

**DOCKETED**

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**Recommendation for Hydrogen Transportation Infrastructure  
Financing (Vishal Shah - Hydrogen Technology Ventures)**

*Additional submitted attachment is included below.*

## **I. Introduction**

Hydrogen Technology Ventures (HTV) welcomes the opportunity to provide the following recommendations in response to the California Energy Commission's Request for Information (RFI) for clean transportation financing and investment programs. These measures would help spur private investment and complement public funding to accelerate the commercialization of California's fuel cell electric vehicles (FCEVs), hydrogen fuel, technologies and infrastructure.

## **II. Background**

Hydrogen Technology Ventures (HTV) is established to finance, develop, own & operate hydrogen technology & infrastructure assets. HTV's objective is to invest in hydrogen infrastructure projects as well as leading edge technologies that are essential in driving down the cost of green hydrogen.

## **III. Recommendations**

HTV believes that a combination of increased spending towards enabling adoption of FCEVs, including new funding mechanisms (such as loans and loan guarantees) as well as specific incentives for FCEVs and development of associated infrastructure would be required to spur increased growth of hydrogen FCEVs in California. Below is a summary of specific policy recommendations:

- 1. Earmark some funds from clean transportation program for Heavy Duty FCEVs:** We recommend that incentives for adoption of heavy duty FCEV be strengthened relative to equivalent BEV trucks because of the fact that FCEV are much higher on the cost curve

presently, and the incremental dollar of support for FCEV will generate greater return at this stage than the incremental dollar of incentive for BEV.

- 2. Loans instead of grants that can be paid back in a certain timeframe:** We recommend that Green Bonds similar to CPCFA's Green Bonds be made available for entities to allow them to purchase FCEV trucks from manufacturers and place them in fleets under lease agreements.
- 3. Facilitate mechanism to value FCEV trucks after the lease program:** Currently, there is no second-hand market for FCEV trucks. We recommend that 3-5 percent of the CEC funding allocated to AQIP be earmarked to subsidize the purchase of second-hand fuel cell electric trucks.
- 4. Provide incentives for the development of hydrogen fueling stations:** If the CEC were to provide a standard set of incentives in the form of an investment tax credit to any participant interested in development of a hydrogen fueling station there would be much broader development of fueling stations across the state, compatible with both light and heavy duty FCEV.
- 5. Eliminate sales tax on fuel for Heavy Duty trucks:** We recommend that the state eliminates the sales tax on fuel for Heavy Duty trucks in order to bridge the economic gap relative to diesel trucks and BEVs.

Additional details on the specific policy recommendations to accelerate development of infrastructure for hydrogen FCEVs for heavy duty applications are as follows:

### **Provide Initial Support for Leasing of FCEVs to Commercial Off-takers**

Transitioning a fleet of diesel trucks (Class 6 or 8) to a zero-emission FCEV fleet is difficult for many fleet operators for two reasons: the relatively unproven technology of fuel cells powering semi-trucks, and the extremely high up-front cost of purchasing a new Class 6 or 8 FCEV. Both of these issues can be mitigated by providing fleet operators with the opportunity to enter into fixed-term operating leases, which include cost of fuel and maintenance, and prevent customers from holding these expensive vehicles on their balance sheets. This business model is a difficult one to catalyze because of the need for the lease provider to purchase the trucks from an OEM and hold them until a customer is willing to enter into a lease agreement. Due to this high risk exposure required to kickstart this business model, ***we recommend that loans similar to CPCFA's Green Bonds be made available for lease providers to allow them to purchase FCEV trucks from manufacturers and place them in fleets under lease agreements.***

### **Facilitate Mechanism to Value FCEV Trucks After the Lease Program**

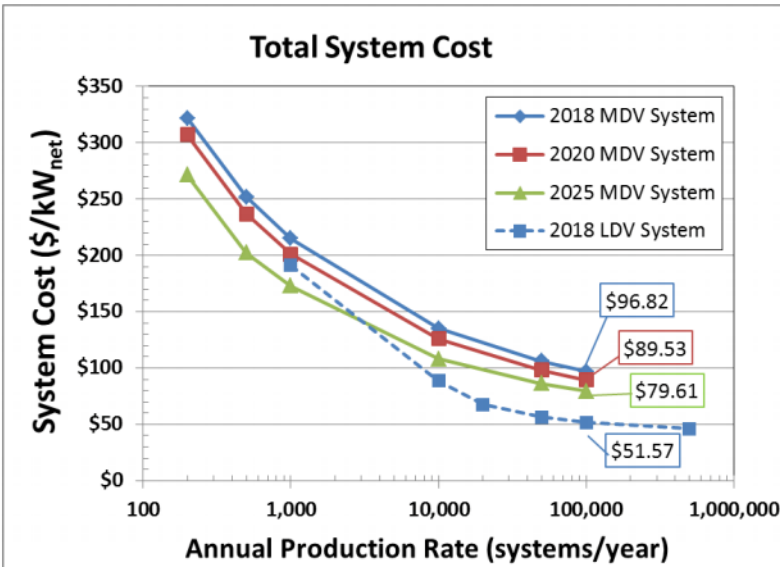
Although from an adoption standpoint a leasing model is the most effective way for fleets to adopt FCEV technologies in the near term, a second constraint involved in operating leases is the status of the vehicle after the lease term expires. Currently, there is no second-hand market for these trucks, and thus a lease provider would be left holding onto this asset of unknown value after the expiration of operating lease. ***In order to mitigate this risk, we recommend that a 3-5 percent of the CEC funding allocated to AQIP be earmarked to subsidize the purchase of second-***

***hand fuel cell electric trucks. Additionally, we recommend that the state eliminates the sales tax on fuel for Heavy Duty fuel cell electric trucks.***

### **Ensure FCEV Truck Incentives that Reflect the Emerging Status of Technology**

In 2019, there were 256,800 battery electric vehicles (BEV) registered in California as opposed to only 8,000 FCEV in the same year. As such, when creating incentives for zero-emission vehicles it is important to consider the stage of maturity of a given technology. Batteries and charging stations benefit from significant economies of scale due to the billions of dollars of investment which has poured into these technologies, but FCEV and hydrogen stations are a more nascent technology and thus have different cost structures. Durability of FCEV technology for heavy duty truck applications also needs to improve substantially from current levels. Thus, we recommend that incentives for adoption of heavy duty FCEV be strengthened relative to equivalent BEV trucks, and the incremental dollar of support for FCEV will generate greater return at this stage than the incremental dollar of incentive for BEV.

***More specifically, incentives can be structured in such a way that there is a tax credit of 30% of the vehicle value available for California fleet operators to integrate FCEVs into their heavy duty fleets up to 1,000 total vehicles in California. Once 1,000 FCEV trucks are purchased by qualifying California fleets, the tax credit can be reduced to 25% for the next 1,000 trucks and decrease by 5% upon reaching each 1,000-truck threshold. This sort of policy would help kick-start the FCEV market and help the technology reach scale faster.***



Source: DOE H2 Heavy Duty Truck Targets (January 21, 2020)

### Develop Open-Market Incentives for Construction of Hydrogen Fueling Stations

Currently, the FCEV market in California suffers from the classic chicken-or-egg problem: fleet operators aren't interested in heavy duty FCEV because of the lack of compatible refueling infrastructure and developers aren't interested in construction of fueling stations and procurement of fuel supply because of the lack of demand for their fuel. This is largely due to the bottleneck of fueling station development incentives in California. ***In our view, if the CEC were to provide a standard set of incentives in the form of an investment tax credit to any participant interested in development of a hydrogen fueling station there would be much broader development of fueling stations across the state, compatible with both light and heavy duty FCEV.*** This sort of incentive strategy, as opposed to only awarding incentives to a small number of parties, will result in a much more diverse set of station operators which in turn would create a more distributed and diverse network of fueling stations.