



**Clean Transportation
Technologies and Solutions**

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Recommendations for the 2012-2013 CEC AB 118 Investment Plan
Docket Number 11-ALT-1
December 20, 2011

CALSTART works with a wide array of developers and manufacturers of clean and low carbon vehicles, technologies, and fuels. While almost every technology could benefit from additional state investment, it is important that the California Energy Commission (CEC) AB 118 funds be used in a strategic manner. We are offering suggestions on a number of high priority investment opportunities for the 2012-2013 fiscal year. This is not meant to be an exhaustive list of all of the good opportunities.

State Fleet – Lead by Example

The two reports issued by the California Secure Transportation Energy Partnership (CalSTEP) called for the state's own fleet to be a model for local agencies and private fleets. However, little has been done to date to enact that vision. The CEC should use its funds to help the state fleet managers hire any necessary technical expertise to develop and implement a sensible plan to enable a rapid transformation of its fleet. Using AB 118 funds to then purchase any advanced technology or clean fuel car, truck, or bus should be considered a high priority. \$10 million should be set aside annually for this specific purpose until the state fleet is in a position and on a trajectory to meet the 2050 greenhouse gas reduction target. Given the diversity of vehicles and duty-cycles, meeting this objective will require the use of a wide array of vehicles, fuels, and technologies.

Zero & Near Zero Emission Truck and Bus Development and Deployment

As was stated at an AB 118 meeting this week, while CARB has identified a potential "pathway" to meet the 2050 GHG reduction goal, it is less clear how a similar percent of greenhouse gas emissions could be achieved from the medium- and heavy-duty sector. In addition to the climate threat, criteria emissions from trucks and buses disproportionately impact environmental justice communities. Thus, the CEC should continue to invest at least \$10 million in projects to advance cleaner and lower carbon medium- and heavy-duty trucks and buses. CEC investment in zero or near zero emission buses would have the potential to leverage and help California organizations and companies secure grants from the Federal Transit Administration. The CEC could also use its funds to support targeted corridor programs where local agencies are seeking to significantly lessen emissions from the truck sector.

Workplace Charging & Fueling

Range anxiety can be a limiting factor in the expansion of the plug-in electric vehicle market. To date, most of the public investments have focused on supporting the deployment of home and public charging opportunities. More investment and attention needs to be paid to workplace charging. The CEC should provide up to \$2 million in grants for the installation of workplace EVSE. An additional \$200,000 should be set aside to help educate employers about this opportunity and to provide information about best practices to promote workplace charging in the most cost-effective manner.

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In addition, the CEC should provide at least \$2 million in an experimental program to determine if there is a demand by employers for other local clean vehicle refueling systems. For example, employers could install refueling systems to support propane, natural gas, or even fuel cell vehicles. These grants could also encourage enable car sharing companies, or even the employers themselves, to offer longer range clean fuel cars to support day-time business trips made by employees who commute to work in a PEV. CALSTART is currently employing this model at one of its office. We find that having a natural gas Honda Civic for employees to use for business purposes during the day has enabled greater use of electric cars for commuting purposes.

Clean Distributed Generation & Plug-in Electric Vehicles

A passenger car running on grid electricity in California produces 1/3 of the greenhouse gases of an equivalent gasoline fueled car. By encouraging charging to be supported by renewable energy, we could eliminate the remaining greenhouse gas emissions. In other words, two PEV cars powered by renewable energy reduce greenhouse gas emissions by roughly the same amount as the replacement of a gasoline powered car by a grid supported PEV. Additional incentives of up to \$50,000 per facility could be provided if an employer elects to install new EVSE and renewable energy.

Clean/Low Carbon Truck Buy-Down Funding

The CEC should continue to provide funding to encourage the purchase of zero emission trucks in California. Last year the CEC's highly successful investment in this sector resulted in the purchase of 160 electric trucks, 100 of which were produced by a California manufacturer. The CEC funds were successful in leveraging additional investment from CARB. CEC could consider adding an additional 20% incentive for each truck or bus produced by a California manufacturer. A recent HTUF industry and fleet study of E-trucks concluded their incentives need to be at 50% or greater of incremental costs, a level reached with the added CEC funds.

The 2011 investment in natural gas truck buy-down funding should also be extended for at least one more year. Switching to natural gas is one of the fastest ways to reduce carbon and oil dependence from the transportation sector. It looks as though federal tax credits for the purchase of natural gas truck tax credits will not be extended by Congress this year. Thus, the incentives offered by California should be continued for at least one more year.

An additional \$5 million should be provided to meet the advanced, low carbon infrastructure needs of any commercial truck fleet operating in California.

Encouraging In-State Vehicle Manufacturing

From electric motorcycles to fuel cell buses, a number of firms in California are producing new, very clean, low carbon vehicles. CEC funds could be used to provide additional per vehicle incentives for vehicles purchased and produced in California.



NextGen California Biofuel Plants

A high percentage of the nation's leading next generation biofuels firms are based in California. A grant or zero interest loan program with a delayed payback feature should be employed to encourage those firms to scale-up operations in California. We recommend annual investments in the range of \$15 million for this category.

Low Carbon & Petroleum Displacement Retrofit Certification

The challenge of preventing harmful levels of carbon build-up in the atmosphere is a race against time. For the most part, efforts to date have focused on ensuring that new vehicles purchased have lower carbon emissions than those in the existing fleet. Over the past decade or so, a number of firms have developed impressive technologies to reduce criteria emissions from existing vehicles. CARB has certified several of those technologies and supported their deployment with the Carl Moyer and Proposition 1B funds. Those investments have had a very positive impact in terms of reducing harmful air pollution. If a similar generation of carbon reducing technologies could be developed and added to existing vehicles, this would be an important new tool in the battle against climate change. Various entrepreneurs are working on such efforts, but often have difficulty securing the capital to go through the relatively expensive CARB certification process. We recommend that the CEC establish a \$2 million annual program to help companies obtain CARB certification for retrofit technologies that would reduce greenhouse gas emissions, while not adding any additional criteria emissions. A joint advisory committee consisting of experts from California universities could be used to help CARB and CEC determine which technologies to select for the certification process.