Plug-in Electric Vehicle
The Zero Emission Vehicle (ZEV) program will play a critical role in meeting California’s air quality and greenhouse gas reduction goals for 2020 and beyond. In the near term, the program requires the placement of thousands of zero emission vehicles to meet emission reduction targets. In the long term, the program requires placing tens of thousands of zero and near zero-emission vehicles (such as plug-in and conventional hybrids, compressed natural gas, and clean gasoline vehicles), which will necessitate the development of infrastructure to accommodate these vehicles.

About 8,700 battery electric vehicles (BEVs) are operating in California today. A few hundred of these vehicles date from sales and lease purchases in the early 2000s following manufacturer demonstration programs. There are also about 4,600 plug-in hybrid electric vehicles (PHEVs) operating in the State.

The graph below illustrates forecasted cumulative sales of plug-in electric vehicles (PEVs) in California, as a component of the overall zero emissions program. In particular, the graph shows separate cumulative forecasted sales values for battery electric vehicles and plug-in hybrid electric vehicles. The near-term values (through 2014) are based on estimated sales anticipated to exceed zero emissions vehicle regulatory requirements; the longer-term values (2015+) reflect manufacturer requirements for meeting the regulatory requirements with a likely mix of vehicle types.

Since almost all plug-in vehicles will be used to meet the zero emissions regulatory requirements, progress against the forecasted sales values for battery and hybrid vehicles will be monitored through yearly auto manufacturer reporting as required under the regulations. Dealer sales and leases in California are tracked by the manufacturer. The Air Resources Board will use aggregated data reported by the manufacturers to produce annual reports of compliance progress. Auto manufacturers failing to meet the requirements would be subject to substantial financial penalties.

A number of ancillary activities are also underway to facilitate deployment and prepare the infrastructure needed for the expanded use of plug-in electric vehicles in California:

- The California Public Utilities Commission has an alternative fueled vehicle proceeding to establish policies to overcome barriers to plug-in vehicle deployment consistent with SB 626 (Kehoe, 2009). Topics to be address include rates, metering and consumer education regarding the benefits of time-of-use rates.

- The statewide plug-in vehicle collaborative is helping to facilitate and promote the deployment of vehicles in California. This collaborative has prepared a strategic plan called Taking Charge: Establishing California Leadership in the Plug-in Electric Vehicle Marketplace.

- The Energy Commission’s Alternative and Renewable Fuel and Vehicle Technology Program (AB 118, Nunez, 2007) prepares an investment plan each year to guide distribution of funding for alternative fuel and vehicle technologies, including plug-in vehicle
infrastructure. The Energy Commission and the U.S. Department of Energy are providing funding for fifteen local governments and special districts to assist them in developing regional plug-in strategic plans for the deployment of Electric Vehicle Supply Equipment (EVSE), also known as charging stations. These regional plans will include the streamlining of permitting, installation and inspection processes for electric vehicle supply equipment, establish best practices for “PEV ready” building and public works guidelines and provide consumer PEV education and outreach.

Figure 1: Forecasted plug-in electric vehicle sales

The graph (Figure 2) below depicts preliminary estimates of counties with 15 or more installed and/or planned electric vehicle charging stations. The data includes residential, commercial level 1 & 2, and commercial fast chargers. Major metropolitan regions such as Los Angeles, San Diego and the San Francisco Bay Area have the greatest number of charging stations installed and planned. The map (Figure 3) below shows the estimated geographic distribution of electric vehicle charging stations by county with at least one installed.
Figure 2: Estimated electric vehicle supply equipment (charging stations) with 15 or more installed and/or planned.
Figure 3: Estimated geographic distribution of electric vehicle supply equipment (charging stations) installed (by county)

Source: California Energy Commission
References:
For more information about the Public Utilities Commission alternative vehicle proceeding see this link: http://www.cpuc.ca.gov/PUC/hottopics/1Energy/090814_ev.htm

TAKING CHARGE: Establishing California Leadership in the Plug-In Electric Vehicle Marketplace can be found here: http://www.evcollaborative.org/strategic-plan


For more information on the AB 118 program, see: http://www.energy.ca.gov/drive/technology/plugin_electric.html and http://www.energy.ca.gov/2010-ALT-1/index.html