Owners' Tool Kit for Electric Vehicle Charging Stations in Multi-Unit Dwellings

Prepared for: California Energy Commission

Prepared by: South Bay Cities Council of Governments and UCLA Luskin Center for Innovation

NOVEMBER 2016

CEC-ARV-14-305

Electric Vehicle Charging Stations and MUDs in The South Bay

The purpose of this toolkit is to inform apartment owners and homeowners associations (HOAs), also known as Multi Unit Dwellings (MUDs), about the opportunity to install Electric Vehicle (EV) charging in the South Bay. To understand this opportunity, we are providing you with the following:

- State and local policy goals for electric vehicle adoption
- Laws that pertain to electric vehicle charging at MUDs
- Types of electric vehicle charging equipment
- Installation steps for electric vehicle charging equipment
- The benefits and incentives to MUD owners and managers which include:
  - Attracting Future Tenants
  - Revenues from amenity fees
  - Available SCE and LADWP rebates
  - Electric Vehicle Charging Fee Models
  - Tax credit

Overview of Electric Vehicles Types

Plug-in electric vehicle or PEV is a general term for any car that runs at least partially on battery power and is recharged from the electricity grid. PEVs sold in California include: Battery Electric Vehicle (BEV), and Plug-in Hybrid Vehicle (PHEV)

Battery-electric vehicles or **BEVs** run completely on electricity stored in batteries and have an electric motor rather than a gasoline engine. Most BEVs have a limited range of approximately 100 miles. This means that a resident with a BEV who uses it for the majority of their trips must have access to charging on a daily basis in order to operate their vehicle. An example is the Nissan Leaf.

2016 Nissan Leaf

Nissan Leaf Charge Port

Plug-in Hybrid Electric Vehicles or **PHEVs** combine two propulsion modes in one vehicle – an electric motor that is battery powered and can be plugged in and recharged, and a gasoline engine that can be refueled with gasoline. Ideally residents with a PHEV will be able to recharge at their residence but if they cannot, they may operate their vehicle in gasoline mode. An example is the Chevrolet Volt.

2016 Chevrolet Volt

Chevrolet Volt Charge Port

Another term for EVs is **Zero Emissions Vehicles** or **ZEVs**. These are vehicles such as BEVs that emit no tailpipe pollutants from the onboard source of power. Plug-in Hybrid Electric

Vehicles or PHEV are known as transitional ZEVs since they operate on electricity but may also operate on gasoline.

Benefits of Plug-in Vehicles to our community

Adoption of plug-in electric vehicles by South Bay residents will provide several benefits to the community.

1) Lower Emissions leading to improved health

PEVs can have significant emissions benefits over conventional vehicles. PHEV emission benefits vary by vehicle model and type of hybrid power system. BEVs produce zero tailpipe emissions, and PHEVs produce no tailpipe emissions when in all-electric mode.

California has relatively large environmental damages from gasoline vehicles that burn fossil fuels. Electricity generation in California, on the other hand, uses a mix of fossil fuels and renewable energy, producing less air pollution than the burning of gasoline for the same amount of energy supplied. This implies a large positive environmental benefit of an electric vehicle.

2) Increased Fuel Economy leading to lower costs

PHEVs and BEVs can reduce fuel costs dramatically because of the low cost of electricity relative to conventional fuel. Because they rely in whole or part on electric power, their fuel economy is measured differently than conventional vehicles. Today's BEVs (or PHEVs in electric mode) can exceed 100 mpge (miles per gallon equivalent) and can drive 100 miles consuming only 25-40 kWh (kilowatt hours).

3) Energy Security leading to less reliance on foreign countries

Using PEVs instead of conventional gas-powered vehicles can help reduce U.S. reliance on imported petroleum and increase energy security. Plug-in hybrid electric vehicles (PHEVs) and Battery Electric Vehicles (BEVs) are both capable of using off-board sources of electricity, and almost all U.S. electricity is produced domestically.

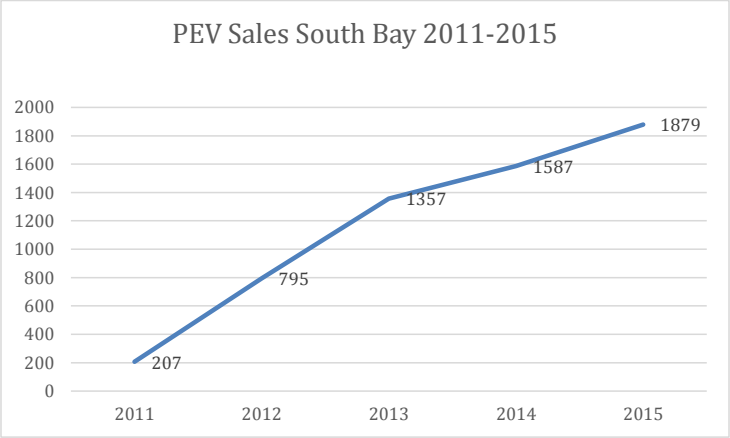
The Role of MUDs in Attaining the Governor's Zero Emission Vehicles (ZEV) Goal

Governor Jerry Brown established an executive order calling for 1.5 million Zero Emission Vehicles (ZEV) on California's roads by 2025. That requires over 15% of all total sales of new cars purchased in the South Bay to be some type of electric vehicle. To achieve this ambitious goal, significant barriers in our state must be overcome to expand and accelerate plug-in electric vehicle (PEV) adoption including the need to build out the necessary refueling infrastructure.

MUDs in the South Bay play a crucial role. Almost half of all households in the South Bay (46%) are located in MUDs (over 144,000 households).[1] Considering the South Bay's current market share of electric vehicle purchases, South Bay residents will need to purchase *70,000 ZEVs vehicles* by 2025. Given that about half of South Bay residents live in MUDs, the pressure will be on to find ways for ZEV drivers to charge at home – in their designated parking areas.

The Electric Vehicle Market Is Growing in The South Bay

South Bay residents are increasingly purchasing Plug-in Electric Vehicles (PEVs). From 2011 to 2015, sales of PEVs in the South Bay increased over 900% (see graph below). Year to year sales increased at the following rate: from 2011 to 2012, 384%, from 2012 to 2013, 171%, from 2013 to 2014, 117%, and from 2014 to 2015, 118%. Leading the way are the Chevrolet Volt and Tesla Model S. The U.S. PEV market itself is growing. The Chevrolet Bolt, a 4-door hatchback that goes over 200 miles in electric battery range. Tesla will later release its Model 3 which also breaks the 200-mile range mark at 215 miles. Tesla has received over 400,000 reservations for the vehicle so far.



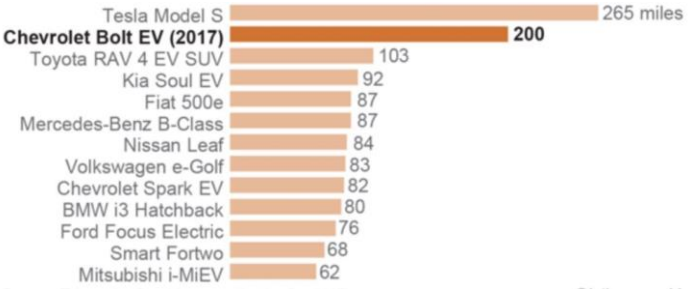
Source: IHS Automotive

How will MUDs meet the increasing demand for PEVs and match the Governor's goal? One answer is an increase in electric vehicle charging stations so tenants can charge their PEVs.

[1] DeShazo, J., et al. "Assessing the Multi-unit Dwelling Barrier to Plug-in Electric Vehicle Adoption in the South Bay." Luskin Center for Innovation, Los Angeles, Calif (2012).

Electric Vehicles and Their Driving Ranges

Below are electric vehicles that tenants may purchase or already own, as well as each vehicle's total electric driving range.



Source: Los Angeles Times c/o Edmunds.com

Upcoming Long-Range BEVs:

As new Battery Electric Vehicles get released to the market, we can see that their ranges are increasing. Both the 2017 Chevrolet Bolt and Tesla Model 3 surpass the 200-mile range mark. By 2018, EV-range could surpass 300 miles. Tenants, who purchase future EVs, will have a greater demand to charge their vehicles.

2017 Chevrolet Bolt (238 miles)

Tesla Model 3 (215 miles)

The Laws of EV Charging at Multi-Unit Dwellings (MUDs)

The state has passed laws that prioritize Electric Vehicle charging at MUDs. The statutes listed below are the first of many in the coming years. The current statutes that are relevant are:

Senate Bill 880 protects the rights of residents of multi-unit dwellings, affirming that "it is the policy of the state to promote, encourage, and remove obstacles to the use of electric vehicle charging stations." The legislation makes it illegal to impose any condition that "effectively prohibits or unreasonably restricts" installation of charging in an owner's designated parking space. If the charging unit is installed in a common area, the law states that certain conditions can be imposed, e.g. a $1 million home owner liability policy that names the Home Owner Association as an additional insured.

SB 880 Explained: This law focuses on HOAs. The basic purpose of the law is to ensure that PEV drivers are not unreasonably prohibited from installing a charging station, either in their deeded or designated parking spaces or in common areas. HOAs must allow charging in common areas only if installation in the PEV owner's deeded or designated space is impossible or unreasonably expensive. If a driver has exclusive use of a charging station in a common area, HOAs must then enter a license agreement with the PEV driver.

The HOA can also compel current and future owners of the charging station to pay for maintenance, repair or removal of the charging station and for any resulting damage to the station, common area, or exclusive use common area. Importantly, the law allows, without a full HOA member vote, a portion of the common area to be used for utility lines or meters to support charging in a deeded or designated parking space.

Enforcement of this and other vague provisions in the law may be decided in court. However, there is no need for enforcement if the parties can make their own arrangements. Utilities could make a professional mediator available to assist with negotiations between residents and HOAs, or even between landlords and tenants looking for a way to charge in an MUD.

Assembly Bill 2565 provides that for a residential lease executed, extended, or renewed after July 1, 2015, "a lessor of a dwelling shall approve a written request of a lessee to install an electric vehicle charging station at a parking space allotted for the lessee that meets the requirements of this section and complies with the lessor's procedural approval process for modification to the property." The law does not apply to residential properties with less than five parking spaces, properties that are subject to rent control, residential leases where no parking is provided as part of the lease, or residential properties where EV charging stations already account for at least 10% of available parking spaces.

AB 2565 Explained: This law focuses on owners and tenants. It requires apartment owners to allow tenants to install charging stations, at their own expense. The law applies to residential rental properties where off-street parking is provided in the lease, with more than five parking spaces, and where electric vehicle charging stations number less than 10% of the parking spaces. It requires the use of regular charging stations, so simple power outlets would not be sufficient.

The process starts with a written request from the tenant to the landlord, and the tenant must meet a fairly high level of documentation. This includes a complete plan, provided by the tenant, for the installation, use, maintenance and removal of the charging station, as well as a complete financial model, and complete documentation of modifications required to the landlord's property. Additionally, the tenant must put up a $1 million insurance policy naming the landlord, in case there is some kind of problem.

Owners will want to consider the impacts of AB 2565 early in the lease negotiation process. Owners providing an allocation of reserved parking to a tenant may want to provide in their lease that future EV parking will come out of that allocation. Owners may also want to designate specific areas in the parking lot for EV charging station installation, so that stations are not located far from supporting infrastructure. Owners may also want to reserve the right to create lease rules and regulations regarding the maintenance, operation, and surrender of tenant-installed EV charging stations. Tenants, in the lease negotiation process could potentially mention their desire to use AB 2565 to allow installation of a charging station. Tenants may also attempt to gain certainty regarding rental rates for charging station space and the location of the space.

Choosing the right Charging Equipment for the building and PEV drivers

There are different types of charging. Here are some of the options that are available for use in apartments and condominiums.

Level 1

Existing standard electrical outlets in parking areas can be used for tenants to charge their Plug-in Electric Vehicles. Standard electrical outlets are typically 120 volts and are considered "Level 1" charging. No special installation of charging equipment is needed. However, Level 1 charging is slow to fully charge a PEV. Depending on the battery and vehicle type, Level 1 charging adds about 2 to 5 miles of range per hour of charging time. That said, many PEV owners use Level 1 Charging at night while they sleep. If Level 1 charging does not work for tenants, there is also Level 2.

"Level 1" Outlet

Level 2

240 volt outlets are considered Level 2. Level 2 charging takes place at a much quicker rate: 10-20 miles of range per hour of charging time is possible depending on the vehicle and battery type. Full battery charge can take as little as 3 hours. Level 2 Charging requires installation of a dedicated circuit of 20-80A, in addition to the charging equipment. That said, Level 2 Chargers are eligible for rebates by Southern California Edison (SCE) and Los Angeles Department of Water and Power (LADWP).

Level 2 Charger

Level 2 dual arm charger: has the capacity to charge two cars at once

DCFC (Direct Current Fast Charger)

These chargers are capable of rapid charging and are generally located in areas of high traffic and at *public* fueling stations. It has been called DC Level 2 or DC fast charging. Some DC fast charging units are designed to use 480V input, while others use 208V input. PEVs equipped to handle DC fast charging can add 50 to 70 miles of range in about 20 minutes. Often these can be found at auto dealerships.

DCFC (Direct Current Fast Charger)

Charging Equipment Compared

Charging Level	Vehicle Range Added per Charging Time	Supply Power (Volts)
Level 1	2-5 miles/hour	120
Level 2	10-20 miles/hour	240
DCFC (Direct Current Fast Charger)	50-70 miles/20 minutes	208/480

Each type has its advantages and disadvantages. Although level 1 charging is the easiest to set up, at only 2-5 miles of range per hour, charging time could be an issue for tenants. On the other hand, DC fast chargers may take less than 20 minutes to give a vehicle 70 miles of range, but hardware and installation costs make this option less practical for MUDs (hardware price ranges $10,000-$40,000, plus construction material and labor costs).[2] This charger type is more suited for use in commercial buildings or public streets. Level 2 charging, which takes an hour to give a vehicle up to 20 miles of range, is therefore the most plausible alternative that balances the needs of tenants without incurring exorbitant installation costs to property owners. With a level 2 charger, a tenant who drives 40 miles a day only needs to plug his vehicle in for 2 hours to regain a full charge.

The PEV Charging Installation Steps in MUDs

The process of setting up PEV charging in MUDs generally falls into two categories:

1) a resident-driven process in which an individual tenant or condo owner initiates the process and pays for equipment and installation for his or her charger;

2) an owner-driven process in which the landlord or homeowner association (HOA) provides this as an amenity for present and future residents.

In either scenario, a complicating factor in MUD charging is the number of stakeholders involved. Unlike in a single-family home, PEV drivers must obtain permission for installation from homeowner associations (HOAs), landlords, and/or fellow tenants. Furthermore, installation itself involves several steps, including a site visit by the electric service provider to assess your electric service for possible system upgrades as well as the need for an electrician to inspect service wiring for adequate capacity, for example, to supply a Level 2 charging station.

Installation Steps

The two electric service providers in the South Bay are Southern California Edison (SCE) and Los Angeles Department of Water and Power (LADWP). Focus on the electric service provider that services your building(s). After each utility's installation steps are discussed, a chart will also show the steps. Please note: installation steps primarily deal with Level 2 charging, as Level 1 charging can be accomplished through existing 120 Volt Outlets.

Southern California Edison (SCE) Installation Steps:

Note: In order to support California's zero-emission policies, SCE has launched their Charge Ready Electric Vehicle (EV) charging station with rebate program. MUDs are encouraged to participate in the program. The cost of the electric infrastructure is covered by the Charge Ready program. As part of Charge Ready, SCE also offers a rebate against the cost of the

[2] http://www.afdc.energy.gov/uploads/publication/evse_cost_report_2015.pdf

charging stations and installation. There are minimum requirements to participate in Charge Ready.

Minimum requirements for Charge Ready:

- 10 charging stations per site or
- 5 charging stations per site in disadvantaged communities

To remain eligible in the program

- Must own and operate qualified charging stations for at least 10 years
- Allow collection of usage data on any Level 2 charging stations
- Agree to participate in future demand-response programs designed for Charge Ready

SCE Charge Ready Step 1: Submit the Required Forms:

Interest is expressed in the program including your preference for the charging station's location via the Charge Ready enrollment portal located at chargeready.sce.com. There, you'll be able to populate the required forms, upload documents, and track the status of your application. Your account manager will provide support.

Step 2: SCE Evaluates Your Site:

SCE visits your site to confirm that it meets minimum requirements for the program and they determine number and location of charging stations. Then SCE will review your application and determine the feasibility of deploying charging stations on your site.

Step 3: You Confirm Participation:

SCE prepares reservation request and contract agreement showing proposed number of charging stations and deployment location within your site. After you review and approve the proposal, SCE reserves funding. When the funding is reserved you select a charging station vendor and procure the charging stations. You can find approved vendors and charging stations in the Approved Package list at on.sce.com/chargeready

Step 4: Design site plan with SCE:

SCE completes and presents deployment design to you. You approve design. SCE then applies for construction permits.

Step 5: Construction Begins:

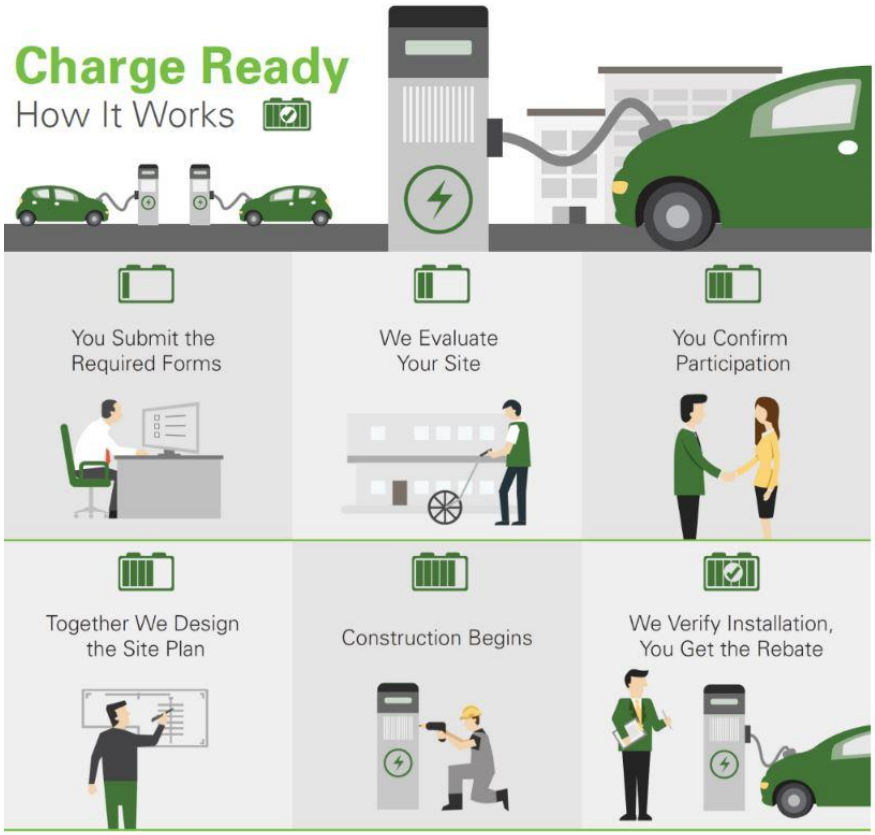
After SCE acquires construction permits, SCE begins construction on your site. This includes:

a) Installation of the transformer
b) All trenching, conduit and conductor

Step 6: SCE verifies installation and you get a rebate:

After your vendor has installed the charging stations, SCE conducts a walkthrough of the site to verify deployment is consistent with approved plans. You then receive notification that the project is complete. SCE then processes the rebate payment. More on SCE rebates below.

SCE Installation Steps Chart:



Los Angeles Department of Water and Power (LADWP) Installation Steps:

Step 1: Contact LADWP

Contact LADWP for consultation on rate and meter options. Speak to LADWP about your specific property in considering Level 1 or Level 2 charging. LADWP will focus on three key areas:

A) Determine if the local electrical distribution service is adequate to support the planned PEV charging

B) Provide information on utility rates

C) Advise customers about the electrical service and metering equipment options necessary to support their installations

Step 2: Contact an Electrician

The Electrician will advise about feasibility of the preferred meter option. The electrician will also inspect service wiring for adequate capacity, for example, to supply a Level 2 charging station. A list of certified electricians can be found here: https://www.dir.ca.gov/dlse/ecu/CA_Electricians_Certified.pdf

Step 3: Make a Charging Station Request

If you decide that a Level 2 charger fits your needs, you would inform LADWP and complete their online EV Charging Station Request form, which can be found at http://www.ladwp.com/ev. A LADWP Electric Service Representative (ESR) is automatically dispatched within 5 business days.

Step 4: Electricity Service Provider Site Visit

The Electric Service Representative (ESR) will visit your property and assess service for possible system upgrades. The ESR will also advise you about LADWP meter options and provide a written report.

Step 5: Electrician Obtains Electrical Permit

The electrician will confirm meter and rate options with you and then will obtain an electrical permit. After completing installation, the electrician will call for an inspection of the installation.

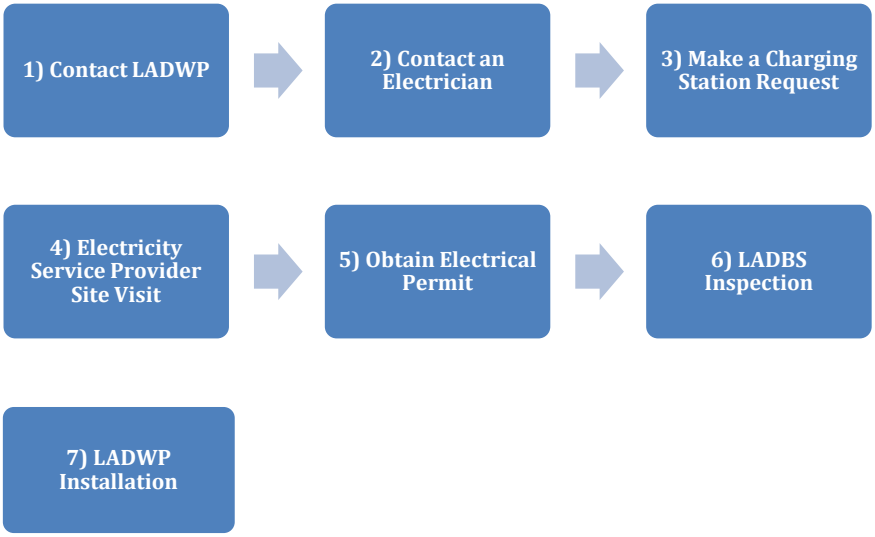
Step 6: Los Angeles Department of Building and Safety (LADBS) Inspection

LADBS will then inspect the installation. LADBS' job is to ensure that electrical safety and building codes are observed and that the EV Charging installation is safe. Approval of work is transmitted to LADWP when the installation passes inspection.

Step 7: Final Step: LADWP Installation

LADWP receives approval from LADBS. LADWP crew is dispatched to install meter and perform system work as needed.

LADWP Installation Steps Chart:



Range of Costs for EVCS

In order to discuss cost recovery for owners and managers it is important to see the costs associated with installing electric vehicle chargers:

Charger Type	Unit Cost	Estimated Annual Electricity Cost
Level 1	$2,300*	$394
Level 2	Up to $5,000	$782
DCFC (Direct Current Fast Charger)	Up to $80,000	$564

* If outlet does not exist

Cost Recovery

Amenity Fees: An amenity fee can be charged to tenants charging their EVs on your property. Tenants with dedicated parking or regular access to community parking with vehicle charging capability, could be assessed an additional parking fee on a monthly, quarterly or annual basis.

Commercial Cost Recovery Options: Two electric vehicle charging companies, ChargePoint and EverCharge, install electric vehicle chargers and offer different fee models for owners and managers to recoup costs or which could become a revenue opportunity for owners

The ChargePoint Fee Model:

> ChargePoint, the world's largest electric vehicle (EV) charging network, brings EV charging to apartments and condos. The ChargePoint model works with both assigned and shared parking. ChargePoint helps select the right charging products and install electrical infrastructure and stations. There are two model options:

ChargePoint Personal Model: Tenants Charge at Their Assigned Parking Spot:

* 1 Tenant to 1 station
* Tenant pays monthly service fee plus cost of electricity
* Property owners or managers can recover costs by setting a rate for electricity usage
* Electricity rates can include premium "Time Pricing" to account for peak-period utility rates and/or to encourage tenants to move their vehicles through increasing costs for electricity usage after a certain period of time or if their EV is left plugged after it has been fully charged.
* ChargePoint handles billing and remits 100% of the electricity fees back to the property or HOA

ChargePoint Community Charging Model:

* 2 or more tenants share a charging station
* Tenants take turns charging in a shared parking area
* Annual network plan paid by property owner/manager
* Charging fees paid by tenants at rates set by the property
* Billing and reimbursement: payment processing for station usage and reimbursements to the property or HOA

For more information on Charge Point:
Web: chargepoint.com/businesses/apartments-and-condos
Phone: 408-705-1992
Email: multifamily@chargepoint.com

Field Code Changed

The EverCharge Fee Model:

* EverCharge offers an EV charging solution designed specifically for MUDs
* EverCharge chargers are installed directly in the tenant's parking space for their exclusive use
* Billing, electricity usage, and reimbursement: Each charger has a built-in monitor to keep track of the electricity consumed, which tenants are billed and owners/managers are subsequently reimbursed

For more information on EverCharge:

Web: http://evercharge.net/
Phone: 888-342-7383
Email: sales@evercharge.net

NRG EVgo

NRG EVgo is an electric vehicle charging company. For a limited time, under special agreement with the state of California, NRG EVgo is wiring qualifying apartment buildings for electric vehicle charging – for free. NRG EVgo will also manage the charging stations and cover the electricity costs through each driver's usage fee. Tenants must subscribe to an NRG EVgo charging plan. For example, their Level 2 plan costs $5.95 monthly for tenants, in addition to a $1.00 / per hour charge fee.

For more information on NRG EVgo:
Web: http://takechargeca.com/learn-more/
Phone: 844-247-4648
Email: TakechargeCA@nrg.com

Incentives:

Installation Rebates:

Both SCE and LADWP offer rebates depending on the number of EV charging installations.

SCE Charge Ready Rebate amount for Multi-Unit Dwellings:

From $806.50 to $1958.00 per charging station package. Rebate amounts are determined via the Charge Ready Rebate Calculator:
https://chargeready.sce.com/(S(04k1pzkwfc15pws0l0qn55ng))/calculator/Default.aspx

LADWP "Charge Up L.A.!" rebate program:

Rebates are available to compensate commercial LADWP customers for costs incurred on the purchase of EV charger(s). LADWP revamped and expanded their "Charge Up L.A.!" rebate program for 2016 to customers who install qualified Level 2 chargers (240-volt) within LADWP's service area. MUDs are encouraged to apply. Eligible customers will receive up to $4,000 for each hardwired EV charger. One (1) Level 2 (240-volt) EV charger rebate will be available to customers who have a minimum of three (3) parking spaces available to tenants. One (1) additional Level 2 charger rebate will be available for every 10 additional parking spaces at the same location, business, or property.

For example:

3 parking spaces = 1 EV charger rebate

13 parking spaces = 2 EV charger rebates

To apply you would download the appropriate rebate application from LADWP's website: www.ladwp.com/ev or to have a form mailed to you call 1-866-484-0433

Federal Alternative Fuel Infrastructure Tax Credit

Fueling equipment for electricity, installed between January 1, 2015, and December 31, 2016, was eligible for a tax credit of 30% of the cost, not to exceed $30,000. Permitting and inspection fees are not included in covered expenses. Consumers who purchased qualified residential fueling equipment prior to December 31, 2016, may receive a tax credit of up to $1,000. Unused credits that qualify as general business tax credits, as defined by the Internal Revenue Service (IRS), may be carried backward one year and carried forward 20 years. For more information about future opportunities for contact the IRS: https://www.irs.gov/uac/form-8911-alternative-fuel-vehicle-refueling-property-credit

IRS Phone: (800) 829-1040

The Future of Rebates and Incentives:

In July 2016, the White House formed a strategic partnership with the Department of Energy (DOE), The Department of Transportation (DOT), and the Environmental Protection Agency (EPA) to formulate a set of Guiding Principles to Promote Electric Vehicles and Charging. Both the State of California and Southern California Edison (SCE) have signed on. Specifically, (SCE) will encourage incentives, and improve customers' electric vehicle charging experience.

Lastly, it is important to mention the General Benefits of Installing Electric Vehicle Charging Stations to a building(s) future success:

General Benefits:

* Attracting and retaining residents

* Increasing property values

* Providing a sought-after amenity that EV driving residents need

* Differentiating your property

* Modeling sustainable business practices, which projects a powerful image to the community and helps to meet the governor's ZEV targets

References

Advanced Energy: Residential Charging Station Installation Handbook For Single - And Multi-Family Homeowners And Renters Version 1.0 http://evchargingpros.com/wp-content/uploads/2015/05/Advanced-Energy-MUD-Charging-Station-Installation-Handbook.pdf

"California apartment renters will soon be able to install electric car charging stations" The Long Tail Pipe.com https://longtailpipe.com/2014/08/26/california-apartment-renters-will-soon/ May 20, 2015

"California Update: New Laws Give Residential and Commercial Tenants Rights to Install EV Charging Stations and Streamline Residential Solar Permitting" The National Law Review http://www.natlawreview.com/article/california-update-new-laws-give-residential-and-commercial-tenants-rights-to-install October 29, 2014 Brandon E. Barker, Gabriel Schnitzler

ChargePoint Multi-Family Charging Solutions https://www.chargepoint.com/files/brochures/br-multifamily.pdf

Costs Associated With Non-Residential Electric Vehicle Supply Equipment http://www.afdc.energy.gov/uploads/publication/evse_cost_report_2015.pdf U.S. Department of Energy November 2015

DeShazo, J., et al. "Assessing the Multi-unit Dwelling Barrier to Plug-in Electric Vehicle Adoption in the South Bay." Luskin Center for Innovation, Los Angeles, Calif (2012).

DeShazo, J., et al. "Southern California Plug-in Electric Vehicle Readiness Plan." Luskin Center for Innovation, Los Angeles, Calif (2012).

DriveClean.ca.gov Plug-in Electric Vehicle Resource Center: PEV Types https://driveclean.arb.ca.gov/pev/Plug-in_Electric_Vehicles/PEV_Types.php

DriveClean.ca.gov Plug-in Electric Vehicle Resource Center: Multi-unit Dwellings https://driveclean.arb.ca.gov/pev/Charging/Home_Charging/Multi-unit_Dwellings.php

Ever Charge: Why Ever Charge http://evercharge.net/why-evercharge

Ever Charge: FAQs http://evercharge.net/faqs

EV Safe Charge: EV Charging in Multifamily Developments provides many benefits http://evsafecharge.com/multi-unit-dwellings/

FACT SHEET: Obama Administration Announces Federal and Private Sector Actions to Accelerate Electric Vehicle Adoption in the United States https://www.whitehouse.gov/the-press-office/2016/07/21/fact-sheet-obama-administration-announces-federal-and-private-sector July 21, 2016

Holland, Stephen P., et al. "Are There Environmental Benefits from Driving Electric Vehicles? The Importance of Local Factors." NBER Working Paper 21291 (2015).

How To Install Electric Vehicle Charging Stations At Multi-Unit Dwellings https://www.cityofchicago.org/content/dam/city/progs/env/CACCEVGuide.pdf Drive Electric Chicago for the City of Chicago

LADWP Charge Up L.A.! https://www.ladwp.com/ladwp/faces/ladwp/residential/r-gogreen/r-gg-driveelectric?_adf.ctrl-state=18lyc3v6m4_4&_afrLoop=2183425909826414

Plug-In Electric Vehicle Collaborative, Multi-Unit Dwelling
http://www.pevcollaborative.org/multi-unit-dwelling

State of California Department of Industrial Relations Division of Labor Standards Enforcement Electrician Certification Unit: California Certified Electricians
https://www.dir.ca.gov/dlse/ecu/CA_Electricians_Certified.pdf

Southern California Edison: Charge Ready Program
https://www.sce.com/wps/portal/home/business/electric-cars/Charge-Ready

Southern California Edison: Charge Ready Rebate Calculator
https://chargeready.sce.com/(S(04k1pzkwfc15pws0l0qn55ng))/calculator/Default.aspx

"Tesla Q&A: What you need to know about 'range anxiety' and more" Los Angeles Times March 18, 2015 Charles Fleming

U.S. Department of Energy: Alternative Fuels Data Center: Benefits and Considerations of Electricity as a Vehicle Fuel: http://www.afdc.energy.gov/fuels/electricity_benefits.html

U.S. Department of Energy Vehicle Technologies Office: Costs Associated With Non-Residential Electric Vehicle Supply Equipment
http://www.afdc.energy.gov/uploads/publication/evse_cost_report_2015.pdf November 2015

U.S. Department of Energy Alternative Fuels Data Center: Search Federal and State Laws and Incentives http://www.afdc.energy.gov/laws/state_summary?state=CA&search_button=Go