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California Air Resources Board  
1001 I Street  
Sacramento, California 95814

**Subject: Comments of California Hydrogen Business Council on  
Volkswagen Group of America’s California ZEV Investment Plan: Cycle 1**

April 7, 2017

Dear Chair Nichols and Members of the Air Resources Board:

The California Hydrogen Business Council (CHBC) appreciates the opportunity to submit comments to the California Air Resources Board (ARB) regarding the VW Investment Plan. The CHBC is comprised of over 100 companies, agencies and individuals creating businesses for hydrogen-fueled zero emission energy and transportation markets in California.

The ARB and the State of California are pioneers in the development and deployment of clean energy technology. The hydrogen and fuel cell industry would not be where it is without the commitment of the many supporters in California agencies, governor’s office and legislature.

The state has built a very important framework to support emission-free transportation and has been agnostic in the choice of technologies that offer zero tailpipe emissions, including Fuel Cell Electric Vehicles (FCEVs) and hydrogen. Previous funding like AQIP has been supportive of hydrogen and fuel cell technology.

It is in that context that the CHBC is surprised and disappointed to see that the Volkswagen Investment Plan issued on March 8, 2017 allocated a total funding of \$200,000,000 with none of this amount going toward hydrogen and fuel cell infrastructure and vehicle deployment. FCEVs and hydrogen infrastructure are integral parts of California’s leadership in environmental policy. FCEVs, which are Zero Emission Vehicles (ZEVs), will play a key role alongside battery electric vehicles (BEVs), to reach local and regional emission requirements, reduce oil use in transportation, and achieve California greenhouse gas reduction goals.

**The CHBC therefore urges ARB to seek that VW revise their investment plan to be technology agnostic by supporting hydrogen fuel cell and battery electric vehicles equally. The VW investment should reflect the State’s ZEV commitment without picking a winner by exclusively investing in one technology option. Alternatively, if ARB accepts the VW plan, CHBC urges that ARB consider this massive VW investment in battery-electric only infrastructure in future California funding for zero-electric transportation, and recognize the increased financial investment need for hydrogen fuel cell infrastructure at that time.**

The CHBC does not question VW's interest in FCEV technology. Audi, part of the VW group, has a fuel cell program, and VW has ongoing partnerships with fuel cell companies, including members of the CHBC, to bring FCEVs to market. Volkswagen is also a member in the Clean Energy Partnership, which is dedicated to developing hydrogen and fuel cell transportation in Europe.

That said, the company's investment in battery electric vehicles and charging infrastructure is biased to favor their available battery electric vehicles, and does not strike the balance that California is pursuing in ZEVs. However, they are delaying putting FCEVs on the road due to lack of infrastructure. Audi chief engineer chief engineer Stefan Knirsch stated in an interview in 2016, "The [fuel cell version] car is ready soon. But we won't launch it until there is fueling infrastructure. There is some in California and Japan, but that's not enough."<sup>1</sup> It will be in VW's own self-interest to support hydrogen infrastructure for their launch of hydrogen FCEVs, and VW's investment plan should recognize this opportunity.

This would also be in line with California policy. ARB's own AB 8 report projects that by 2020/2021, more FCEVs are going to be on California's roads than hydrogen fueling stations would be able to supply. In that case, FCEV sales will be limited due to lagging infrastructure without additional funding, with a cascading effect in later years, creating long-term limitations to the adoption of FCEVs. Investment funds from this cycle of the VW settlement would allow for additional station buildout *now*, adding infrastructure in time to provide improved coverage across the state for an increasing number of FCEVs, whereas deferring investment until the next cycle will cause unnecessary problems in our mutual quest to a zero emission transportation future. A lack of investment in hydrogen infrastructure in this funding cycle will also send a clear signal to other states in the U.S. that FCEVs are not a priority, discouraging further FCEV adoption and limiting price reduction benefits associated with higher vehicle production volumes.

The CHBC believes that VW should allocate an appropriate portion of the investment to hydrogen fuel cell electric vehicle options and specifically proposes that the following be considered in the current and future VW investment plan cycles:

- Expansion of the developing **hydrogen fueling station network** and supporting infrastructure to enable drivers throughout the state to travel for long distances in FCEVs, and to support the emerging market for hydrogen-fueled transit and freight vehicles.
- Funding of **public outreach** efforts aimed at making the public in California fully aware of, and comfortable with, hydrogen FCEV's, infrastructure and associated technologies.
- Fuel cell powered **transit buses**, shuttle and other transport vehicles, fully capable of the performance, range and rapid fueling requirements for these markets while providing clear benefits to disadvantaged communities, which are more reliant on public transport options.
- Fuel cell powered **goods movement and freight transport vehicles**, fully capable of meeting the performance, weight and volume requirements for their markets. Fuel cell powered heavy duty Class 8 trucks greatly benefit disadvantaged communities that are impacted most by mobile source air pollution along freight corridors.
- Hydrogen production that enables primary renewable energy development, including multi-megawatt power-to-gas systems.
- Development of the above hydrogen infrastructure in ways that further the Green Cities Vision.
- Deployment of hydrogen fueling stations that enable ZEV's for the 40% of Californians living in multi-family dwellings.
- Support for large-scale renewable hydrogen production facilities to enable cost-effective zero carbon fuel for FCEVs.

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<sup>1</sup> <https://www.topgear.com/car-news/geneva-motor-show/fuel-cell-audis-are-coming-starting-h-tron>

These adjustments would help ensure Californians reap the significant benefits of Hydrogen fuel cell technology for transportation. FCEVs offer long-range, fast-fueling capability and more than 33% of all hydrogen for transportation in California is produced using renewable energy. This versatile technology can be adopted in public transport, transit, and medium and heavy-duty goods movement. Fuel cells provide a transportation solution that has zero-emissions at the tailpipe and can immediately replace diesel vehicles to provide environmental benefits.

**To conclude, the CHBC very much appreciates the great work and immense support from the State's agencies. It is our mutual goal to improve the lives of Californians and provide them with the choice of zero emission vehicle options. Therefore, we strongly believe that the settlement money needs to be used equitably to fund a balanced portfolio of zero emission vehicle technologies. For California to reap the greatest environmental benefit from VW ZEV investments, VW must include support for hydrogen infrastructure. Therefore, CHBC recommends that ARB work with VW to revise the current VW investment plan to include investments in hydrogen and fuel cells to meet California's environmental goals. If ARB believes that requiring VW to revise their investment plan would be detrimental to California's interests, the CHBC recommends that VW's investment in battery-only infrastructure be recognized in upcoming zero-emission infrastructure investments by the State, to compensate for the lack of hydrogen investment in this plan.**

The CHBC looks forward to working with the ARB and the Volkswagen Group as this process continues.

Thank you for your consideration!

Sincerely,



Emanuel Wagner  
Assistant Director | California Hydrogen Business Council

CC:

*The Honorable Jim Beall, Chair of Senate Transportation Committee*

*The Honorable Bob Wieckowski, Chair of Senate Environmental Quality Committee*

**About the CHBC:**

The CHBC is a California industry trade association with a mission to advance the commercialization of hydrogen in transportation and stationary sources to reduce greenhouse gas, criteria pollutant emissions and dependence on oil. 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 AC Transit, Air Liquide Advanced Technologies U.S. LLC., American Honda Motor Co., Inc., Ballard Power Systems, Bay Area Air Quality Management District, Beijing SinoHytec, BMW of North America LLC, California Air Resources Board, California Fuel Cell Partnership, California Performance Engineering Inc., CALSTART, Cambridge LCF Group, Center for Transportation and the Environment, China Hydrogen Fuel Cell Corporation, Coalition for Clean Air, Community Environmental Services, E4 Strategic Solutions, ElDorado National – California, Energy Independence Now, Engineering, Procurement and Construction, LLC, Ergostech Renewal Energy Solution, First Element Fuel Inc, FuelCell Energy, Inc., General Motors Corporation, Giner, Inc., Gladstein, Neandross & Associates, Greenlight Innovation, GTA, Inc., GTM Technologies Inc., H2B2, H2Safe, LLC, H2SG Energy Pte Ltd, H2Tech Systems, Horizon Fuel Cells Americas, Inc., Hydrogenics Corporation, Hydrogenious Technologies, HydrogenXT, Hyundai Motor Company & Kia Motors Corp, i-2-m, Idaho National Laboratory, Intelligent Energy, IRD Fuel Cells LLC, ITM Power Inc, Ivys Inc., Johnson Matthey Fuel Cells, Linde North America Inc, Loop Energy Inc, McPhy Energy, MPL Consulting, Inc., National Renewable Energy Laboratory, Nel Hydrogen, New Flyer of America Inc, Next Hydrogen Corporation, Noyes Law Corporation, Nuvera Fuel Cells LLC, Pacific Gas and Electric Company, Paramount Energy West LLC, PDC Machines, Inc.,

Comments of California Hydrogen Business Council on Volkswagen Group of America's California ZEV  
Investment Plan: Cycle 1

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Plug Power, Inc., Port of Long Beach, PowerHouse Energy Americas, Powertech Labs, Inc., Proton OnSite, Ramco Consulting Company Inc, Rio Hondo College, RIX Industries, Sacramento Municipal Utility District, SAFCell Inc, Schatz Energy Research Center, Solar Hydrogen System, South Coast Air Quality Management District, Southern California Gas Company, Sumitomo Corporation of Americas, SunLine Transit Agency, Tatsuno North America Inc, Terrella Energy Systems Ltd, Toyota Motor North America Inc., Advanced Power and Energy Program - UC Irvine, United Hydrogen Group Inc, US Hybrid Corporation, WireTough Cylinders, LLC, Zero Carbon Energy Solutions, Ztek Corporation