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TO: California Energy Commission Commissioners and Staff
FROM: John Boesel, President and CEO

California Energy Commission

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Re: Docket No. 13-ALT-02 - 2014-2015 Investment Plan Update

**Clean Transportation
Technologies and Solutions**

www.calstart.org

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CALSTART appreciates the opportunity to provide input on the California Energy Commission's (CEC) FY 2014-2015 AB 118 Investment Plan. It is clear that the CEC's investments in this area are really driving progress across many important fuel and vehicle technologies. This program is an essential tool in our efforts to clean up the transportation sector. We would like to thank staff for efforts to date and are providing input here to strengthen the draft plan and ensure that these investments help the state meet near- and long-term goals.

As a fuel- and technology-neutral nonprofit organization with members throughout the clean transportation technologies industry, CALSTART is uniquely positioned to help inform investment priorities and strategies. Our comments below are focused specifically on investment needs in the medium- and heavy-duty vehicle technology arena.

CALSTART has been active in the truck and bus sector for several years now. Leveraging funding from the Energy Commission's PIER program, we created the CalHEAT Truck Research Center and developed a roadmap for clean truck technologies in California, with an eye toward achieving the state's ambitious climate and clean air goals. The plan was developed with input from more than 30 leading experts from industry, plus a steering committee of policymakers and stakeholders.

The CalHEAT analysis showed that continued, targeted RD&D investment is vitally important if we want to meet our goals. Accordingly, we support the \$15 million allocation for advanced medium and heavy duty technology in the FY 2014-15 investment plan. To fully address all of these technology advancement needs would require significantly more than \$15 million for FY 2014-15. However, we recognize that CEC has limited resources and we applaud staff for continuing to make medium- and heavy-duty (M-HDV) technology demonstrations a high priority for AB 118 funding. Key needs include prototypes, demonstrations, and pilot deployments focused on the following areas:

- ***Zero emission goods movement in the South Coast region.*** A variety of projects and investments are needed to enable zero-emission goods movement in the South Coast, particularly around the ports. Needs include focused demonstration and pilot deployment projects in a variety of technology architectures, including range-extended electric trucks, plug-in hybrids, as well as development of suite of enabling technologies. Infrastructure investment needs will also be substantial and should be factored into program decisions and investments.
- ***Near-zero emission goods movement in the San Joaquin Valley.*** A similar array of technology development, demonstration, and deployment projects is needed

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to advance near-zero emission goods movement technologies for long haul applications, particularly in the San Joaquin Valley.

- ***Zero and near-zero emission transit buses.*** Bus demonstration and deployment investments should be a priority. Transit buses can play an important role in proving out advanced technologies that can later be adopted in heavy truck and off-road applications. Electric and fuel cell buses are on the road today in small numbers, but investments in large pilot deployments and additional technology development would benefit the broader M-HDV sector.
- ***Cleaner off-road equipment, including locomotives, construction equipment, and other off-road mobile sources.*** Substantial opportunities remain to dramatically reduce emissions from off-road sources. We supported continued investments in cleaner off-road technologies.

The CalHEAT roadmap has a detailed investment plan, and we would be happy to discuss these investment needs in greater detail. With regard to the programmatic aspects of funding in this area, we want to provide three recommendations relative to the M-HDV investments.

Allow for an array of technology development and demonstration projects from proof-of-concept prototypes to pre-production advanced trucks and buses. CalHEAT broke the M-HDV sector into six categories and developed different technology adoption cycles for each sector. In accordance with that roadmap, we would encourage the CEC to consider the clear need for innovation and investment across all stages of the technology development and deployment spectrum. The needs in the bus and off-road sector are similar, spanning the entire innovation process. We believe a broader, more flexible program would be better able to help the state meet emission reduction goals.

Continue the operation of the CalHEAT center. There is a clear need for prioritization and coordination of investments among all of the key funding agencies and other players. Building on its success to date, CalHEAT could continue to act as the single meeting point for coordination among the ports, air districts, state, and federal agencies. CalHEAT would continue to manage and solicit input from the industry advisory committee, and would continue to make funding agencies and regulators aware of new opportunities and advances in technology. Additionally, CalHEAT could actively arrange teams and partnerships to develop and test advanced M-HDV technologies. We recommend making ongoing CalHEAT operation eligible for funding under the M-HDV solicitation or a related project category.

Continue to use and improve upon CEC's block grant authority in making awards in this sector. Non-profit institutions are effective at administering such grants, and can help facilitate information sharing and partnering among an array of projects. This is more cost-effective and efficient than handling each project individually. It would be particularly effective to allow for CalHEAT operations and technology demonstrations as part of a single grant under this program.



In conclusion, we believe CEC's investments in M-HDV technology development, demonstration, and deployment are vitally important. Without smart and sustained public investment in this sector, we will not see the sort of private sector innovation that is needed to clean up the M-HDV sector. We applaud staff for continued commitment to investments in this area, and we believe the recommendations outlined above would ensure that these investments get maximum "bang for the buck."