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CHBC Comments on California Energy Commission's 2017 IEPR

Additional submitted attachment is included below.
March 24, 2017

Re: CHBC Comments on California Energy Commission’s 2017 IEPR

Dear Chairman Weisenmiller and fellow CEC Commissioners,


Publicly owned utilities are required to report at least once every five years on how they are aligning with state goals under SB 350. California’s goals include improving air quality, reducing greenhouse gases, and increasing the share of renewables. The CHBC believes that POUs can satisfy the requirements in several ways by employing Power-to-Gas (P2G) technology. On page 4 of the 2017 IEPR Scoping Order, P2G is explicitly included as an option for consideration.

The CHBC’s White Paper “Power-To-Gas: The Case For Hydrogen” explains how P2G technology has the potential to provide a large-scale, cost-effective solution for storing excess energy produced from renewable sources. In summary, Power-to-Gas (P2G) uses excess renewable energy via electrolysis of water to produce hydrogen gas, serving as a “gas battery”. Unlike regular batteries, P2G technologies have excellent load-following capabilities, which are necessary to manage the intermittency of solar and wind resources. Unlike battery storage, however, P2G can store utility-scale quantities of energy indefinitely, without self-discharge, either in tanks, the natural gas grid, or directly in hydrogen caverns.

This seasonal storage capability plays a role when wind power generated in March can be delivered into the high-value energy markets of August and September. These unique attributes have the potential to enable very high levels of renewable energy production while maximizing economic value. In addition, P2G and electrolyzer technology can provide the following grid services:

• Energy time shifting (arbitrage)
• Voltage and frequency regulation
• Ramping
• System Capacity
• Rapid Demand and Supply Response
• T&D investment deferral
Using P2G, energy from renewable sources, such as solar photovoltaic and wind generators, can be generated during periods of low demand for use in high demand periods and reduce the need for curtailment. This can be effective in alleviating the “ramping” problem experienced by electric utilities in the afternoon and evening periods and smooth the “duck curve”.

There are over 28 P2G facilities operational in Germany alone, three more are operational in North America. Two P2G projects are active at the National Renewable Energy Laboratory in Golden, Colorado, and at the University of California, Irvine, respectively. These demonstrations will assess the feasibility and potential benefits of using the natural gas pipeline system to store photovoltaic and wind-produced energy.

P2G can also provide renewable, emissions-free hydrogen that can be used as fuel for fuel-cell electric vehicles (FCEVs) for the transportation sector, which is responsible for the largest share of criteria pollutants in California. Furthermore, P2G can also help decarbonize hydrogen production at oil refineries, which, according to CARB, represent the state’s largest individual industrial GHG source.

Conclusion
California is facing an increasingly urgent need to deploy utility-scale energy storage solutions to support renewable energy generation. P2G enables long-term storage of large amounts of emission-free energy, critical for California to meet its ambitious climate goals cost-effectively and needs to be part of California’s energy portfolio. Investing in the commercialization of P2G now will help accelerate its adoption and move this technology to market. Therefore, the CHBC believes P2G should be strongly considered by the POUs.

Thank you for your consideration!

Sincerely,

Emanuel Wagner
Assistant Director | California Hydrogen Business Council

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ii CHBC White Paper “Power-To-Gas: The Case For Hydrogen”

iii Pilot Projects in Germany: http://www.powertogas.info/power-to-gas/pilotprojekte-im-ueberblick/