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CALSTART Comments to Docket #15-ALT-01 2016-2017 Investment Plan Update for the Alternative and Renewable Fuel and Vehicle Technology Program

Additional submitted attachment is included below.

CALSTART Comments to Docket #15-ALT-01

2016-2017 Investment Plan Update for the Alternative and Renewable Fuel and Vehicle Technology Program

CALSTART welcomes the opportunity to provide feedback to the docket on the ARFVTP 2016-2017 Investment Plan. California Energy Commission staff has done a very thoughtful job in pulling together the top priorities across a wide range of alternative and renewable fuel and advanced technology sectors.

At the highest level, we also commend staff for their interagency work to date; however, we would strongly recommend that the state's lead agencies on technology and fuel development to reduce climate and criteria emissions and petroleum fuel use (CEC and ARB) more closely align their investment and funding activities. We believe the state has a strong technology and fuel commercialization strategy driven across its agencies, but the interconnectedness of these investments and the outcomes they jointly drive needs to be more clearly shown to better inform industry, reduce overlap and encourage private investment.

What follows are then specific comments to the Investment Plan.

The investment plan identifies workplace charging as one of its important targets for ight duty (LD) ZEVs (page 42) and to support the Governor's ZEV Action. Expanding workplace charging remains one of the most solid and reliable strategies to grow the EV market. We support the continued investment in both hardware and installation costs to help reduce the cost of workplace charging. Despite recent positive actions taken by the CPUC, we anticipate there will be need for additional leveraged investment in this space to speed ZEV deployment.

In addition to paying for the actual cost of installing new workplace infrastructure, we strongly recommend that the CEC allocate $1 million to support the education and outreach that is necessary to expand the workplace charging market. To move beyond the early market leaders, we need to invest in efforts to assist other large, medium, and small employers take voluntary action and engage and pursue workplace charging. We recommend that the CEC make these funds available on a matching basis (1:1), and to help expand efforts taken at the regional or local level by the investor owned and municipal utilities.

There is another critical issue around ZEV infrastructure and that is in the fast-emerging bus and heavy-duty (HD) vehicle realm. To date there is no set standard or interface connector for high power bus and truck charging, as referenced on page 44 of the Investment Plan. We recommend CEC consider funding validation demos of connector and interface interoperability, and consider collecting data on this issue in projects. Similarly, we strongly encourage the CEC and the projects it funds to consider the needs of expanded ZE HD vehicle operation. High

power fast charging (such as DC Fast Charge) for LD operates at much the same power ratings as are needed for opportunity or domicile charging for HD vehicles. It would be wise to consider the needs of both LD and HD sectors for this technology in terms of siting, site design and access, grid buffering and the like. This is particularly true in urban regions and in regions with heavy port or goods movement activities.

Given the critical need for fleet user acceptance to drive adoption and deployment of alternative fuel and advanced technology vehicles, we believe CEC funding should be intelligently used to expand information for fleets about the value and business case for these vehicles and help them build the business case justifying faster fleet turnover. This gap is one of the takeaways of our recent E-Truck Task Force report and a framework of the Sustainable Fleet Accreditation program NAFA operates. Such assistance to fleets could be managed on a state-wide basis or through existing regional support mechanisms.

When establishing the framework for the next round of medium- and heavy-duty (M/HD) advanced tech funding, there are several considerations for success we would strongly encourage you to consider.

- First, as referenced on page 57 of the investment plan, the CEC may consider opening up AFRVTP funding to enabling technologies. We strongly, on behalf of industry members in truck and bus, support and encourage this approach. Assisting the development of enabling technology was a strong recommendation of the CalHEAT truck technology roadmap developed under the PIER program. Such technologies in and of themselves may not lead to significant fuel savings, but they can enable greater total vehicle savings in the future. Examples include such approaches as start-stop hybridization, waste heat recovery, efficient and electrified auxiliaries, and the like.
- Second, the opportunities for additional sustainable freight and work site fuel reductions from advanced technologies, including connected and automated vehicle technologies, continues to grow and needs expanded focus and funding. This is particularly true given the intended focus on freight corridors and disadvantaged communities. This focus should include truck technologies such as predicative and adaptive cruise control and smart routing systems, to **worksite automation of construction, agricultural and port equipment**.
- Finally, we believe that additional assistance to support innovative and smaller companies should be provided through the grant process to better ensure their ability to move toward scale production. For instance, we suggest that manufacturing funds could be used not just for new assembly facilities, but also to establish regional service, maintenance and parts support centers. The need for better product support is strongly called out in the E-truck Task Force and other fleet needs assessment work. Such

funding could also be valuable not just for funding physical sites, but could be used effectively by smaller companies to fund such support work as design-for-manufacturing engineering or supply chain development in their project proposals. These activities are justified for consideration as they can lead to successful manufacturing, which is the goal of the program.

To date, we believe the ARFVTP has been very successful and there are several strong cases demonstrating where program funds have directly led to new, reduced fuel, low emissions products being moved to the market faster. Therefore, let us share some final thoughts on other considerations we would encourage the CEC to include in their new rounds of funding to continue to grow the successful AFRVTP effort.

- Reward success – we believe staff needs the flexibility to add follow-on funding to successful projects, as needed and available, to help the teams involved move their technology to the next stages of commercialization. For instance, if a demo project successfully meets its objectives and has strong signs of customer support, helping it move to a more refined engineering or product design stage with follow on funds allows the CEC the flexibility of driving strong projects to market with low additional funding or risk.
- It is generally a long road to get to market launch - consider "doubling down" on promising teams to move them through a multi-year process.
- Technologies showing real promise that could deserve focus are:
    - Transitioning advanced bus drivelines into trucks; expanding successful first demos to additional platforms (transitioning to 30 foot buses and coaches, for instance, from a 40 foot design, which expands market offerings by leveraging core engineering);
    - Electric drive on-port equipment, such as yard hostlers;
    - Off-road equipment – this is a huge fuel use category that has tremendous advanced tech opportunity but which so far has only secured a couple of projects.
- Finally, CEC needs to expand its attention to technology development Gaps in need of funding:
    - Core enabling component tech;
    - OEM support/involvement in shuttles and trucks;
    - Optimized after-treatment systems for hybrid;
    - Advanced engine designs – there are companies who can achieve major reductions in consumption and emissions deserving of CEC focus; and
    - Efficiency systems for Natural Gas engines.

Thank you for this opportunity to provide comments.

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