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Additional submitted attachment is included below.



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California Energy Commission
Dockets Office, MS-4
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Subject: Comments on 2017 Integrated Energy Policy Report, Docket Number: 17-IEPR-12, Joint Agency Staff Workshop on the Review of the Actions and Status of State-level Energy Roadmaps

Dear Chairman Weisenmiller and fellow Commissioners:

The Southern California Gas Company (SoCalGas) appreciates the opportunity to submit comments in response to the California Energy Commission's (CEC) 2017 Integrated Energy Policy Report (IEPR) Joint Agency Staff Workshop on the Review of the Actions and Status of State-level Energy Roadmaps held on June 13, 2017.

As staff at the CEC, the California Public Utilities Commission (CPUC), and the California Independent System Operator (CAISO) continue to assess and implement past energy roadmaps, SoCalGas requests that the 2014 Energy Storage Roadmap be updated to include Power-to-Gas (P2G) as an energy storage technology.

P2G is explicitly included as an option for consideration in the 2017 IEPR Scoping Order, which asserts that "[t]he state's portfolio of mitigation measures for integrating renewables could also include using excess renewable energy to power desalinization plants or for power-to-gas" (p.4). **Therefore, the 2017 IEPR and an updated Energy Storage Roadmap should identify agency and industry actions needed to advance P2G technology, similar to actions taken to advance other technologies, such as lithium-ion batteries or flywheels.** Actions should be categorized in the same manner as those identified for other technologies in the 2014 Energy Storage Roadmap—namely, to expand revenue opportunities, reduce costs of integrating and connecting to the grid, and streamline and clarify policies and processes to increase market certainty.

Not only can P2G provide flexible, scaled, and cost-effective energy storage, but it can also help manage the intermittency and overgeneration of renewable energy resources, and support attainment of the Renewable Portfolio Standard (RPS), climate goals, and air quality requirements.

In order to realize these opportunities, P2G must be re-categorized at the CPUC as a storage resource¹. Mixed mode storage (electrical energy stored as chemical energy) needs to be addressed in future CPUC proceedings. Currently, P2G does not qualify as a storage resource in the CPUC procurement program. The CPUC Decision on Track 2 Energy Storage Issues equates P2G to biogas and concludes that P2G projects that convert and store electricity on a natural gas pipeline do not qualify because the pipeline does not qualify as a storage component.²

The analogy to biogas used in the Decision does not reflect a critical technical difference between biogas and P2G – P2G stores energy from the electricity grid. In a P2G system, the natural gas pipeline serves the same function as the cells in a battery, the storage tanks in a flow battery, the storage vessels in a compressed air system, or the ice in an electricity-to-ice system. In ruling that the pipeline system is not a storage resource, the Decision draws a false distinction between the “pipeline system” and the storage resources that are an integral part of the overall natural gas system. As such, through P2G, a natural gas pipeline serves the same function as traditional, eligible storage components, and should therefore be deemed eligible. It is also consistent with the definition of an energy storage resource set out in statute by Assembly Bill (AB) 2514 (Chapter 469, Statutes of 2010).

P2G uses surplus renewable electricity for electrolysis to make hydrogen, which can be stored in existing gas storage resources—including pipelines and storage assets. This innovation “can optimize the use of the significant additional amounts of variable, intermittent, and off-peak electrical generation from wind and solar energy that will be entering the California power mix on an accelerated basis.”³ This resource is also modular and can be sited virtually anywhere on the grid. As such, it serves bulk storage, load-shifting, and other functions, such as load following and voltage support—all core functions defined in the CPUC use cases.⁴

Precisely because it can provide these services by using the existing natural gas infrastructure, P2G—consistent with the requirements in AB 2514—“can reduce costs to ratepayers by avoiding or deferring the need for new fossil fuel-powered peaking power plants and avoiding or deferring distribution and transmission system upgrades and expansion of the grid.”⁵

Further, by using available resources to store renewable energy in the gas grid—potentially displacing fossil-based natural gas—P2G is also “cost effective and [can] either reduce emissions of greenhouse gases, reduce demand for peak electrical generation, defer or substitute for an investment in generation, transmission, or distribution assets, or improve the reliable operation of the electrical transmission or distribution grid.”⁶ P2G

¹ See D.17-04-039 at 11-13.

² See D.17-04-039 at 11-13.

³ AB 2514, Section 1(b).

⁴ See D.13-10-040 at 14; D.12-08-016 at 23.

⁵ AB 2514, Section 1(c).

⁶ Cal. Pub. Util. Code § 2385(a)(3).

also uses “mechanical, chemical, or thermal processes to store (electrical) energy that was generated at one time for use at a later time.”⁷

P2G that uses a natural gas pipeline as a storage component should be deemed eligible to meet storage procurement targets because enabling the development of P2G is good public policy. It is recognized by U.S. energy agencies as an important energy storage solution⁸ and plays a key part of energy storage in countries and regions with ambitious renewable energy and climate goals, such as Germany,⁹ Denmark,¹⁰ and Ontario, Canada.¹¹ As such, adoption of P2G would be consistent with California’s role as a global frontrunner on climate and renewable energy policy.

P2G must ultimately succeed on its competitiveness in function and cost. However, categorical exclusion of P2G as a storage component deprives P2G vendors of a critical market-forcing function, preventing the technology from fully developing and blocking the potential attendant benefits to ratepayers and the environment.

SoCalGas firmly believes that a diverse energy portfolio which includes multiple fuels and technologies is needed to meet California’s energy needs and environmental targets in a cost-effective manner. P2G meets the explicit criteria of an energy storage resource laid out in statute, but has been denied treatment equal to other such technologies. Because of its ability to provide utility-scale energy storage in a cost-effective manner, P2G is a critical component of California’s clean energy future. Accordingly, SoCalGas strongly urges the CEC to include P2G in relevant planning efforts moving forward.

Please do not hesitate to contact us for more information on the opportunity for P2G storage technology and the need for it to be re-categorized at the CPUC as a storage resource.

⁷ Cal. Pub. Util. Code § 2385(a)(4)(D).

⁸ See Eichman, J. and Melaina, M, *Hydrogen Energy Storage and Power-to-Gas, Establishing Criteria for Successful Business Cases*, NREL, October 27, 2015, available at: <http://www.nrel.gov/docs/fy16osti/65386.pdf>; *NREL Teams with Southern California Gas to Launch First Power-to-Gas Project in U.S.*, NREL, April 14, 2015, available at: <https://www.nrel.gov/news/program/2015/16489.html>; *Power-to-gas brings a new focus to the issue of energy storage from renewable sources*, US Energy Information Administration; July 24, 2015, available at: <https://www.eia.gov/todayinenergy/detail.cfm?id=22212>.

⁹ See <http://www.dena.de/en/projects/renewables/power-to-gas-strategy-platform.html>.

¹⁰ See, e.g., the Biocat P2G project supported by the Danish state owned grid operator, Energinet, along with a consortium of European industry leaders, information available at: <http://biocat-project.com/>.

¹¹ See, e.g., a P2G project chosen as a preferred respondent in Ontario’s IESO procurement of grid energy storage. *Hydrogenics Selected for 2 Megawatt Energy Storage Facility in Ontario*, July 25, 2014, available at: <http://www.hydrogenics.com/about-the-company/newsupdates/2014/07/25/hydrogenics-selected-for-2-megawatt-energy-storage-facility-in-ontario>.

Sincerely,

/s/ Tim Carmichael

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