

March 1, 2018

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2003 Edmund Halley Dr
Reston, VA 20191

Re: CHBC Comments On Cycle 2 ZEV Investment Plan for California

The California Hydrogen Business Council (CHBC) appreciates the opportunity to provide input to Electrify America’s development of the Cycle 2 Investment Plan. The CHBC is a California industry trade association with the mission 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.ⁱ As you know, the CHBC previously provided comments on the Cycle 1 ZEV Investment Plan to Electrify America (EA) and the Air Resources Board.

In 2017, ARB Board members issued guidance to Electrify America “that Plan investments, to meet the terms and goals of the Consent Decree, must be technology-neutral, thus supporting Hydrogen infrastructure”ⁱⁱ. We therefore are encouraged that EA specifically asked for comments related to Fuel Cell Electric Vehicle (FCEV) data and/or adoption perspectives to consider hydrogen related investments under Cycle 2.

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US Hybrid

The main sources of NO_x, SO_x, and particulate matter are diesel engines, which tend to be concentrated in the medium and heavy duty transportation sector. These are applications for which hydrogen fuel cell technology is especially well suited. Fuel cell electric buses have been operating in California for decades and are proven to be seamless replacements for diesel buses. Heavy duty hydrogen fuel cell trucks have been demonstrated with robust testing in real world operations in California. Recent announcements have focused on medium and heavy-duty vehicles from US Hybridⁱⁱⁱ, Toyota^{iv}, Kenworth^v, GM^{vi}, Loop Energy^{vii}, Nikola Motor Company^{viii}, FedEx^{ix}, and UPS^{x, xi} validating these solutions. We, therefore, encourage EA to support investments that replace diesel engines with hydrogen fuel cell vehicles in order to reduce criteria pollutant emissions in the State. With this initial investment in renewable hydrogen production, hydrogen infrastructure and hydrogen fuel cell vehicles, CHBC’s members will be able to deliver results.

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AC Transit
Beijing SinoHytec
EWII Fuel Cells
Hitachi Zosen Inova ETOGAS
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Natural Gas Fueling Solutions
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In addition, as the CHBC reported in previous comments, the State of California is projecting a shortfall of hydrogen fueling stations under the current pace of infrastructure deployment. The latest *Joint Agency Staff Report on Assembly Bill 8: 2017 Annual Assessment of Time and Cost Needed to Attain 100 Hydrogen Refueling Stations in California*^{xii}, developed by the Energy Commission, warns that shortfalls in hydrogen fueling coverage may occur in the State in 2020, and in parts of the LA basin as early as this year.

STAFF

Jeffrey Serfass | Executive Director
Emanuel Wagner | Assistant Director

Considering the time needed for hydrogen station development, this may negatively affect adopters of FCEVs and delay vehicle rollout in the near future.

We believe that including hydrogen infrastructure in Electrify America under Cycle 2 will go a long way to supplement State investments and address the projected hydrogen fuel shortfalls while helping reduce emissions. This type of investment would meet the intent of the Court Decree of the Volkswagen Settlement.

The CHBC proposes to allocate a majority of the Cycle 2 for:

- A) Renewable hydrogen production and distribution facilities to support renewable energy projects in the state.
- B) Hydrogen fueling stations for light, medium and heavy-duty vehicles with a focus on Disadvantaged Communities and areas of high pollution.

The CHBC and its members are very supportive of any engagement and willing to provide additional information to Electrify America on this industry and technology options.

Thank you for your consideration.

Sincerely,



Emanuel Wagner
Assistant Director

California Hydrogen Business Council

ⁱ 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 Renewable 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.

ⁱⁱ https://www.arb.ca.gov/msprog/vw_info/vsi/vw-zevinvest/documents/zip_supplement_request_052417.pdf

ⁱⁱⁱ <https://www.trucks.com/2017/05/04/us-hybrid-hydrogen-fuel-cell-truck>

^{iv} <https://www.trucks.com/2017/10/12/toyota-hydrogen-fuel-cell-electric-truck-hits-road>

^v <https://www.trucks.com/2017/05/02/kenworth-class-8-hydrogen-fuel-cell-truck>

^{vi} <http://media.gm.com/media/us/en/gm/news.detail.html/content/Pages/news/us/en/2017/oct/1006-fuel-cell-platform.html>

^{vii} <http://www.marketwired.com/press-release/loop-energy-fuel-cell-range-extended-yard-truck-in-operation-2228935.htm>

^{viii} <https://arstechnica.com/cars/2017/09/nikola-motor-company-and-bosch-team-up-on-long-haul-fuel-cell-truck>

^{ix} <https://www.gasworld.com/plug-power-fuel-cell-engines-power-fedex-/2012236.article>

^x <https://www.trucks.com/2017/05/02/ups-fuel-cell-electric-delivery-truck>

^{xi} <https://www.trucks.com/2017/05/08/hydrogen-fuel-cell-trucks-holy-grail>;
<https://www.forbes.com/sites/heatherclancy/2014/01/30/run-your-engine-on-water-sprint-fedex-test-hydrogen-fuel-cells/#736b4ef874ec>

^{xii} <http://www.energy.ca.gov/2017publications/CEC-600-2017-011/CEC-600-2017-011.pdf>