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21-IEPR-05 Natural Gas Outlook and Assessments_CHBC

Additional submitted attachment is included below.

California Energy Commission
Docket Unit, MS-4
Docket No. 21-IEPR-05
1516 9th Street
Sacramento, CA 95814

August 11, 2021

RE: 21-IEPR-05 Natural Gas Outlook and Assessments

I. INTRODUCTION

The California Hydrogen Business Council (CHBC)¹ appreciates the opportunity to submit comments on 21-IEPR-05 Natural Gas Outlook and Assessments. The workshop presented a positive outlook on California’s decarbonization potential if renewable hydrogen is integrated into the state’s energy systems. The CHBC supports the integration of renewable hydrogen technologies into California’s gas demand forecasts and scenarios to replace and/or complement the use of natural gas. Renewable hydrogen is a viable option for powering the state’s gas energy systems so long as renewable hydrogen becomes scalable and utilized wherever possible. To achieve scalability, the state must understand the cross-sectoral benefits of hydrogen and apply renewable hydrogen technologies where there are decarbonization gaps; the state must change current market design and allow wholesale market access for electrolytic hydrogen producers; and, the state must evaluate renewable hydrogen—and all existing and emerging technologies—through a carbon intensity score rather than a color wheel determinant allotted to the numerous feedstock options for production pathways.

The CHBC respectfully submits the following comments in response to the workshop.

¹ The CHBC is comprised of over 120 companies and agencies involved in the business of hydrogen. Our mission is to advance the commercialization of hydrogen in the energy sector, including transportation, goods movement, and stationary power systems to reduce emissions and help the state meet its decarbonization goals. **The views expressed in these comments are those of the CHBC, and do not necessarily reflect the views of all of the individual CHBC member companies.** CHBC Members are listed here: <https://www.californiahydrogen.org/aboutus/chbc-members/>

II. DISCUSSION

a. **The cost of renewable hydrogen (RH2) will drop as the cross sectoral benefits of renewable hydrogen are explored and employed.**

Renewable hydrogen (RH2) is produced from several existing domestic resources including renewable natural gas (RNG), biomass, solar, wind, tidal and geothermal energy. Once produced, RH2 can be employed across a wide variety of energy markets including but not limited to power, pipeline gas and transportation. For example, RH2 can be used to generate electrical power in a fuel cell that emits only water vapor², or in a hydrogen capable turbine to support electric grid requirements. RH2 can be used to support electric grid resiliency and improve the build-out and use of renewable resources. It can be used as a firm, dispatchable resource during peak hours and high energy demand events³, or during periods when renewable resources are unavailable by storing it without duration limits. RH2 can be transported via dedicated or blended gas pipeline to support energy inputs for hard to decarbonize sectors of the economy⁴ including the production of steel, cement, ammonia and methanol among other products. RH2 is already being used in transportation with additional products coming to market soon in the maritime, aviation, off-road, and on-road transportation segments. RH2 can also be used as an energy resource for residential and commercial buildings.⁵ RH2 has many uses, and the cross-sectoral benefits that come with increased use across various sectors of the economy will bring down costs, and spur innovation. The CHBC supports policies that will help commercialize hydrogen and fuel cell technologies. California has long been a leader in promoting sound environmental policies that support new, clean energy technologies and markets. We believe it imperative the state invest in policy that supports the production and use of RH2 across a wide-range of market segments so that California can deploy this abundant clean fuel across multiple sectors and realize lower costs and take advantage of the cross-sectoral benefits of RH2 to achieve its greenhouse gas emission reduction goals.

² https://afdc.energy.gov/fuels/hydrogen_benefits.html.

³ <https://www.californiahydrogen.org/resources/hydrogen-faq/#S14>.

⁴ The CHBC supports policies promoting the use of directed hydrogen in gas pipelines.

⁵ <https://www.iea.org/reports/the-future-of-hydrogen>.

b. Market design that allows wholesale market access for electrolytic hydrogen producers is a no cost solution to driving down the price of RH2 and expanding the market and helping the state achieve its decarbonization goals.

Electrolytic hydrogen has the potential to be a viable, low-cost renewable fuel in California where renewable resources like solar, wind, tidal, geothermal energy and biomass are abundant. California's current electric market design, however, prevents electrolytic hydrogen developers from economically deploying projects. Modifications to market design that allow electrolytic hydrogen producers access to the wholesale market will unlock this potential and make electrolytic hydrogen a viable option for statewide decarbonization.

Currently, electrolytic hydrogen production is uneconomic because retail electric tariffs include charges that are unrelated to these new resources, and they do not recognize the system benefits these resources can provide back to the grid. Examples of unrelated charges include a host of non-bypassable charges that elevate the production cost of electrolytic hydrogen to an uneconomic level. As a new interruptible system load, electrolytic hydrogen producers should not be subjected to these charges, they did not cause them. The CHBC supports a rate for electrolyzer developers that reflects "cost causation" which do not carry the burden of historical system costs for which these producers played no role. The CHBC also supports electrolyzer rates that reflect the system benefits these units can provide such as dispatchable capacity, reduced renewable curtailments and the improved use of renewable resources. In relation to the use of fossil fuels as a firm, dispatchable resource, these units can be a suitable replacement without harmful emissions. The benefits of electrolytic hydrogen production are immediate upon deployment, but these benefits will not come to fruition electric market design does not specifically address the need, benefits of electrolytic hydrogen. The CHBC supports wholesale market access for electrolyzers and changes to electric market design that will encourage the wide deployment of these resources in support of California's goals.

c. Implementing a carbon intensity score to evaluate renewable hydrogen, and other existing and emerging decarbonization technologies, will speed up California’s clean energy transition.

The value of hydrogen in a decarbonizing economy can be measured in a variety of ways. Traditionally, hydrogen has been grouped by colors based on the method by which the fuel was produced – grey, blue, green, pink, yellow, white, etc. Integrating the many colors of hydrogen into complex regulatory decarbonization programs is a difficult task and relies solely on broad definitions which are not based on objective science, provide little insight, or (relative decarbonization) value in terms of comparing one source of hydrogen or emerging decarbonization technologies against another.

The CHBC supports a move away from color base definitions of hydrogen for regulatory programs and instead, supports an objective science-based approach that provides an easy-to-use method for comparing production pathways across the hydrogen spectrum. The CHBC supports a Carbon Intensity (CI) index, or CI score be used to classify various forms of hydrogen. By way of example, CARB currently uses a CI based model to compare the relative carbon values of transportation fuels in the Low Carbon Fuel Standard (LCFS).⁶ Expanding upon that knowledge of developing fuel pathways and CI scores for hydrogen provides regulators, the regulated, and project developers an objective way to plan, set standards, and invest with certainty.

Like the LCFS, CI based regulatory glidepaths can be developed for any carbon abatement program across every sector of the economy. Under this regimen, regulators can assess the interim and end goals of any program, develop a compliance pathway that provides insurance the goals will be met, and bring certainty for investors who can evaluate project risks and rewards against clear, well-defined

⁶ University of California, Berkeley Law. “California Climate Policy Fact Sheet: Low Carbon Fuel Standard.” 2019.

regulatory requirements. Longer glidepaths create greater compliance flexibility, investment planning horizons and market certainty for investors.

The CHBC supports the use of a Carbon Intensity (CI) index for measuring the relative value/carbon content of various hydrogen pathways against regulatory program requirements.

III. CONCLUSION

The CHBC appreciates the opportunity to submit comments on 21-IEPR-05 Natural Gas Outlook and Assessments, and respectfully requests consideration of the aforementioned proposals on cross-sectoral renewable hydrogen production and implementation, wholesale market access for electrolytic hydrogen, and incorporation a carbon intensity score in all evaluations of decarbonizing fuels and technologies.

Respectfully Submitted,

A handwritten signature in black ink, appearing to be "A. J. H.", written in a cursive style.

Policy Director
California Hydrogen Business Council