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CALSTART Comments on Docket Number 16-ALT-02 20 2017-18 ARFVTP Investment Plan

Additional submitted attachment is included below.

November 15, 2016

TO: Commissioner Janea Scott, California Energy Commission

FROM: John Boesel, President and CEO

RE: Comments on Docket Number: 16-ALT-02 - Recommendations for 2017-18 ARFVTP Investment Plan

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Based on its 24-years of experience in accelerating the growth of the clean transportation technology industry, CALSTART has developed a set of recommendations on how the CEC could allocate its $100 million in 2017-18 ARFVTP funds. These suggestions are in sync with the goals and purpose of the original enabling legislation, Assembly Bill 118, and aligned with the current state and needs of the industry. We truly appreciate this opportunity to share our ideas with you and would be very willing to answer any questions or provide more information.

Our recommendations are focused on the following five areas: 1) Light-Duty Zero Emission Vehicles and Related Infrastructure; 2) Advanced Medium- and Heavy Duty Vehicle Technology; 3) Low Carbon Fuels Development and Production; and 4) Market Facilitation in Extreme Non-Attainment Areas that are Under-Served; and 5) Emerging Opportunities.

1) Light-Duty Zero Emission Vehicles and Related Infrastructure

H2 Infrastructure

Consistent with Assembly Bill 8 (2013) the CEC should continue to invest $20 million in the development of a public hydrogen refueling network. At some point, a significant break-through will be needed in hydrogen refueling station equipment and economics. Not this year, but in the future, the CEC may want to consider partnering with the federal Department of Energy, and perhaps the European Commission, to pool resources and focus investment in a “Golden Carrot” type program for a next generation of hydrogen stations that would meet certain key parameters. The Golden Carrot program was a successful model used some 20 or so years ago to support the commercialization of high efficiency refrigerators. By providing a certain amount of funding and offering to fund a significant number of nextgen stations (as defined by certain key characteristics), a multi-government partnership could spur innovation and break-throughs in H2 refueling tech.

Urban Clusters – DC Fast Chargers (DCFC’s)

To encourage the growth of the EV market among renters (50% of the state’s population) and to support use of EV’s in Transportation Network Companies, the CEC should allocate $7.5 million for the deployment of clusters of DCFC’s. Priority should be focused on the development of clusters that are both aligned with high TNC activity and in close proximity to significant concentrations of multi-unit dwellings. Over the long-term, the CPUC may determine this is an investment

that could be addressed by the Investor Owned Utilities (IOU's). Given the pace of the rulemaking process, and the on-going needs in areas not served by the IOU's, this would be an important focus area for CEC investment in the 2017-18 Investment Plan time period.

The CEC should consider making funding for this network of publicly accessible DCFC's contingent upon the operator providing an easy and transparent means of locating them and determining whether they are in use or not. Having the chargers in place is important, but drivers need to be able to easily access information about how and when they can use them. Such information is not necessary about gasoline or diesel stations given the relatively small amount of time needed to refuel. The EV charging network is different and timely and convenient access to information about the chargers is essential.

While we are recommending that these funds be focused on publicly accessible DCFC's, the CEC should also make them available to the owner and operator of a California multi-unit dwelling (MUD). While we don't anticipate the demand to be significant from this sector, should an owner or operator want to install a DCFC, they should be able to access the CEC funds. In such a case, there should be no requirement that the DCFS be accessible to the public.

Given the many demands and high impact ways that the 2017-18 ARFVTP funds could be spent, we strongly urge the State of California to allocate the full 15 percent of Appendix D funds from the VW legal settlement as a funding source for the build-out of urban clusters of DCFC's. Ideally, the VW settlement funds would be routed thru the CEC and be made available to a wide array of electric vehicle service providers (EVSP's).

Lastly, we commend the staff for exploring new options for entities to access CEC funding for EV infrastructure. Under a typical request for proposal, applicants spend hundreds of hours and thousands of dollars preparing their submittals. Ultimately only a small percentage of the applicants are successful, and therefore the investment made in proposals is effectively wasted. Using an on-line, first-come, first serve application process to distribute the EVSE funding would be more time and resource efficient. ARB has effectively used such a model with their contractor, CSE, to distribute incentive funding for EV's.

High Impact Statewide Workplace Charging Campaign

Getting employers to install chargers at the workplace has proven to be one of the most effective strategies at growing the EV market. Not only do the chargers support and encourage existing EV owners, they also help facilitate discussions and interactions that lead to more both prospective and actual EV owners. Despite the benefits of workplace charging, the number of new installations is not keeping pace with the rapid growth in EV sales planned for in the 2018-2025 period. To more rapidly grow the workplace charging sector, the CEC should invest $1,000,000 into a two-year statewide campaign. A robust statewide campaign would allow for the more rapid transfer and sharing of knowledge, tactics, and resources. Such an effort would be complimentary to the Drive the Dream (DTD) events organized by the Plug-in Electric Vehicle Collaborative.

While cost share should not be required, the applicants should be encouraged to work with utilities and other partners to secure matching funds and leverage CEC investment in this space. Ideally, ARFVTP funds would be augmented by VW Appendix C funds to support such an effort.

General EV Awareness and Education Campaign

At the time this document is being written, it's unclear when the next version of the PEVC will be legally established and whether it would be operational during the 2017-18 ARFVTP Investment Plan. The new focus of the "PEVC 2.0" will be on raising public awareness and educating consumers about the benefits of electric cars. Ultimately, car makers will need to be the ones who are leading the marketing and advertising about zero emission vehicle products. As more zero emission-vehicle-only-manufacturers come to the market, competition and consumer interest will grow. We also expect much greater consumer acceptance and interest in EV 2.0 ($37,500 price before incentives with >200 mile range) starting in 2017. The ideal funding source for the PEVC 2.0 initiative would be Appendix C, the EV portion of the VW legal settlement. Under the Consent Decree, $800,000 is to be spent in California over 10 years to accelerate the growth of the EV market.

2) Advanced Medium- and Heavy Duty Vehicle Technology

The CEC has played a very important role in helping to advance cleaner and lower carbon commercial vehicle technology. Caterpillar Inc. is currently offering a hybrid excavator as a direct result of a previous CEC ARFVTP investment. The CEC also funded the first deployment of zero emission bus technology in the San Joaquin Valley. Given the continued need for progress in this area, and the relative impact of the federal efficiency standards, CALSTART recommends that the CEC allocate up to $35 million in this sector in consideration of items listed below:

- The CEC investment should be open to the development of testing of technology in all M-HDV applications, including transit buses, and not just in seaport uses. One of the areas in greatest need of advanced truck solutions is the San Joaquin Valley. By refocusing the advanced medium- and heavy-duty vehicles just on seaports the CEC would not be able to support and demonstrate technologies that are needed in the Central Valley.
- Among the technologies that should be considered in this category are new engine designs, zero emission drivetrains aligned with the Sustainable Freight Plan.
- Achates Power, a San Diego start-up, has a very promising opposed piston engine design that could significantly increase the efficiency of long-haul trucks. Technology such as this should be eligible under the CEC program;
- The program should be focused on all advanced medium- and heavy-duty vehicles, not just on trucks. Advanced technology and clean fuels are frequently developed and tested in the transit sector. It is common that an

advanced technology, such as heavy-duty natural gas engines in the 1990's, gets proven out in the transit sector and then migrates toward the truck market.

- A critical issue facing the growth of the medium- and heavy-duty zero emission vehicle market is a lack of standardization around rapid charging technology and inter-connections. CEC funding of $3-5 million could leverage federal funding and have a significant impact in this area;
- Developing longer-range zero emission technology solutions would aide both the truck and bus markets. The CEC should invest in solutions that advance range extending or charge sustaining hybrid vehicles. Cost-effective integration of a small heat engine powered by natural gas or a fuel cell combined with batteries can provide viable solutions for both the truck and bus markets. There are a number of different firms pursuing such concepts. CEC funding could play an important role in terms of bringing them to the market faster;
- CEC investment could be used to increase the efficiency of medium- and heavy-duty natural gas vehicles by developing and testing more electronic components and mild hybrid systems; and
- By providing for commercial electric vehicle infrastructure, the CEC could support vehicles deployed under the ARB HVIP program.

The staff is to be commended for conducting an analysis of the various types of state and regional investments that are currently being made to advance the medium- and heavy-duty vehicle sector. The targeted areas listed above are complimentary with those other investments. CALSTART team would be willing to meet with the CEC staff to assess the complimentary nature of these recommendations relative to the ones identified in the CEC analysis.

Natural Gas Truck Incentive Program

To expand the use of cleaner fuels in the medium- and heavy-duty sector, the CEC should allocate $10 million for the continuation of its vehicle incentive program. Near-zero emission engine technology is now available, and the CEC should consider requiring that the trucks purchased under this program meet that standard. In 2017 the ARB will be providing vouchers for near-zero emission natural gas commercial vehicles under the HVIP program. The CEC and ARB should communicate and determine whether there is demand for near-zero emission natural gas vehicles beyond what is available under the HVIP program in 2017-18.

3) Low Carbon Fuels Development and Production

The CEC should continue to support the growth and development of in-state low carbon fuel production. There is an important need to provide "floor price" guarantees for Low Carbon Fuel Standard credits, and such a policy could have a significant impact if it was focused on in-state production. This is a concept that CALSTART would be interested in actively exploring with the CEC and the State Treasurer's Office. However, in advance of the evolution of such a creative financing mechanism, and given the significant demand on CEC funds, we

recommend that the CEC continue to provide $15 million in funding to cover capital expenditures and that priority be given to those projects that are producing fuels with low carbon intensity. There could be some important synergies with the passage of Senate Bill 1383 and CCI investments in digesters. Per SB 1383, five pilot projects involving dairies are to be conducted. Hopefully, all five projects could be developed and launched in 2017. The CEC should consider how their investments could be used to leverage that policy and investment to expand the production and use of renewable natural gas, in conjunction with near zero emission engines, to support cleaner transport in the San Joaquin Valley.

4) Market Facilitation in Extreme Non-Attainment Areas that are Under-Served

The ARFVTP has played a very important role and enabled the rapid expansion of the clean transportation sector. The program, in particular, has been responsive to leading companies and organizations in the major urban coastal centers. The program has tremendous potential to provide more direct benefits to regions where the air pollution is very bad, and where a relatively lower amount of resources have been dedicated over the life of the program. In particular, the San Joaquin Valley is a region where the ARFVTP could help improve air quality and create jobs. The CEC took a major step forward in supporting this region by, in 2015, dedicating a solicitation to a center that is focused on building teams, and implementing successful clean transportation projects. The two-year funding for that program will expire during the 2017-18 investment plan period. The CEC should dedicate $1.5 million to provide technical assistance and support market facilitation and activity that will bring cleaner fuels and more efficient vehicle technologies to the San Joaquin Valley.

5) Emerging Opportunities and Workforce Training

Federal Matching Funds
The CEC should continue to support California companies and organizations and help them pursue and win federal contracts related to the goals and objectives of the ARFVTP program. CALTART supports funding of this activity at the $5 million level.

LEED for Fleets – Encouraging Voluntary Action
The Leadership in Energy and Environmental Design (LEED) program in the building sector has been very effective at reducing energy above and beyond existing standards and regulations. Working with the nation's largest professional fleet management group, the National Association of Fleet Administrators (NAFA), CALSTART has developed an equivalent rating system for fleets. The four-tier system allows a fleet to demonstrate its commitment to sustainability. The special opportunity of this fleet sustainability rating system is that it is aligned with the goal of reducing GHG emissions by 80% below 1990 levels by 2050, and fleets will have to continually make improvements if they are going to maintain their ranking as a leading fleet. Though currently adopted by some 45 fleets nationally, there is still a low level of awareness about this program and how it can be used. For example, no major retailer such as Walmart has yet to be briefed and fully

understand how this program could be built into their procurement specifications. To fully develop this concept, and make California a model state for the nation in terms of development and use of this LEED equivalent program, CALSTART recommends a two-year allocation of $750,000. For more information about the NAFA program you can visit: http://www.nafasustainable.org/.

The total of the investments recommended by CALSTART in this memo is $90.75 million. CALSTART certainly supports the allocation of the entire $100 million. CALSTART would welcome the opportunity to engage with CEC staff to further explore these opportunities and finalize its recommendations for the entire $100 million.