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Medium- and Heavy-Duty Zero-Emission Vehicles and Infrastructure

Additional submitted attachment is included below.

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November 8, 2019

California Energy Commission
Docket Unit, MS-4
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RE: Docket #19-TRAN-02 – Staff Workshop on Pre-Solicitation Concepts for Medium- and Heavy-Duty Zero-Emission Vehicles and Infrastructure

On behalf of the Center for Transportation and the Environment's (CTE), I am writing to advocate for expanding the CEC's commitment to heavy-duty fleet infrastructure funding. Specifically, CTE endorses Concept #2, Category B, to assist public transit agencies with building new hydrogen fueling stations at scale. However, CTE strongly encourages CEC to include funding for all components of the station, including dispensers, in the Category B description.

At the October 25, 2019 CEC workshop on concepts for the "Medium- and Heavy-Duty Zero-Emission Vehicles and Infrastructure" program, CTE provided comments regarding Concepts #1 and #2. As follow up to our testimony, I'd like to emphasize the following key points:

- Regarding Concept #1 on Freight applications, we recommend that this be **open to non-profit organizations as eligible applicants**. As a non-profit, CTE has taken the lead on major demonstration and deployment projects, overseeing the construction and startup of vehicles and infrastructure for transit, Class 6 and Class 8 trucks, and marine cargo handling equipment. Centralized project management and oversight has been a key component in addressing obstacles and successfully delivering projects.
- Projects should **emphasize scalability and show evidence of redundancy and resiliency**. Redundancy ensures maximum uptime. Resiliency is critical to being able to respond to natural disasters. California's exposure to earthquakes and wildfires and wildfire threats makes it essential that our resources and investments will be able to sustain and support emergency services whenever and wherever needed. Larger scale projects are necessary to commercialize zero-emission technology by demonstrating their adaptability to the operating requirements and efficiencies of fleet operators.
- Infrastructure needs to include **costs associated with facility upgrades** to safely maintain hydrogen fuel cell vehicles. This will require the installation of detection and alarm systems, and may require modifications and upgrades to ventilation and electrical systems.

- Funding should be provided for **Project Management, staff and first-responder training, and data collection**. Project Management ensures a seamless interface between fueling stations, vehicles, and detection and alarm systems, which is critical to project success.
- Projects should be evaluated in terms of how they directly **benefit Disadvantaged Communities (DACs)**. Public transit vehicles provide the only means of transportation to people who do not own cars. Buses also operate frequently through DAC neighborhoods. Conventionally powered drayage trucks operating to and from California ports impact adjacent DAC neighborhoods with significant criteria pollutants.
- If CEC combines FY 18-19 funds of $17.5 million with the FY 19-20 budget of $30 million, a **$20 million allocation to a large-scale infrastructure project** could provide high-capacity hydrogen fueling (50 or more transit buses and associated facility upgrades to two or three new transit agencies.

CTE has worked to expand the network of light-duty hydrogen fueling stations, as well as the development of heavy-duty fueling stations. In 2016, California Air Resources Board (CARB) awarded CTE over $22 million in Low-Carbon Transportation Funds to launch a pilot program to move fuel cell electric buses (FCEBs) and heavy-duty fuel cell technology closer to commercialization. Two high-capacity hydrogen fueling stations are close to completion. The larger of the two will fuel up to 50 buses in an 8-hour transit fueling window. The second station will support 30 or more buses in a 12-hour window.

Initial operation of the buses in service at AC Transit and Orange County Transportation Authority (OCTA) are demonstrating in excess of a 300-mile range, enabling these vehicles to operate as one-to-one replacements for diesel and CNG buses on all of AC Transit's and OCTA's routes. Another key outcome resulting from CARB's investment was to drive down the cost of the buses by 50% from previous models, to less than $1.2 million per bus.

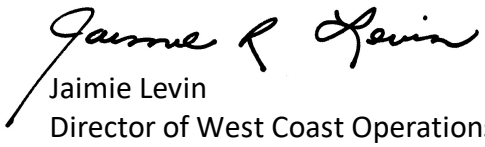
The advancements made by this initial pilot project can be further leveraged by expanding deployment to two or three new transit agencies and building out a fleet of 100 additional FCEBs. This will drive down the costs of FCEBs by an additional 30%, to $850,000. Increasing the demand for hydrogen will also promote increased supply and lower energy prices. However, the primary obstacle facing large-scale deployments is the need for infrastructure funding to support fueling stations and upgrades to diesel and CNG maintenance facilities to safely work on hydrogen.

The advancements in FCEB technology have a direct link to advancing the use of fuel cells and hydrogen fueling systems for truck and freight applications. With transit operators moving toward the implementation of CARB's Innovative Clean Transit Rule,

timing is critical in order to deliver price competitive buses and fueling infrastructure. Recently, CARB adopted their fiscal year 19-20 Low Carbon Transportation Program budget, eliminating funding for infrastructure. This makes it critical for CEC to fill the funding gap needed for infrastructure.

In conclusion, CTE's successful track record on developing a wide range of zero emission medium and heavy-duty vehicles and fueling infrastructure has provided CTE a unique insight on the next steps needed to bring to commercialization zero emission heavy duty trucks and buses. Therefore, on behalf of CTE, I strongly encourage your favorable consideration of these recommendations, especially given the infrastructure gap facing public transit agencies.

Sincerely,



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