

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 ON THE RENEWABLE BALANCING TARIFF PROPOSALS
BY ELECTROCHAEA CORPORATION**

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Pursuant to the December 24, 2020, *E-Mail Ruling Granting Southern California Gas Company and San Diego Gas & Electric Company's Joint Motion for Extension of Time*, Electrochaea Corporation (Electrochaea) submits these comments.

I. INTRODUCTION

At the core of this discussion is the development of solutions to assure economically-available power throughout each day and during all seasons, while concurrently achieving the State's renewable goals. As the electricity grid benefits from a greater and greater proportion of renewable power, the inherent intermittent characteristics of renewable electricity become more apparent, making it both more critical and complicated for the gas utilities and the gas-fired electric generators to coordinate. This is especially problematic for reliability planning to meet peak power demand. Thus, near-term solutions, such as those examined by Pacific Gas and

Electric Company's (PG&E)¹ and Southern California Gas Company's (SoCalGas)² Renewable Balancing Tariff proposals, must be considered. However, beyond these immediate concerns, this discussion on tariffs provides the opportunity to take a broader look at the available alternatives to reach a near-zero carbon future, while providing reliable and affordable power for all of California's customers. As described below, the gas grid can support reliability with renewable natural gas (RNG) when renewables such as wind and solar are unavailable. With RNG, the gas grid can utilize those same renewables during periods of under-utilization by taking the excess and otherwise curtailed energy and storing it until needed later. Looking ahead, renewable natural gas, derived from biogenic and renewable resources, can play a substantial role in meeting the State's reduced greenhouse gas emission goals by displacing fossil gas for power generation.

Thus far, the instant Natural Gas Policy proceeding has not addressed the role that RNG is currently playing in the energy markets in California. Biogas from landfills or anaerobic digesters at urban waste collection sites, dairies, and waste-water treatment plants, is currently being used onsite to produce renewable electricity. When this biogas is upgraded, it can be injected onto the gas grid to replace fossil-derived natural gas and supply gas-fired generation anywhere on the grid. An advanced method of biogas upgrading, known as "power-to-gas," has further advantages. The Commission, by supporting the development and application of next generation RNG sources, such as power-to-gas, can take advantage of the existing gas infrastructure to advance the greening of the gas grid.

¹ *Pacific Gas and Electric Company's Renewable Balancing Tariff Proposal in Response to Assigned Administrative Law Judge's Ruling Issuing Workshop Report and Staff Recommendations, Seeking Comments, and Modifying Proceeding Schedule*, Jan. 8, 2021.

² *Southern California Gas Company's (U 904 G) Proposal for A Conceptual Renewable Balancing Services Tariff* (SoCalGas Proposal), Jan. 8, 2021.

Next generation power-to-gas technologies produce methane by combining hydrogen, produced by electrolysis, and carbon dioxide, resulting in renewable natural gas (RNG) that is interchangeable with natural gas. When renewable power is used to fuel the production of hydrogen, and the carbon dioxide is derived from biomass, the resulting methane is RNG. This technology opens up new opportunities for the gas grid to balance renewable generation both during periods of under-production and under-utilization, allowing for the utilization of low, or even negatively priced, renewable electricity.

While we recognize that new coordination mechanisms and modeling may be required to achieve this more holistic approach, we believe the framework of the conceptual renewable balancing service tariff is an appropriate forum to further explore these opportunities that can appropriately value the reliability provided by the gas system to deliver near zero carbon energy.

II. COMMENTS

1. The production of renewable natural gas (RNG) by power-to-gas can avert curtailment of renewable electricity

In 2020, 1.6 TWh of renewable power in California was curtailed.³ These resources were available to provide power, but were not used. When power-to-gas is implemented, renewable solar and wind assets can be fully used, preventing valuable resources from being curtailed. If this unrealized power generation had been used to produce RNG via power-to-gas technology, this energy could have been stored, and later used, for renewable power generation. RNG produced using power-to-gas technology has many advantages in a renewable energy economy. Using would-be curtailed power promotes the optimization of existing renewable assets, as well as the construction of more renewable assets, which is needed to reach the 2045 climate goal.

³ <http://www.caiso.com/informed/Pages/ManagingOversupply.aspx>.

2. The gas grid can store renewable energy; in other words, the gas grid is a ready-made battery for delivery of renewable energy to meet peak demand

Renewable energy captured in renewable natural gas is an energy storage mechanism; this clean renewable gas can be stored on the gas grid. Unlike a conventional battery, energy stored on the gas grid is not subject to loss-of-charge, nor loss of capacity, over time. The gas grid can serve as a seasonal “battery” by time-shifting the availability of renewable power. As an existing infrastructure, this asset is in place and ready to support the required battery functionality.

3. Availability of RNG can meet power needs.

Since RNG is a drop-in fuel for electricity generation, its use will continue to add renewable power to the California electric grid. In addition, the expanded use of biogas in power-to-gas plants will capture methane that would be flared, or even worse, vented, and similarly reuse CO₂ that otherwise would be vented. The increased availability of RNG can meet current power needs to support grid balancing needs.

4. Renewable tariffs could provide economic support for increased deployment of renewable power sources, addressing near-term needs with a range of longer-term possibilities.

Tariffs can support investment in RNG to support the near-term reliability for the gas facilities to meet peak demands. In the future, evolving economic incentives may be appropriate to stimulate storage of RNG to be used for grid balancing and to contribute to a reliable and affordable energy system. We encourage the Commission to take a more holistic approach to the potential of a Renewable Balancing Tariff, and consider the additional value that RNG can add when addressing not only renewable intermittency, but also times of renewable under-utilization.

III. CONCLUSION

Electrochaea appreciates the opportunity to submit these comments.

Respectfully submitted,

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