiums for renewable gas, given the societal understanding of the present value of lowering carbon emissions. Swiss utilities offer residential customers an option for 20%, 50%, or 100% renewable gas. Swiss customers are willing to support the RNG market by paying up to a 33%

⁸ Swedish Government website describing the carbon tax, available [here](#).

⁹ Report entitled “Biomethane in Sweden-market overview & policies, published by the Swedish Gas Association, available [here](#).

¹⁰ Statistical report from the European Biogas Association, available [here](#).

premium in order to purchase 100% RNG for use in their homes.¹¹ The market signal is delivered by Swiss utilities procuring RNG from within Switzerland and in other European markets. These examples demonstrate that many market-based incentives and policy frameworks stimulate investment in RNG as an alternative to fossil fuel and provide the desired renewable resources to the customer. These mechanisms can provide low impact options for the State to meet our aggressive climate mandates.

Electrochaea also asks the Commission to consider the development of a Renewable Balancing Tariff in the context of the issues identified in Track 1B, Issue #1. In considering gas and electric coordination issues, cost-effective RNG has the potential to improve power reliability while meeting RPS commitments during challenging supply/demand transitions. While the CAISO noted that it may be beneficial to identify minimum volumetric flow of gas needed to support electric reliability, utilizing RNG to meet this minimum has the added advantage of significantly reducing emissions.

Using existing technologies, RNG can be synthesized at large scale at numerous existing CO₂ and renewable power sources around the State and can be stored and distributed in the existing infrastructure for natural gas. Connectivity with existing power generation assets allows coordination with a reliable source of RNG to meet the electric generators' needs. When power-to-gas facilities have access to otherwise curtailed renewable power (at low or negative wholesale prices) to run their electrolyzers, RNG becomes cost effective. In this way, RNG can act as storage for renewable generation, such as from solar or wind. California faces the inherent intermittency of renewable resources, as well as scheduled retirement of obsolete and high-emissions power plants. With increasing quantities of RNG, California has the opportunity to

¹¹ Biogas prices offered by Energie 360 in Switzerland, available [here](#).

increase synergy in coupling the renewable power sector with renewable gas. By utilizing and re-deploying low cost and economically curtailed power, this development could simultaneously enable production of renewable gas and recover lost revenues for the power sector from otherwise undervalued or wasted renewable power.

III. CONCLUSION

Electrochaea appreciates this opportunity to submit these comments. Electrochaea's power-to-gas technology, using recycled CO₂ and wasted electricity, supports California's climate goals by greening the existing gas grid, storing the energy from valuable renewal electric sources, and providing an additional mechanism for coordination among the State's electric and gas grids.

Respectfully submitted,

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November 2, 2020

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