

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

Order Instituting Rulemaking Regarding  
Building Decarbonization.

R. 19-01-011  
(Filed January 31, 2019)

**CHBC OPENING COMMENTS ON ORDER INSTITUTING RULEMAKING  
REGARDING BUILDING DECARBONIZATION**

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**I. Introduction**

The California Hydrogen Business Council (CHBC) welcomes the opportunity to submit the following comments pursuant to the Administrative Law Judge’s (ALJ) *Order Instituting Rulemaking Regarding Building Decarbonization* (“OIR”). The CHBC is comprised of over 100 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 dependence on oil.<sup>1</sup> We are in full support of the state’s commitment to decarbonizing building energy and agree with the proposed technology neutral approach to addressing this challenge put forth in the Preliminary Scoping Memo. We are encouraged that the Commission is broadly defining building decarbonization to

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<sup>1</sup> 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. Members of the CHBC include Advanced Emission Control Solutions, Air Liquide Advanced Technologies U.S., Airthium, Alameda-Contra Costa Transit District (AC Transit), American Honda Motor Company, Anaerobe Systems, Arriba Energy, Ballard Power Systems, Bay Area Air Quality Management District, Beijing SinoHytec, Black & Veatch, BMW of North America, California Performance Engineering, Cambridge LCF Group, Center for Transportation and the Environment (CTE), CNG Cylinders International, Community Environmental Services, CP Industries, Dash2energy, Eco Energy International, ElDorado National – California, Energy Independence Now (EIN), EPC - Engineering, Procurement & Construction, Ergostech Renewal Energy Solution, EWII Fuel Cells, First Element Fuel, FuelCell Energy, GenCell, General Motors, Geoffrey Budd G&SB Consulting Ltd, Giner ELX, Gladstein, Neandross & Associates, Greenlight Innovation, GTA, H2B2, H2Safe, H2SG Energy Pte, H2Tech Systems, Hitachi Zosen Inova ETOGAS GmbH, HODPros, Hydrogenics, Hydrogenious Technologies, Hydrogen Law, HydrogenXT, HyET - Hydrogen Efficiency Technologies, Hyundai Motor Company, ITM Power, Ivys, Johnson Matthey Fuel Cells, Kontak, KORE Infrastructure, Life Cycle Associates, Linde North America, Longitude 122 West, Loop Energy, Luxfer/GTM Technologies, McPhy Energy, Millennium Reign Energy, Montreux Energy, National Renewable Energy Laboratory (NREL), Natural Gas Fueling Solutions – NGFS, Natural Hydrogen Energy, Nel Hydrogen, New Flyer of America, Next Hydrogen, Noyes Law Corporation, Nuvera Fuel Cells, Pacific Gas and Electric Company - PG&E, PDC Machines, Planet Hydrogen, Plug Power, Port of Long Beach, PowerHouse Energy, Powertech Labs, Primidea Building Solutions, Proton OnSite, RG Associates, Rio Hondo College, Rix Industries, Sacramento Municipal Utility District (SMUD), SAFCell, Schatz Energy Research Center (SERC), Sheldon Research and Consulting, Solar Wind Storage, South Coast Air Quality Management District, Southern California Gas Company, Sumitomo Corporation of Americas, Sunline Transit Agency, T2M Global, Tatsuno North America, The Leighty Foundation, TLM Petro Labor Force, Toyota Motor Sales, True Zero, United Hydrogen Group, US Hybrid, Verde, Vinjamuri Innovations, Volute, WireTough Cylinders, Zero Carbon Energy Solutions.

include “both actions to reduce the emissions and impacts from natural gas use in buildings, as well as to electrify certain building end uses.”<sup>2</sup> We believe it is very important that the Commission consider all available options, including gas made from renewable and zero carbon sources such as renewable hydrogen, and not just electrification of end uses to advance the state building decarbonization goals. We also support the Commission’s proposed schedule and parameters. Below is input on specific issues and questions in OIR.

## II. Comments on Suggested Initial Principles

CHBC supports the suggested initial principles and particularly agrees that the “*Commission should avoid picking technology winners and encourage competition among technologies, vendors, and approaches by using transparent criteria for evaluating alternative program proposals based on their ability to produce scalable reductions in GHG emissions.*”<sup>3</sup> Along with the principles of technology neutrality and transparency expressed in this statement, we also fully support prioritizing the proposed principles of regulatory simplicity, unsubsidized market development as an aim, and equitable benefits to all Californians.

## III. Comments on Specific Questions

- 1. Do you agree or disagree with the organization of the proceeding into the four proposed categories (Implementing SB 1477, Potential Pilot Programs for Decarbonization of New Construction in Areas Damaged by Wildfires, Coordinating with Title 24 Building Standards and Title 20 Appliance Standards, and Building Decarbonization Policy Development)? Explain your reasoning.**

The CHBC supports organizing the proceeding into the four proposed categories, which we think can enable both the breadth and depth of analysis needed for the range of relevant issues. We emphasize the need to consistently maintain a technology neutral approach throughout the process of addressing all four categories of the proceeding. A narrow interpretation of SB 1477 that is limited to the technologies listed in the legislation could inhibit successful implementation of the statute. Among the useful solutions not specifically cited in the law’s text are decarbonized gases like hydrogen produced using renewable or zero carbon sources, which emits zero

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<sup>2</sup> OIR, p. 4

<sup>3</sup> OIR, p. 14

greenhouse gas over its lifecycle and can be used in multiple ways, such as to fuel stationary fuel cells and combined heat and power units for buildings, as well as to decarbonize traditional natural gas end uses. Renewable hydrogen derivatives, such as renewable methane and renewable propane carry the benefits of being a drop in decarbonized replacement for fossil natural gas, lowering the cost for consumers of retrofits, since most Californians rely on natural gas or propane for some of their building energy use, such as space and water heating and/or cooking. As building decarbonization policy is developed, we hope the Commission will keep such technologies in view.

Wildfire prone regions of California especially could benefit from decarbonized gas options to maintain safety and resiliency, while also protecting the climate. The importance of the gas system and off-grid propane tanks to supply back up generation for critical needs like operating water pumps for firefighting, accessing potable water, running air filters, and cooking has been proven during recent fire events. Fire vulnerable regions need diversified energy resources that include both electricity and gaseous fuels, like hydrogen and its derivatives, to make sure vital energy supplies are as reliable and safe as possible. To optimize climate protection and other environmental and public health benefits, this gas must increasingly be produced from renewable and zero carbon sources. We therefore encourage pilot programs for wildfire impacted areas to include decarbonized gas solutions, including hydrogen-based technologies.

Additionally, renewable hydrogen and other renewable gas can be made from woody biomass that is cleared from forests to lower the risk of catastrophic wildfires.

In order to understand and optimize the potential for hydrogen solutions to decarbonizing building energy, it will be important to examine how to best incorporate these solutions into building codes, as well as to consider the impacts on end use devices such as appliances. The proposal to address at Title 24 Standards and Title 20 Appliance Standards as distinct categories can be a helpful opportunity to do so.

**2. How should the Commission go about determining the administrative structure for the SB 1477 BUILD and TECH programs, from among the options listed in the statute?**

We encourage the Commission to adopt an administrative structure that minimizes overhead costs and maximizes transparency.

**3. If the Commission chooses a third-party administrator, what process should it use to select the administrator?**

We believe that the selection process ought to be done via a transparent RFP that includes public disclosures on costs, background, and other relevant information.

**4. How should the Commission establish the budget for each program? What portion of the budget should be reserved for program evaluation? How should the program evaluator be selected?**

The CHBC has no specific comments at this time, other than that the process for establishing and allocating budgets, along with selecting the program evaluator ought to be transparent and open to stakeholder input.

**5. What program design parameters should be established by the Commission independent of the program administrator, and which aspects should it allow the selected program administrator to develop on behalf of the Commission? For example:**

**a. Technology eligibility criteria**

We encourage the criteria to be based on GHG reduction capability, ability to ensure service reliability, feasibility, and cost. Cost for newer technologies ought to take into consideration the potential for economy of scale.

We also urge the principle of a technology neutral approach to apply to technology eligibility. Technologies should be eligible for the BUILD a program, as long as they satisfy the broad goals of achieving energy efficiency and greenhouse gas reduction stated in SB 1477 for the program. Technologies should likewise be eligible for the TECH program, as long as they meet the broad

parameters of being in an early stage of market development and able to assist in reducing greenhouse gas emissions in space and water heating.

Such an approach can leave room for helpful hydrogen solutions. For example, if heat is captured from stationary fuel cells fueled by zero greenhouse gas hydrogen, it may be used for cooling, heating, hot water, or steam. When the electricity generated and captured heat are both used, the overall system efficiency is high, and when the system well designed and well matched with loads, system efficiency of 90+% system can be achieved, along with zero greenhouse gas and zero criteria pollutants. Because fuel cells have a 95% capacity factor, such systems can be particularly useful to industries that depend on a 100% reliable electricity supply, such as hospitals and data centers.

**b. Process for evaluating new technologies**

The CHBC recommends that the Commission use third-party information and real data, such as Itron reports, to evaluate new technologies.

**c. Guidelines and evaluation metrics**

We believe that evaluation metrics ought to include GHG reduction, service reliability, feasibility, and equity. For the sake of upholding the principle of regulatory simplicity, and to be consistent with the first paragraph of SB 1477, we also recommend that CARB, as the state regulator of greenhouse gas reductions for stationary sources, should establish the greenhouse gas reduction target and enforce the guidelines for technologies to meet greenhouse gas reduction standards.

**d. Criteria for scoring and selecting projects**

No comment at this time.

**6. Should the Commission consider proposals for new rate designs as part of the design and implementation of the BUILD and TECH programs?**

We strongly believe that rate design will be critical to realizing the programs' greenhouse gas reduction objectives. Rate structures are needed that incentivize onsite power generation to be

lowered during periods of high renewable power generation that exceeds demand (e.g. sunny spring day low demand periods), and ramped up during periods of low renewable power generation that falls short of demand (e.g., winter evening peak demand periods). Also rate structures must be put in place for energy storage and onsite generation that capture the ramping ancillary services value of both technologies (e.g., VAR support, frequency regulation).

## **7. What goals should the Commission set for building decarbonization?**

We believe these goals ought to include:

- 1) aligning building decarbonization with Executive Order B-55-18 that calls for carbon neutrality in California by 2045 and negative carbon emissions thereafter;
- 2) ensuring that decarbonizing also optimizes service reliability in all scenarios, including “worst case” weather, disaster, and security events;
- 3) making sure decarbonization efforts support disadvantaged communities and renters;
- 4) maximizing consumer choices for reducing carbon in buildings with a technology neutral programs;
- 5) optimizing use of limited resources and materials, including using existing infrastructure and avoiding stranded assets wherever feasible;
- 6) accelerating development of the renewable gas market.

## **8. What other specific initiatives should the Commission examine to further the goals outlined in the question above?**

The Commission could consider initiatives from Europe to decarbonize building energy using hydrogen as opportunities to exchange knowledge and develop best practices. For example:

- The UK’s H21 project, for example, is aiming to convert North of England’s gas grid to hydrogen as part of the nation’s deep decarbonization program, with a view toward switching at least 3.7 million homes from natural gas to hydrogen and an aim to transition the sources of hydrogen to zero carbon feedstocks as the project progresses.<sup>4</sup>

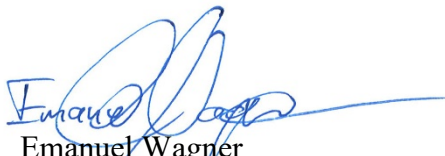
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<sup>4</sup> <https://www.northerngasnetworks.co.uk/wp-content/uploads/2018/11/H21-Meeting-UK-Climate-Change-Obligations.pdf>

- Keele University is also exploring blending electrolytic hydrogen into its private gas network beginning in Summer 2019 to reduce carbon emissions from heating buildings, in what is known as the HyDeploy Project.<sup>5</sup> This project plans to blend up to 20% hydrogen as part of their decarbonization efforts. Blending hydrogen with natural gas across the U.K. is estimated to reduce 6 million tons of carbon annually, the equivalent of taking 2.5 million cars off the roads.
- In France, the GRHYD project was launched in 2014 to test injection of hydrogen made with renewable electricity into the region's natural gas distribution system to decarbonize residential heating, domestic hot water and cooking. The project aims to help fulfill the French government target reduce greenhouse gas emissions 20% by 2020 and to help implement the Hydrogen Plan, launched by the federal government in June 2018.<sup>6</sup>

Respectfully submitted,

Dated: March 11, 2019



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<sup>5</sup> [https://hydeploy.co.uk/app/uploads/2017/11/13647\\_KEELE\\_HYDEPLOY\\_FAQ\\_BOOKLET\\_A5\\_WEB.pdf](https://hydeploy.co.uk/app/uploads/2017/11/13647_KEELE_HYDEPLOY_FAQ_BOOKLET_A5_WEB.pdf)

<sup>6</sup> As described on this project website: <https://www.engie.com/en/journalists/press-releases/grhyd-inaugurate-frances-first-power-to-gas-demonstrator/>