



Fact Sheet

California Environmental Protection Agency

 **Air Resources Board**

Electric Vehicle Charging Resource Guide

This **Electric Vehicle Charging Resource Guide** provides information on charging equipment and resources that can assist you in installing and purchasing equipment, using or sponsoring public charging, or applying for infrastructure incentives that may be available in your area.

How Are Electric Vehicles Refueled?

Electric vehicles are “fueled” by a battery charger that transfers electricity provided by electric utilities into the vehicle battery to “recharge” it. The primary electric vehicle charging station is located at the residence, business, or fleet facility where the vehicle is garaged. In addition there are a number of public and workplace charging sites that are also available.

How Long Does It Take to Charge?

The amount of time that it takes to charge varies, and depends on how “empty” the battery is, how much energy the battery holds (or how big the tank is), and other factors. In general, you can expect it to take from two to five hours to charge most electric vehicles that are $\frac{1}{4}$ full to $\frac{3}{4}$ full, and from four to eight hours to fully charge an electric vehicle from empty to full. Most people find charging at night to be extremely convenient and the primary way that they charge their vehicle.

What Kind of Charging Equipment Do I Need?

There are two types of charging systems: conductive and inductive. The electric vehicle being charged determines the type of charging system that you need. Vehicles are designed to work with only one of the two systems. In the future, electric vehicles will only use the conductive charging system. However, until all vehicles are manufactured with the conductive system (after 2006), both charging systems will be used and maintained in California.

How Do I purchase and Install Charging Equipment?

Charging equipment is usually sold to consumers by distributors, but in some cases can be purchased directly from the manufacturer. Many people find it convenient to work with an infrastructure provider who handles both equipment purchase and installation. Infrastructure providers coordinate the purchase and installation of equipment, provide cost estimates, work with you to identify the best location for the equipment, obtain the necessary permits, and ensure that the installation meets all applicable safety requirements. All California infrastructure providers use licensed electrical contractors to perform installations. You can also make arrangements directly with electricians for the installation of charging equipment.

Table 1: Contact Information for Charging Equipment Installation and Purchase

Company	Service	Phone	Email/Internet
Sacramento Municipal Utility District (SMUD)	Equipment sales and installation	(916) 732-5283	srevena@smud.org www.smud.org/evs/contact/html
Clean Fuel Connection	Equipment sales and installation	(626) 445-1445	enidjoffe@cleanfuelconnection.com
Los Angeles Dept of Water and Power (LADWP)	Installation (LA area only)	(800) 552-2334	vehicles@greenla.com www.greenla.com/ev/index.htm
Avcon Corporation	Equipment manufacturer (conductive only)	(800) 433-7642	avcon@execpc.com www.avconev.com
EVI (Electric Vehicle Infrastructure)	Equipment manufacturer (conductive only)	(530) 823-8077	dpackard@evii.com www.evii.com

How Can I Use Public Charging Stations?

Public charging stations increase the convenience of driving an electric vehicle. Over 1000 charging stations have been installed throughout California. It is very easy to use these stations. Charging stations are found at a variety of locations, including shopping centers, city parking lots, airports, hotels, government offices, and other businesses. Charging is currently provided at no cost to the driver, however, entrance or parking fees may be applicable. Information on the location of public charging is available from a number of internet sites, or Table 2 lists the most popular sites.

Table 2: Internet Sites with Information on Public Charging Stations

Type of Directory	Internet Address
California Directory maintained by CALSTART	www.cleancarmaps.com
National Directory maintained by U.S Dept of Energy	www.afdc.nrel.gov/altfuel/electric.html
California and Nevada inductive charger list maintained by General Motors	www.magnecharge.com
List of inductive chargers maintained by electric vehicle drivers	ev1-club.power.net/chglist.htm
Links to charging lists provided by the Electric Auto Association	www.eaaev.org
San Diego area information provided by San Diego Gas and Electric	www.sdge.com/EV/Maps/index.html
Los Angeles area information, provided by LADWP	www.greenla.com/ev/index.htm

How Do I Report Problems with Charging Equipment?

Table 3 lists the current contact information to request technical assistance or report problems with charging equipment.

Table 3: Contact Information For Reporting Equipment Problems

Type of Equipment	Phone Number	Business/Organization
Inductive (all models)	888-890-4638	SMUD/Clean Fuel Connection
Conductive (models ICS-200, MCS-100, DS-50)	888-823-8077	EVI/Electric Vehicle Infrastructure
Conductive (equipment manufactured by Avcon)	800-433-7642	Avcon
Public Chargers		www.cleancarmaps.com

What Incentive or Grant Programs are Available?

Incentive programs can help reduce costs of electric vehicles and charging equipment and installation costs. General information on incentives is available at www.zevinfo.com.

Public Charging

California has installed a large number of public charging stations as part of becoming “EV Ready.” This has been accomplished through an impressive level of investment by both the public and private sector. Several local air districts and local government agencies currently have cost-sharing programs designed to encourage additional installation of public charging. These programs offset part of the installation and equipment cost.

Table 4: Public Charging Incentive/Grant Program Contacts

Area	Contact	Phone/Email/Website
Bay Area	David Burch Bay Area Air Quality Management District	(415) 749-4641 Dburch@baaqmd.org
Ventura County	Stan Cowan Ventura County Air Pollution Control District	(805) 645-1408 Stan@vcapcd.org
City Of Vacaville and Dixon	Ed Huestis City of Vacaville	(707) 449-5424
Los Angeles (area within city limits)	Mariko Marianes, Los Angeles Dept of Water and Power	(213) 367-4414 mmaria@ladwp.com

Workplace and Business/Fleet Installations

Certain costs related to electric vehicle infrastructure can be deducted as a business expense under the IRS Code Sections 30 and 179A. This is explained in Chapter 12 of Publication 535 (Business expenses), which can be downloaded at <http://ftp.fedworld.gov/pub/irs-pdf/p535.pdf>

Additional Information

Please contact the ARB toll-free at (800) END-SMOG/(800) 363-7664 (California only) or (800) 242-4450. More information on the Zero Emission Vehicle Program is available on ARB's web site at <http://www.arb.ca.gov/msprog/zevprog/zevprog.htm> or at www.zevinfo.com. The Sacramento Municipal Utility District (SMUD) has additional information on electric vehicle charging systems available from their website at www.smud.org/evs/chargers/html.

You may obtain this document in an alternative format by contacting ARB's ADA Coordinator at (916) 322-4505 (voice); (916) 324-9531 (TDD, Sacramento area only); or (800) 700-8326 (TDD, outside Sacramento).

The energy crisis facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of sample ways you can reduce demand and cut your energy costs, see our website: <http://www.arb.ca.gov>