

# Plug-in Electric Vehicle Charging Guide for Property Owners, Managers and Homeowner Associations of Multi-unit Dwellings



CALIFORNIA  
PLUG-IN ELECTRIC VEHICLE  
COLLABORATIVE

Plug-in electric vehicles powered by electricity have arrived! More than 15 models are currently in showrooms and more are on the way. As a multi-unit dwelling owner, manager or member of a homeowners association board, you may have received resident requests for charging stations or seen a charging cord plugged into an outlet in your garage.

## Property Benefits

- Charging stations will give the property a positive “green” image, which can be used for marketing.
- Charging stations can help make the property a leader in sustainable practices.
- As the plug-in electric vehicle (PEV) market grows, the number of requests for charging will undoubtedly grow.
- Charging stations can provide Leadership in Energy & Environmental Design (LEED) points for the property.

More than 85 percent of all PEV charging occurs at home because it is a convenient and cost-effective way to fuel a PEV. But, PEVs can present some unique challenges for multi-unit dwellings (MuDs).

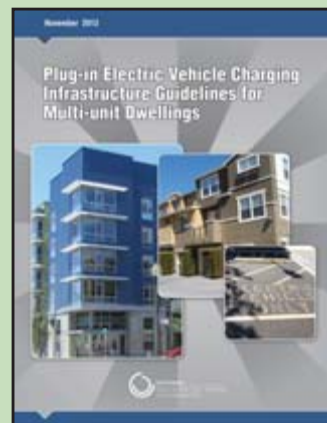
## Getting Started

Start by learning about the many considerations and charging options for MuDs:

- **Demand.** A resident survey is a good way to find out how many residents already have PEVs or plan to buy them. Find a link to a sample survey in the Additional Resources section.
- **Logistics.** Whether parking is assigned, deeded or first-come, first-served, each option has its own set of considerations.
- **Electrical capacity.** Do resident units have their own electric meters, are they accessible from the parking area and is there spare electrical capacity? Do common area meters, such as those for security lighting or laundry rooms, have spare electrical capacity? Are new service meters needed for the chargers?
- **Charging choices.** There are several different levels of charging and dozens of brands of equipment, ranging from simple wall boxes to communicating units with networking capability. The units and features you choose will depend on your specific property’s requirements and will determine associated costs.
- **Cost recovery.** Properties seeking to recover costs for residential charging installation and operation can either assign chargers to individual drivers or use charging equipment with a payment system.
- **Incentives.** Local and regional incentives for charging station installations may be available. See the Additional Resources section to search for incentives.

### Guidelines for Multi-unit Dwellings

*Plug-in Electric Vehicle Charging Infrastructure Guidelines for Multi-unit Dwellings* is a comprehensive guide for property owners, managers and HOAs. It provides details on all the topics discussed here. See Additional Resources.





## Implementation

You've done a resident survey and found strong interest in these vehicles and become familiar with some of the options. How do you implement the plan? Figure 1 summarizes the steps you may take to install charging at your property.

### Legal Obligations

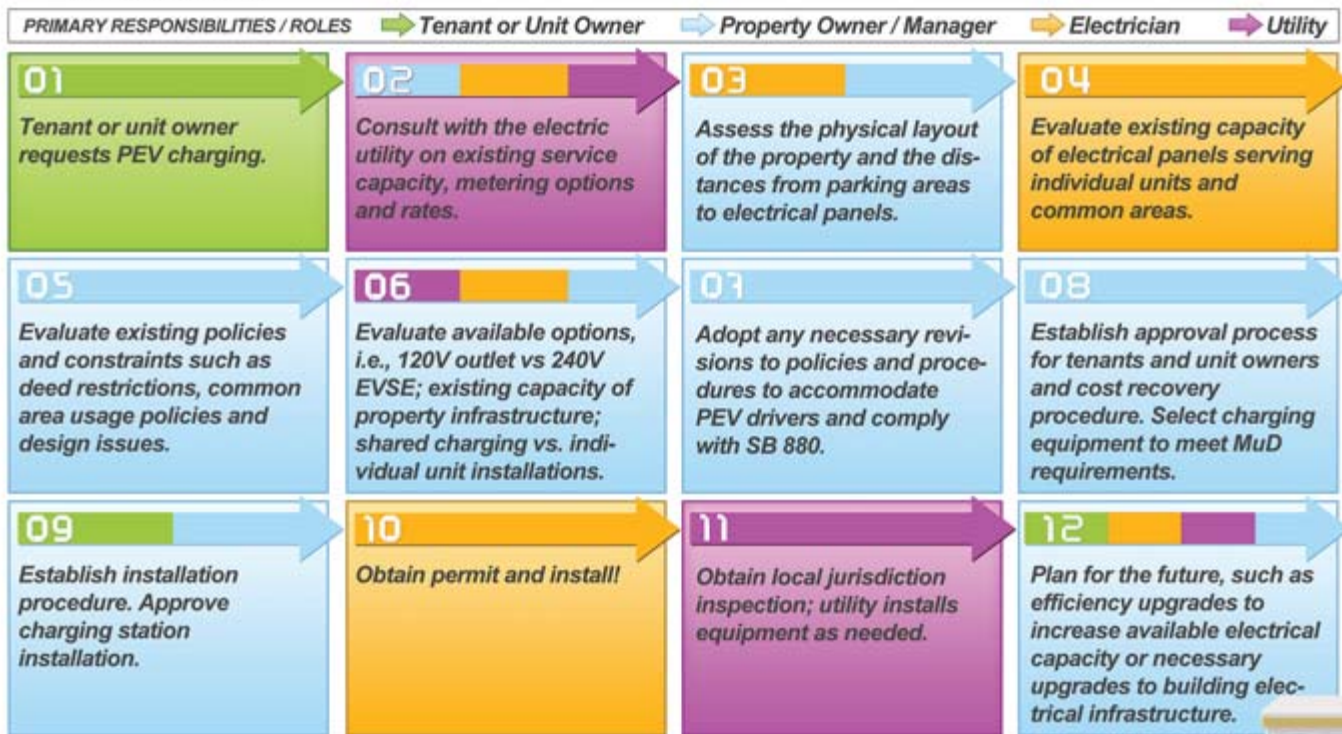
**California Senate Bill 880** sets out the rights and responsibilities of common-interest developments in providing charging for residents. Property managers cannot prohibit the installation of charging, but they can set requirements and conditions.

**California Assembly Bill 1092** requires the California Building Standards Code to include mandatory standards for the installation of future electric vehicle charging infrastructure in multi-unit dwellings and nonresidential developments. See Additional Resources.

### MULTI-UNIT DWELLINGS CHARGING INSTALLATION GUIDE

For Property Owners, Property Management Companies, Tenant Associations and Home Owner Associations

Property owners benefit from installing charging through environmental leadership, attracting residents and enhancing property desirability.



**MULTI-UNIT DWELLING PEV DRIVERS START CHARGING**



Figure 1. Typical PEV charging station installation process flow in MuDs. Source: California Plug-In Electric Vehicle Collaborative. Original source materials developed by San Diego Gas & Electric and Sacramento Municipal Utility District for the Electric Power Research Institute.



## Think Outside the Box

Installing charging in MuDs can be challenging. No two properties are alike and many have constraints on electrical capacity or parking spaces. Since not every property will be able to accommodate charging, here are some alternative solutions.

- **Shared charging.** Charging stations in mixed-use garages can be used by businesses during the day and residents at night.
- **Electrical capacity.** You could employ energy-efficiency measures to free up electrical capacity.
- **Low-level charging.** Regular 110-volt outlets may serve some residents' needs.
- **Workplace charging.** Residents may have the option to charge their cars at work.
- **Third-party vendors.** You could contract with a third party, which would make all or most of the capital investment, own the charging units and bill the driver directly via a subscription.



Millennium Tower in San Francisco installed PEV chargers for their tenants. See Appendix D in the *Plug-in Electric Vehicle Charging Infrastructure Guidelines for Multi-unit Dwellings* to read this and other case studies for MuD charger installations.



## Additional Resources

- California AB 1092  
[http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill\\_id=201320140AB1092&search\\_keywords=](http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140AB1092&search_keywords=)
- California Plug-In Electric Vehicle Collaborative Communication Guide *How Do Multi-unit Dwellings Become PEV Ready?*  
[http://www.pevcollaborative.org/sites/all/themes/pev/files/Comm\\_guide6\\_122308.pdf](http://www.pevcollaborative.org/sites/all/themes/pev/files/Comm_guide6_122308.pdf)
- California Plug-In Electric Vehicle Collaborative, *Plug-in Electric Vehicle Charging Infrastructure Guidelines for Multi-Unit Dwellings* (2013)  
[http://www.driveclean.ca.gov/pev/Charging/Home\\_Charging/MUD\\_Guidelines.pdf](http://www.driveclean.ca.gov/pev/Charging/Home_Charging/MUD_Guidelines.pdf)
- California Plug-In Electric Vehicle Collaborative Resources for MuDs  
<http://www.pevcollaborative.org/MuD>
- California SB 880  
[http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml;jsessionid=c37613110254f85c3b33641d0664?bill\\_id=201120120SB](http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml;jsessionid=c37613110254f85c3b33641d0664?bill_id=201120120SB)
- Plug-in Electric Vehicle Resource Center Incentives Search  
<http://www.driveclean.ca.gov/pev/Incentives.php>
- Plug-in Electric Vehicle Resource Center, Multi-unit Dwellings (MuD)  
[http://www.driveclean.ca.gov/pev/Charging/Home\\_Charging/Multi-unit\\_Dwellings.php](http://www.driveclean.ca.gov/pev/Charging/Home_Charging/Multi-unit_Dwellings.php)
- Plug-in Electric Vehicle Resource Center, Sample Resident Survey  
[http://www.driveclean.ca.gov/pev/Charging/Home\\_Charging/Multi-unit\\_Dwellings.php#survey](http://www.driveclean.ca.gov/pev/Charging/Home_Charging/Multi-unit_Dwellings.php#survey)