

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Continue
Electric Integrated Resource Planning and
Related Procurement Processes.

Rulemaking 20-05-003
(Filed May 7, 2020)

**ELECTROCHAEA CORPORATION OPENING COMMENTS ON
THE PROPOSED DECISION ADOPTING THE 2021 PREFERRED SYSTEM PLAN**

Mich Hein
Chief Executive Officer
Electrochaea Corporation
500 Capitol Mall, Suite 1900
Sacramento, CA 95814
E-Mail: Mich.Hein@ElectroChaea.com

Chase K. Maxwell
Ellison Schneider Harris & Donlan LLP
2600 Capitol Avenue, Suite 400
Sacramento, CA 95816
Telephone: (916) 447-2166
Facsimile: (916) 447-3512
E-Mail: ckm@eslawfirm.com

Attorneys for Electrochaea Corporation

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SUBJECT INDEX OF RECOMMENDED CHANGES

- Update the discussion of the programmatic procurement approach to more explicitly consider opportunities for decarbonizing existing facilities.
- Provide direction to the Energy Division to study power-to-gas as a candidate resource in the next IRP cycle and quantify the ratepayer benefits associated with optimizing the use of existing infrastructure.
- The proposed decision' renewable hydrogen definition should not be extended in the future a step towards foreclosing the ability to use the existing gas transmission system to deliver emerging alternative fuels, such as power-to-gas RNG.

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In accordance with Rule 14.3 of the California Public Utilities Commission’s (“Commission”) Rules of Practice and Procedure, Electrochaea Corporation (“Electrochaea”) submits the following opening comments on the December 22, 2021 Proposed Decision Adopting the 2021 Preferred System Plan (“Proposed Decision” or “PD”), issued by Administrative Law Judge Julie A. Fitch.

I. INTRODUCTION AND SUMMARY

Electrochaea provides a decarbonized fuel alternative to fossil gas in California. Electrochaea’s technology produces grid-quality renewable methane at a scale that can be used by industrial customers, such as natural gas power plant generators, by using a microorganism called Archaea. Through this process, a power-to-gas biomethanation process, carbon dioxide and renewable hydrogen are combined to produce renewable methane, which is a renewable natural gas (“RNG”). The renewable methane produced through Electrochaea’s proprietary process is of a quality that can be delivered through or stored by the state’s existing gas infrastructure and utilized in existing gas-fired power plants at scale. Power-to-gas is a flexible technology in that it can be deployed at scale and utilized in California’s existing combined cycle and peaker fleet.

Power-to-gas offers a strategy to utilize renewable energy to create a RNG source that can be utilized during high-demand periods for the production of electricity and creates an important opportunity to both retain and decarbonize the existing gas fleet. By ensuring availability of

generating resources during net-peak periods, power-to-gas provides capacity and greenhouse gas (“GHG”) benefits that exceed those of battery energy storage resources. Energy stored using power-to-gas can be stored for longer periods and has the added benefit of diversifying the potential carbon-neutral technologies that can be drawn upon to serve periods of net-peak demand without regard to state-of-charge concerns.

Renewable methane produced using power-to-gas technologies does not fit traditional notions of RNG. The development of a new “candidate resource” within the IRP that accounts for the life-cycle emissions and use of power from renewable energy is necessary to model the ratepayer, reliability, and GHG benefits of this technology. However, in this iteration of the IRP, Electrochaea encourages the Commission to signal the value of flexibility in the modeling. The Commission should endeavor to keep opportunities available to new technologies offering carbon reduction solutions for the electric system. This is especially important for technologies that present reliability benefits and long-term cost savings for California’s ratepayers by optimizing existing infrastructure.

Electrochaea’s comments on the PD are intended to encourage the Commission to issue decisions that do not foreclose the emergence of market innovations aimed at reducing GHG emissions associated with both the production of and demand for electricity. In the next IRP cycle, Electrochaea encourages the Commission to address the life cycle emissions attributes of power-to-gas and quantify the potential cost savings associated with greater utilization of existing infrastructure in the drive to decarbonization.

II. DISCUSSION

1. **A Programmatic Procurement Framework Should Provide Flexibility for Utilizing Renewable Natural Gas Derived from Power-to-Gas.**

The PD’s proposal to launch a programmatic approach to IRP procurement will assist

market participants in better understanding and anticipating procurement opportunities. However, as the new programmatic procurement approach will be used to address ongoing fossil fuel eligibility questions, it should also clearly include consideration of RNG or alternative low-carbon fuel accreditation at existing gas resources.

Specifically, the PD recognizes that natural gas resource eligibility issues and gas plant upgrade questions have not been addressed comprehensively in the IRP proceeding.¹ The PD reasonably directs issues associated with retention of thermal resource capacity to a new programmatic procurement framework also proposed within the PD.² However, these issues are not clearly reincorporated into the programmatic procurement framework discussion, and are not provided for directly in the ordering paragraphs of the PD. The lack of representation of these issues from Section 6.2 (Fossil-Fueled Generation Procurement) in Section 7.3 (Development of Programmatic Procurement Requirements) of the PD, or lack of a clear directive that these issues be considered in the PD's ordering paragraphs, risks abandonment of issues regarding gas generation procurement eligibility associated with incorporation of RNG, green hydrogen, or other alternative decarbonized fuels.

The PD's discussion of the issues that will be addressed by a programmatic IRP procurement framework should be revised. In section 7.3.2, the PD lists the issues the programmatic procurement approach will encompass. This list should include the following additional bullet point:

- **Addresses eligibility of natural gas electric generation resources using RNG, green hydrogen, or other alternative fuels with carbon neutral or negative emission profiles.**

¹ See PD at 131.

² PD. At 132.

As Electrochaea has previously discussed in this rulemaking, the Commission should allow procurement of gas-fueled resources using fuels with preferred life cycle GHG profiles,³ and further consideration of this issue should be clearly included in development of any new programmatic procurement track.

2. The Commission Should Direct the Energy Division to Study Opportunities for the Use of Renewable Natural Gas from Power-to-Gas in the 2022-23 IRP Cycle.

In addition to consideration of RNG issues in a programmatic procurement track or phase, the Commission should modify the PD to direct the Energy Division to study opportunities for the use of RNG, green hydrogen, and other power-to-gas technologies in the electric sector in the 2022-23 IRP cycle. The innovation potential in this category of resources is great, and continued use of existing thermal resources in California has unquestionable reliability benefits that are one of the three main goals of the IRP.⁴ The infrastructure now in place should not be disqualified from playing a role going forward where it can use RNG or decarbonized fuels. The contribution of RNG and decarbonized fuels in the electric sector from a reliability, GHG, and cost perspective is appropriately placed in the IRP proceeding as this issue is not being addressed in the biomethane proceeding (R. 13-02-008), which is focused on procurement targets for California's large gas utilities. The development of a new candidate resource for power-to-gas technologies will enable the Commission to better quantify the cost savings associated with optimizing existing infrastructure and may provide a pathway for deeper decarbonization through the use of renewable hydrogen and CO₂ in the power-to-gas process.

³ See *Opening Comments of Electrochaea Corporation on the Administrative Law Judge's Ruling Seeking Feedback on Mid-Term Reliability Analysis and Proposed Procurement Requirements*, March 26, 2021, at p. 8.

⁴ PD at 4.

3. Utilization of Existing Infrastructure for Decarbonization Solutions Minimizes Ratepayers Costs as Required By Section 454.52 of the California Public Utilities Code.

Electrochaea generally supports the PD’s interim definition for renewable hydrogen; however, Electrochaea cautions against extension of similar delivery limitations found in the renewable hydrogen definition to other emerging RNG or carbon-neutral fuels. In particular, Electrochaea’s process produces a RNG that is of a quality that it can be injected into the natural gas delivery system. Any requirement imposing direct delivery via dedicated pipeline or other dedicated delivery method adds unnecessary costs and development obligations on our technology that could create a significant burden to entry in California.

Specifically, utilization of California’s existing natural gas delivery infrastructure reduces costs of incorporating decarbonized fuel. Public Utilities Code Section 454.52(a)(1) requires the Commission to consider grid operational efficiencies and take into account reducing the need for new electricity generation resources in furtherance of achieving the state’s energy goals at the least cost to ratepayers. Any limitation on the use of the existing gas pipeline transmission or distribution infrastructure undermines pursuit of the state’s energy goals at the least cost to ratepayers and should thus be avoided. The Commission should not presume at the start that similar direct delivery requirements are necessary for other fossil fuel gas alternatives, such as power-to-gas technologies, that may utilize the existing pipeline infrastructure.

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III. CONCLUSION

Electrochaea appreciates the opportunity to provide opening comments on the Proposed Decision.

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Respectfully submitted,

/s/ Chase K. Maxwell
Chase K. Maxwell
Ellison Schneider Harris & Donlan LLP
2600 Capitol Avenue, Suite 400
Sacramento, CA 95816
Telephone: (916) 447-2166
Facsimile: (916) 447-3512
E-Mail: ckm@eslawfirm.com

Attorneys for Electrochaea Corporation