SAN DIEGO REGIONAL ELECTRIC VEHICLE INFRASTRUCTURE WORKING GROUP

MEETING NOTICE AND AGENDA

Date: **Thursday, July 18, 2013**

Time: **1:00 p.m. to 2:30 p.m.**

Location: **San Diego Gas & Electric Energy Innovation Center**
4760 Clairemont Mesa Blvd.
San Diego, CA 92117

Staff Contact: **Tyler Petersen**
Tel: (858) 244-4876
Email: tyler.petersen@energycenter.org

AGENDA HIGHLIGHTS

- **MUNICIPAL STAFF AND ELECTRICAL CONTRACTOR FACT SHEETS**
- **PUBLIC KNOWLEDGE FACT SHEET**
- **WORKPLACE CHARGING FACT SHEET**
- **DRAFT READINESS PLAN OUTLINE**

In compliance with the Americans with Disabilities Act (ADA), CCSE will accommodate persons who require assistance in order to participate in San Diego REVI meetings. If such assistance is required, please contact CCSE at (858) 244-1177 at least 72 hours in advance of the meeting.

SANDAG

Center for Sustainable Energy CALIFORNIA

SAN DIEGO REGIONAL CLEAN CITIES COALITION

www.energycenter.org/pluginready

SAN DIEGO REVI

Thursday, July 18, 2013

ITEM # **RECOMMENDATION**

1. WELCOME AND INTRODUCTIONS

2. ANNOUNCEMENTS

Members of the public shall have the opportunity to address San Diego Regional Electric Vehicle Infrastructure Working Group (REVI) on any plug-in electric vehicle (PEV) issue that is not on this agenda. Public speakers are limited to three minutes or less per person. REVI members may provide information and announcements under this item.

+3. MEETING SUMMARY **APPROVE**

The REVI is asked to review and approve the May 16, 2013 meeting summary.

CONSENT ITEM

+4. REGIONAL PEV BARRIERS PROGRESS REPORT **INFORMATION**

The REVI barriers table is attached.

REPORT ITEMS

+5. BARRIER 4: TRAINING AND EDUCATION FOR MUNICIPAL STAFF AND ELECTRICAL CONTRACTORS **DISCUSSION AND ACCEPT**

REVI members have discussed EVSE permitting and installation challenges facing municipal staff and electrical contractors. One of the paramount prospects for addressing many of these issues is the availability of training and educational opportunities. Several programs and available permitting and informational tools have been identified as available locally, within the State, or via the intranet and are attached for your information. The REVI is asked to discuss and accept the training and education solutions highlighted within the respective fact sheets as useful and consistent best practices and resources for the region.

+6. BARRIER 5: LACK OF PUBLIC KNOWLEDGE OF PEV AND EVSE **DISCUSSION AND ACCEPT**

The lack of public knowledge of PEV and EVSE has been identified as a key barrier to EVSE installations. Staff has developed a simple fact sheet for REVI members and other interested parties to distribute to the public about what electric vehicles are, who makes them, how they are charged, and what incentives or rebates are available if purchased. The REVI is asked to discuss and accept the PEV public knowledge fact sheet as a primary and universal resource for public distribution and information.

+7. BARRIER 10: COMMERCIAL AND WORKPLACE CHARGING **DISCUSSION AND ACCEPT**

Making the business case for employers to consider and incorporate vehicle charging at work is a necessary component for regional adoption of PEVs. A workplace guidance document has been developed that highlights the benefits to businesses of offering charging and outlines the appropriate steps interested business owners can take for planning and installation of EVSE. The REVI is asked to discuss and accept the commercial and workplace charging fact sheet as a primary and universal resource for public distribution and information.

+8. DRAFT PEV READINESS PLAN OUTLINE **DISCUSSION**

A draft outline of the PEV Readiness Plan has been prepared for review and comment by the REVI. The draft Outline will be updated with comments from this meeting and will become the primary construct for the Readiness Plan which will be presented in stages to the REVI for review and comment over the next two meetings.

9. MATTERS FROM MEMBERS **INFORMATION**

Time permitting; REVI members are encouraged to discuss additional topics of general interest.

10. NEXT MEETING **INFORMATION**

The next REVI meeting is scheduled for Thursday, **August 15, 2013**, at the SDG&E Energy Innovation Center, 4760 Clairemont Mesa Blvd., San Diego, CA 92117. Please note that there is no meeting in June.

11. ADJOURNMENT

+ next to an item indicates an attachment

May 16, 2013 MEETING SUMMARY

ITEM #1: WELCOME AND INTRODUCTIONS

Vice Chair Mike Ferry, California Center for Sustainable Energy (CCSE), called the meeting to order at 1:02 p.m. and welcomed everyone to the San Diego Regional Electric Vehicle Infrastructure Working Group (REVI).

ITEM #2: ANNOUNCEMENTS AND PUBLIC COMMENTS

There were no announcements.

ITEM #3: SUMMARY OF THE APRIL 18, 2013 MEETING

Mike Grim, City of Carlsbad, clarified that his comment should be reflected to state that the City is *addressing* permit fees for EVSE installations in the City's draft Climate Action Plan.
Joel Pointon, San Diego Gas & Electric (SDG&E), noted that the National Renewable Energy Lab (NREL) and the U.S. Department of Energy (DOE) Clean Cities Coalition have assembled a video on installing Electric Vehicle Supply Equipment (EVSE) at multi-unit dwellings (MUD). The video captures the MUD workshops facilitated by SDG&E and provides illustrations of car2go projects, the San Diego EV Project and the CityFront Terrace project, a MUD case study. More information can found at www.sdge.com/ev

Chris Schmidt, Caltrans, asked that his comment be revised as follows: *Mr. Schmidt commented that several jurisdictions in the San Diego region have a contract with a third party to review permits, which may raise the cost of EVSE permits*.

Brendan Reed, City of Chula Vista, motioned to approve the meeting summary from April 18, 2013 with the revised comments. Mr. Grim seconded the motion. Motion carried without opposition.

CONSENT ITEM

ITEM #4: REGIONAL PEV BARRIERS PROGRESS REPORT

Mr. Ferry noted that the attached PEV barriers table contains updated information on REVI's progress.

REPORT ITEMS

ITEM #5: BARRIER 2: BUILDING CODES AND PEV CHARGING STATIONS

Ed Pike, Energy Solutions, presented an overview of Title 24 and CalGreen as they relate to the Energy and Electrical Codes. Mr. Pike noted that EVSE requirements are currently located within the voluntary section of the code; meaning local jurisdictions can decide whether to adopt these requirements. Mr. Pike added that the regulatory timeline for updates to Title 24 is cyclical (a major code overhaul occurs every three years, whereas individual codes may be updated as frequently as every 18 months).

REVI members provided the following comments:

- Mr. Pointon commented that he and Mr. Pike worked together on the investor-owned utility working group for addressing EVSE in building codes.
- Mr. Reed asked how EVSE is being handled with the state's goal for all buildings to become zero-net energy (ZNE) by 2020.
    - Mr. Pike responded that the implications for ZNE and EVSE installations and PEV charging have not been determined.

- Mr. Schmidt asked whether there was an exemption for affordable housing from any EVSE building requirements.
    - Mr. Pike was not aware of any regulation that could be written with affordable housing as a separate building type.
- Mr. Schmidt noted that as housing development shifts towards unbundling parking from the living space itself, one assumption is that residences will not require individual parking spaces.

Tyler Petersen, CCSE, noted that Mr. Pike's presentation will be available online at www.energycenter.org/pluginready.

ITEM #6: BARRIER 3: PARKING GUIDELINES AND REVI COMMENTS

Allison King, San Diego Association of Governments (SANDAG), reminded members that comments on the Governor's Office of Planning and Research (OPR) draft "Plug-In Electric Vehicles: Universal Charging Access Guidelines and Best Practices" (Accessibility Guidelines) are due by May 24, 2013. Ms. King highlighted key comments provided by REVI on the OPR draft Accessibility Guidelines.

REVI members provided the following comments:

- Mr. Pointon commented that both parking and charging should be viewed as shared functions, versus what is currently described in the OPR accessibility guidelines; PEV charging is the primary function of the stations, not parking.
- Bill Cecil, City of Coronado, asked how the accessible EV charging stations are marked.
- Andy Hoskinson, ECOtality, commented that the OPR guidelines remove the ability to use an existing ADA parking space for an accessible EV charging station.
- Mr. Hoskinson encouraged flexible requirements for ADA EV charging installations. He added that big box retailers typically cluster ADA parking stalls and would have a difficult time finding a suitable location for an accessible EV charging station if they were restricted from using an existing ADA space, as the OPR guidelines currently read.
- Mr. Cecil suggested that there should be two sets of ADA requirements; one for existing buildings/facilities/uses, allowing more flexibility, and one for new construction.
- Mr. Grim noted that some affordable housing developments have standard waivers to encourage energy efficiency and these standards could be applied to EVSE installations.
- Susan Freed, County of San Diego, commented that the County is currently building an underground parking lot in downtown San Diego with six EVSE, and one will be accessible. The accessible EVSE is not installed in a dedicated ADA stall.
- Mr. Pointon commented that the reasoning behind not using an existing ADA parking stall is to allow for every charging unit to be fully utilized.
- Ms. King noted that the OPR guidelines include PEV signage at ADA stalls to state "use last" if other stations are occupied.
    - A public member asked if the intended audience for the "use last" sign was a driver with the handicap placard or without the placard.
    - Ms. King responded that if the pavement markings are white, then it is not a designated ADA stall.
    - Mr. Pointon added that if the markings are blue, the handicap placard driver will use the space last.
- Anna Lowe, SANDAG, offered that unless a local zoning ordinance includes codified no parking restrictions, any driver is technically allowed to park in the stall.

Mr. Ferry asked the group to provide a specific recommendation.

- Mr. Pointon moved for REVI to offer the City of San Diego's Technical Policy 11B-1, "Accessibility to Electrical Vehicle Charging" as a recommendation for integration into the OPR accessibility guidelines.
- Mr. Grim seconded the motion. Motion carried without opposition.

ITEM #7: BARRIER 1: PERMITTING ISSUES FOR WORKPLACE, RETAIL AND OTHER CATEGORIES

Ms. King reviewed the information from the Zero-Emission Vehicle (ZEV) Guidebook being developed by OPR. Ms. King noted that the guidebook will be distributed to local government officials.

REVI members provided the following comments:

- Mr. Reed suggested that similar to the action plan and checklist developed by the DOE Sunshot program, it would be helpful if the PEV readiness plan included a similar supplement for jurisdictions in the region that identifies where they fall short or succeed in demonstrating PEV readiness.
- Ms. King responded that staff would review the Sunshot checklist to see if something similar could be created for the readiness plan.

ITEM #8: BARRIER 9: INTEGRATING EVSE INTO PUBLIC PROJECTS

Ms. King reviewed the SANDAG guidance document for the consideration of "Electric Vehicle Charging for Regional Park-and-Ride Lots and Transit Stations."

Mr. Schmidt added that this type of document is useful for agency staff communicating the integration of EV charging stations into the design and engineering of projects.

REVI members provided the following comments:

- Mr. Hoskinson recommended aligning the language in this document with that of the CalGreen voluntary EVSE requirements, and suggested including specifications for 9.6Kw vehicles, such as the Tesla Model S and Toyota Rav4.

ITEM #8: MATTERS FROM MEMBERS

There were no matters from members.

ITEM #9: NEXT MEETING INFORMATION

The next REVI meeting is scheduled for **Thursday, July 18, 2013** from 1:00 p.m. to 2:30 p.m. at the SDG&E Energy Innovation Center, 4760 Clairemont Mesa Blvd. San Diego, CA 92117.

ITEM #10: ADJOURMENT

The meeting was adjourned at 2:28 p.m.

REVI Voting Member Attendance May 16, 2013

REPRESENTATION		NAME	MEMBER / ALTERNATE	ATTENDING
South County Subregion	City of Chula Vista	Brendan Reed	Member	YES
	City of Imperial Beach	Chris Helmer	Alternate	NO
North County Coastal Subregion	City of Del Mar	Ramsey Helson	Member	NO
	City of Carlsbad	Mike Grim	Alternate	YES
North County Inland Subregion	City of Escondido	Kathy Winn	Member	NO
	Vacant	Vacant	Alternate	-
East County Subregion	City of Santee	Kathy Valverde	Member	NO
	City of La Mesa	Scott Munzenmaier	Alternate	NO
City of San Diego		Jacques Chirazi	Member	NO
		Vacant	Alternate	-
County of San Diego		Peter Livingston	Member	NO
		Susan Freed	Alternate	YES
San Diego Association of Governments		Susan Freedman, Chair	Member	NO
		Allison King	Alternate	YES
San Diego Regional Airport Authority		Paul Manasjan	Member	NO
		Brett Caldwell	Alternate	NO
Caltrans, District 11		Chris Schmidt	Member	YES
		Vacant	Alternate	-
Unified Port District of San Diego		Michelle White	Member	NO
		Jenny Lybeck	Alternate	YES
San Diego Gas & Electric		Joel Pointon	Member	YES
		Randy Shimka	Alternate	YES
California Center for Sustainable Energy		Mike Ferry, Vice Chair	Member	YES
		Colin Santulli	Alternate	NO
University of California, San Diego		Dave Weil	Member	NO
		Jim Ruby	Alternate	NO
Miramar College, Advanced Transportation Technology and Energy Program		Greg Newhouse	Member	NO
		Vacant	Alternate	-
San Diego Electric Vehicle Network		Randy Walsh	Member	NO
		Vacant	Alternate	-
National Electrical Contractors Association		Karen Prescott	Member	NO
		Tim Dudek	Alternate	NO
International Brotherhood of Electrical Workers Local 569		Micah Mitrosky	Member	NO
		Vacant	Alternate	-
ADVISORY MEMBERS				
Department of Defense		Chris Parry		NO
San Diego Air Pollution Control District		Mike Watt		NO

REPRESENTATION	NAME	MEMBER / ALTERNATE	ATTENDING
	Nick Cormier		YES
Metropolitan Transit System	Claire Spielberg		NO
City of Coronado	Bill Cecil		YES
City of Encinitas	Diane Langager		NO
City of National City	Ray Pe		NO
City of Solana Beach	Dan King		NO
City of Vista	Lyn Dedmon		NO
Ecotality	Andy Hoskinson		YES
Car2go	Mike Cully		NO
Aerovironment	Charlie Botsford		NO
Coulomb Technologies	Colleen Quinn		NO
General Electric	David Wang		NO

Others in Attendance

Anna Lowe, SANDAG
Tyler Petersen, CCSE
Heather Lingelser, County of San Diego
Rebecca Robinson, City of Chula Vista
Molly Ash, Cuyamaca Community College
Heidi Krantz, NRG Energy
Scott Gallic, Recon Environmental
Tony Williams, Quick Charge Power
Bruce Bekkar, Member of the Public

Progress on Regional Plug-in Electric Vehicle (PEV) Barriers

Barrier	Progress on Solutions – Preparation of Guidance Materials	Action Items
1. Permitting/Inspection Lack of streamlined permitting and inspection processes and inconsistent (high) costs across jurisdictions.	• Residential permit and inspection guidelines accepted by REVI on 3/21/13. • Residential guidelines distributed to REVI and jurisdictions in 3/2013, and posted online at www.energycenter.org/pluginready. • City of San Diego and Oceanside permitting guidelines served as examples. • OPR draft permitting documents provided at 5/16/13 meeting.	• State information addresses SF residential; MUD; workplace; retail and public sector; and fast charging. • Prepare complementary permitting and inspection guide for commercial installations. • Share input from San Diego region with OPR and utilize elements of the State PEV guidebook in the Readiness Plan
2. Building Codes Lack of standard building codes that accommodate charging infrastructure or dedicate circuits for charging infrastructure in new construction and major renovations.	• REVI feedback on codes incorporated into CCSE's regional readiness assessment (DOE project), Nov-Dec. 2012. • REVI topic at 5/16/13 meeting with presentation on Title 24. • REVI identified building codes as a barrier to work closely with the state on in order to develop regional and statewide consistency.	• REVI will document the barriers and gaps, and ways to coordinate with the state on building codes in the Readiness Plan.
3. Zoning and Parking Rules Lack of standard regional ordinances that facilitate the installation and access to publicly available charging infrastructure.	• REVI topic at 4/18/13 and 5/16/13 meetings. • REVI feedback on parking incorporated into CCSE's regional readiness assessment (DOE project), Nov-Dec. 2012. • City of San Diego Technical Policy on addressing accessibility to EV charging stations presented/ distributed at May 2012 REVI. • Comments submitted to OPR on behalf of REVI 6/6/13 in response to draft EV charging station accessibility guidance.	• In the Readiness Plan, REVI will document the progress made in addressing accessibility, and describe the barriers and gaps encountered during the EV Project and other local installations that require coordination at the state level.
4. Training and Education for Municipal Staff and Electrical Contractors Lack of knowledge about PEVs and EVSE	• Training provided for municipal staff on PEV infrastructure on 1/29/13 at SDG&E EIC. • REVI feedback on training incorporated into CCSE's regional readiness assessment (DOE project), Nov-Dec. 2012. • Greg Newhouse (Miramar College ATTE) administered EV and AFV training for SANDAG's Freeway Service Patrol (tow-truck drivers) and CHP 6/8/13. • The California Manual on Uniform Traffic Control Devises released a policy directive in 3/14/13 including zero emission vehicle signs and pavement markings for consistent statewide application.	• Use California PEV Collaborative's Toolkit to further address this item. • REVI to discuss and approve municipal staff fact sheet and electrical contractors fact sheet at 7/18/13 meeting
5. Lack of Public Knowledge of PEV and EVSE Municipal outreach to Local Residents and Businesses	• Discussed locally at PEV Workshop at CCSE on 6/14/12. • CVRP PEV owner survey conducted. Results at 9/20/12 REVI. • REVI feedback on public outreach incorporated into CCSE's regional readiness assessment (DOE project).	• REVI to discuss and approve fact sheet at 7/18/13 meeting

Barrier	Progress on Solutions – Preparation of Guidance Materials	Action Items
6. EVSE at Multi Unit Dwellings Consumer lack of knowledge regarding EVSE installation in these buildings. Need to educate and work with HOAs to identify and find solutions to unique building challenges.	*Region is recognized leader on this issue.* • REVI topic at 4/18/13 meeting. • SDG&E published case study in March 2013. • SDG&E published fact sheet on EVSE install process for MUDs. • SDG&E holds quarterly MUD workshops at EIC. • REVI discussed MUD issues at May and July 2012 meetings.	• Showcase SDG&E MUD activities and barrier busting in Readiness Plan. • Develop complementary materials (if needed) for MUD owners/ occupants that fill information gaps in what SDG&E can provide under CPUC rules.
7. Regional Planning for Public EVSE Siting Regional land use and transportation plans served as a basis to identify optimal public EVSE sites. In rollout of EV Project, experience was different from planning. Alternate approaches have been taken to increase public EVSE hosts and sites.	*Region is recognized innovator on this issue.* • REVI topic at 3/21/13 meeting. • SANDAG produced report on The EV Project's approach to identifying optimal sites for public EVSE based on local land uses and transportation network. • CCSE presented initials findings of CVRP survey and interviews with EVSE commercial/agency hosts. To release report at some point.	• SANDAG (1) producing fact sheet on regional EVSE planning from EV Project, (2) preparing maps of optimal Level 2 and DCFC EVSE sites for each local jurisdiction, and (3) preparing public agency guidelines for including EVSE in new construction. • CCSE (1) producing fact sheet on value proposition to host EVSE and (2) to release full report on same topic.
8. On Peak Charging – TOU Utility Rates A. Need to discourage charging when electricity supplies are in high demand and cost more. Support of time of use (TOU) pricing. B. High demand charges that impact EVSE host utility bills. Expensive metering options to access TOU rates.	*Region is recognized leader on TOU PEV rates.* • Local standout area for solution/ use of TOU rates that encourage off-peak charging. SDG&E holds regular workshops on EVSE hosting and PEV Rates.	• Obtain findings from SDG&E and EV Project to include (and showcase) in Readiness Plan.
9. Public Agency EVSE Installations Contracting issues have stalled many public agencies from taking part in The EV Project. Need to identify common project barriers and find solutions.	• RFP template for public agencies (and commercial entities) accepted by REVI at 3/21/13 meeting. • RFP template distributed to REVI stakeholders and uploaded to REVI website at www.energycenter.org/pluginready.	• Track progress of agencies/ institutions to site and install EVSE.
10. Commercial and Workplace Charging Lack of understanding regarding benefits and approaches to understanding workplace charging.	• REVI topic at 3/21/13 meeting and focus of CCSE analysis of value proposition of hosting EVSE. (see barrier 7) • Ecotality shared initial EV Project findings on public and workplace charging.	• REVI to discuss and approve fact sheet at 7/18/13 meeting
11. PEVs in Government Fleets Procurement justification needed for local public fleets. Need to describe PEV benefits, including role in reducing municipal GHGs for Climate Action Plans.	• CCSE reviewing local government CAPs for policies to support fleet purchases for local governments (spring 2013).	• SANDAG preparing fact sheet on this topic.

Plug-in Electric Vehicles

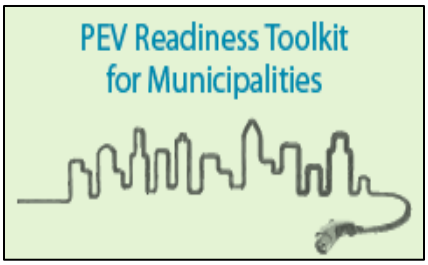
Resources for Public Agencies in San Diego

Plug-in electric vehicles (PEVs) are becoming more common, and local permitting agencies should be prepared for the growing PEV market. This fact sheet was developed by the San Diego Regional Electric Vehicle Infrastructure (REVI) working group and offers San Diego's public agencies resources and technical training information, as they become PEV ready.

Did you know?

- The San Diego region represents more than 20% of the California PEV sales market.
- Roughly 1 of every 40 new cars bought or leased in California during the last three months of 2012 was a PEV.

PEV Readiness Toolkit



The California PEV Collaborative (Collaborative) offers numerous resources for local government officials on state and federal incentives for PEVs and EVSE. The PEV Readiness Toolkits include quick references for developing municipal planning and community development policies to support and promote PEVs.

Visit http://www.pevcollaborative.org/policy-makers.

Building Support - *engineers, plan checkers, project managers and building officials*

Permitting

Electric vehicle charging systems are relatively new to permitting departments and are often permitted through existing processes and permits. The Cities of Oceanside and San Diego have developed guidance documents to aid with the permitting, installation, and inspection process.

- City of Oceanside *Residential Electric Vehicle Charger Guidelines* http://www.ci.oceanside.ca.us/civica/filebank/blobdload.asp?BlobID=30053
- City of San Diego *Information Bulletin 187: How to obtain a permit for Electric Vehicle Charging Systems* *http://www.sandiego.gov/development-services/pdf/industry/infobulletin/ib187.pdf*
- The Collaborative has developed *Streamlining the Permitting and Inspection Process for Plug-in Electric Vehicle Home Charger Installations* which includes statewide codes and standards, recommended permitting fees and background information on EVSE hardware. http://www.evcollaborative.org/sites/all/themes/pev/files/PEV_Permitting_120827.pdf
- Department of Energy's Alternative Fuels Data Center EVSE permitting template for jurisdictions (http://www.afdc.energy.gov/pdfs/EV_charging_template.pdf)

Regional Permit Fees

From mid-2011 to early 2013, EV Project[1] reported that the median cost for permitting a residential EVSE installation was $226.00. Permitting fees vary from jurisdiction to jurisdiction so it is a good idea to contact the permitting agency for the specific fees.

[1] San Diego REVI meeting, *The EV Project: Initial Findings On Charging Behavior,* April 18, 2013

Building & Electrical Codes

The National Electric Contractors Association provides a common set of electric vehicle terminology in a presentation at http://iaeiwestern.org/Files/2011/Programs/NECA%20EVSE%20Presentation%20NECA%20SD%202011%20Western%20IAEI%20Section.pdf

Pacific Gas & Electric offers a condensed version of code requirements for EVSE installations, from disability requirements to PEV signage, at www.pge.com/includes/docs/pdfs/shared/environment/pge/cleanair/ev5pt3.pdf.

Planning Department Staff - *planners*

Addressing Accessibility for PEV Chargers

Assuring charging systems are accessible to all drivers is critical for public adoption. The Office of Planning and Research (OPR), in conjunction with the Department of the State Architect, is developing a guidance document to help public agencies standardize accessibility opportunities for PEV charging. To view or download copies of the draft Guidelines, visit: http://opr.ca.gov/docs/PEV_Access_Guidelines.pdf.

The City of San Diego has developed a comprehensive technical policy guide addressing accessibility and PEV parking at https://www.sandiego.gov/development-services/pdf/industry/tpolicy11b1.pdf

Parking Guidelines

The California Green Building Standards Code (CALGreen) includes standard statewide Residential and Non-Residential Voluntary Measures for PEV and EVSE listed in Appendix 5A of CALGreen: http://www.documents.dgs.ca.gov/bsc/CALGreen/2010_CA_Green_Bldg.pdf

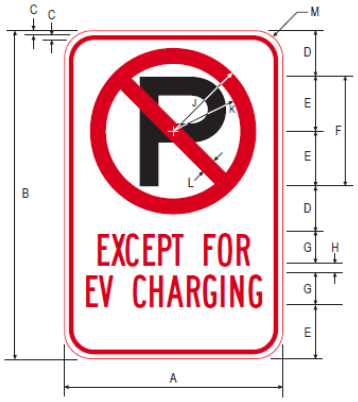
CALGreen Code Sections for PEV and EVSE:

- *A5.106.5.1* **Designated parking for fuel-efficient vehicles**
- *A5.106.5.3.1* **Electric vehicle supply wiring**
- *A5.106.6* **Parking capacity**

Parking Enforcement

The City of Santa Monica has adopted an electric vehicle parking ordinance. This ordinance offers an example for other local agencies interested in incorporating and enforcing electric vehicle parking in their existing policy documents.

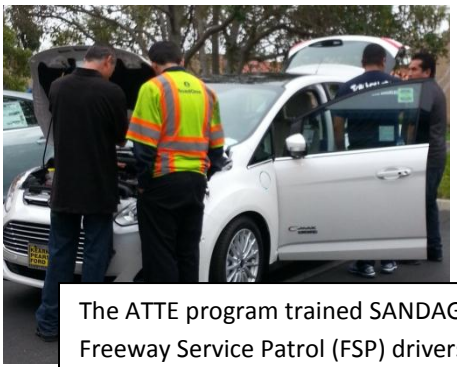
- *3.12.835* **Electric vehicle parking** (adopted Santa Monica City Council Meeting 07/24/2012)



PEV Signage

The California Manual on Uniform Traffic Control Devices has released a statewide traffic operations policy directive on zero-emission vehicle signs and pavement markings standardizing signs and markings for PEV charging stations and parking stalls. http://www.dot.ca.gov/hq/traffops/signtech/signdel/policy/13-01.pdf

Safety Training for First Responders



The ATTE program trained SANDAG's Freeway Service Patrol (FSP) drivers.

Firefighters, police officers and other first responders encounter PEVs when responding to incidents. For their safety and the safety of the public, it is essential that they receive PEV training.

National Alternative Fuels Training Consortium – First responder safety training http://afvsafetytraining.com

National Fire Protection Association – Online first responder safety training http://www.evsafetytraining.org/training.aspx

Miramar College: Advanced Transportation Technology and Energy Program (ATTE) - Technical education, training and resources http://www.attemiramar.com/

Plug-in Electric Vehicles

Resources for Electrical Contractors in San Diego

San Diego accounts for more than 20% of total statewide PEV sales and has the largest all-electric vehicle car-sharing program in North America. With every PEV purchase, the need for charging infrastructure expands and the demand for local electrical contractors grows.

Electrical Vehicle Supply Equipment Training

The PEV industry and local governments want to ensure contractors are completing safe and reliable electric vehicle supply equipment (EVSE) installations for their customers and constituents.

The International Brotherhood of Electrical Workers, in conjunction with the National Electrical Contractors Association, offers statewide EVSE installation training courses. The Electric Vehicle Infrastructure Training Program (EVITP) is designed for and available to all electrical contractors. EVITP comprises two 24-hour courses addressing best practices for residential, commercial, public and fleet installations.

EVITP training is offered at regional community colleges and electric training centers. For information and a list of EVITP training opportunities, visit http://www.evitp.org/training-programs or email *info@evitp.org*.

Training benefits to electrical contractors include:

- Learn new and emerging technologies
- Gain competitive knowledge
- Qualify to submit for bids, RFQs and RFPs for EVSE installations
- Support California's goal to reach 1.5 million zero-emission vehicles by 2025

Nearest EVITP training centers:

1. San Diego Electrical Training Trust
   www.positivelyelectric.org
   858-569-6633
   4675 Viewridge Ave.
   San Diego, CA 92123
2. Cuyamaca College (9/1/13)
   http://www.cuyamaca.edu/
   (619) 660-4000
   900 Rancho San Diego Pkwy.
   El Cajon, CA 92019
3. Orange County Electrical JATC
   www.ocett.org
   714-245-9988
   717 South Lyon Street
   Santa Ana, CA 92705

Electric Vehicle Supply Equipment Options

There are numerous EVSE product manufacturers and retailers. Many EVSE products are safety tested and certified by the Underwriters Laboratories (UL). For a complete list of currently approved EVSE, visit http://goelectricdrive.com/index.php/find-an-ev-charger.

Electrical Vehicle Supply Equipment Installation and Maintenance

Every EVSE installation is different. The following resources address EVSE safety, technical and consumer issues electrical contractors and inspectors may encounter.

Regulatory Compliance
The City of San Diego requires EVSE installations at public areas to be made accessible to persons with disabilities. The City of San Diego Technical Policy 11B-1 applies to the installation of EVSE in both new and existing construction.
https://www.sandiego.gov/development-services/pdf/industry/tpolicy11b1.pdf

For installations outside the City of San Diego, contact the local permitting office for accessibility guidelines.

The Alternative Fuels Data Center (AFDC) lists California laws and state incentives and regulations related to PEVs and other advanced vehicles. http://www.afdc.energy.gov/laws/state_summary/CA

Installation and Inspection
An EVSE installation process begins with a site assessment and identifying the EVSE.

The City of San Diego has developed an information bulletin that describes the permitting and inspection process for EVSE on an existing site or building. http://www.sandiego.gov/development-services/pdf/industry/infobulletin/ib187.pdf

Common EVSE installation steps are also included in Advanced Energy's *Charging Station Installation Handbook for Electrical Contractors and Inspectors*.

Load Calculations
Load calculations are a required component of most electrical permit submittals. The National Electric Code (NEC) considers EVSE a continuous load. EVSE-specific information can be reviewed in the NEC Article 625 or by going to www.advancedenergy.org/transportation/charging_station_forum/files.

The City of Oceanside has developed an EVSE load calculation worksheet and included it within the *Residential Electric Vehicle Charger Guidelines* (link below)

Residential Installations
Most PEV charging takes place at home overnight using Level 1 or Level 2. EVSE are most often installed in a garage. EVSE installation for a single-family residence that can accommodate Level 2 (240V 40 amp) EVSE is usually simple and straightforward. Installations may become more complex if an electrical service upgrade is required. Charging at multifamily developments offers additional considerations and often come with higher costs estimates.

The City of Oceanside and the City of San Diego have developed guidance documents to help streamline the electric vehicle charger permitting process.

City of Oceanside *Residential Electric Vehicle Charger Guidelines*
http://www.ci.oceanside.ca.us/civica/filebank/blobdload.asp?BlobID=30053

City of San Diego *Information Bulletin 187: Electrical Vehicle Charging Systems*
http://www.sandiego.gov/development-services/pdf/industry/infobulletin/ib187.pdf

Nonresidential Installations
Nonresidential EVSE locations include vehicle fleet facilities, workplaces, retail stores, parking lots, commercial garages and government-sponsored free charging stations. See these sections in the EV Project's Oregon EVSE Guidelines for public and commercial EVSE installations:

- Installation process for commercial fleet operations (p. 27)
- Installation flowchart for public charging (p. 34)

The Clean Cities Coalition *Electric Vehicle Handbook* includes detailed information on all of these topics and more.
http://www.afdc.energy.gov/pdfs/51228.pdf

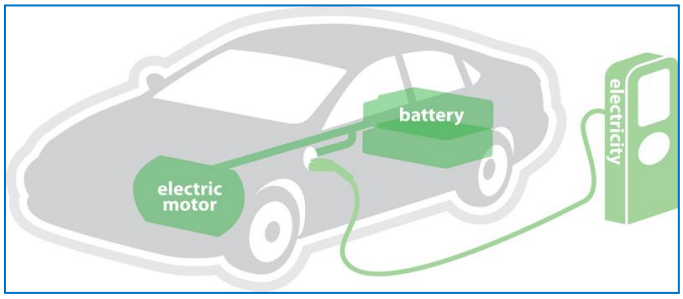
Plug-in Electric Vehicles & Charging: Getting Started

California is leading the nation in plug-in electric vehicle (PEV) adoption, and about 20% of the PEVs in California are in the San Diego region. Interested in learning more about these new vehicles on our roads and highways? Here are some answers to your questions about the basics of PEVs, benefits of PEVs, charging options, and available incentives.

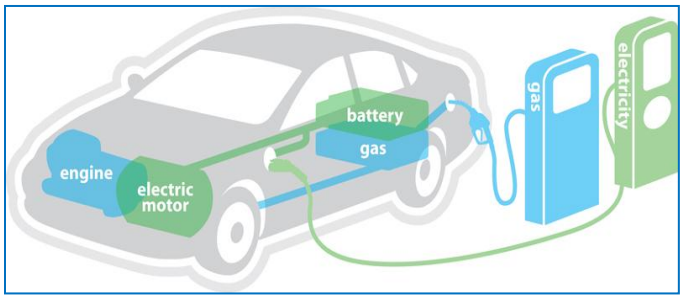
What is a plug-in electric vehicle?

A plug-in electric vehicle (PEV) is the generic term for cars that operate, fully or partially, on battery power and that are recharged from the electricity grid. There are two main types of PEVs: battery electric vehicles and plug-in hybrid electric vehicles.

Battery Electric Vehicle (BEV) - Runs on electricity stored in batteries and has an electric motor rather than an internal combustion engine.



Plug-in Hybrid Electric Vehicle (PHEV) - Plugs into the grid and operates on electricity as well as an internal combustion engine.



What are all the options?

There are currently more than **20 different PEV models** on the market offered by a variety of manufacturers. Check out the EV buying guide at: www.driveclean.ca.gov

How far can I drive?

Battery electric vehicles can generally go 60 – 120 miles on a full charge, which is plenty of range for most people (the average Californian travels less than 30 miles a day). If more range flexibility is needed, a plug-in hybrid might be a better choice. They can generally run on battery alone for 10 – 40 miles, and then continue up to 400 miles as a gasoline-electric hybrid.

Why should I drive a PEV?

- Help to reduce emissions and improve air quality
- Lower fueling costs
  - ✓ Save money and charge your vehicle overnight with SDG&E's time-of-use rates. More info at: www.sdge.com/evrates
- Lower maintenance costs
  - ✓ No more oil changes, fewer tune-ups

How do I re-charge?

Most PEV drivers will do the majority of their charging at home but the availability of public charging stations is growing. Public stations offer drivers more charging options. A list of public charging locations can be found at: www.afdc.energy.gov/afdc/locator/stations

How long does it take to charge?

Charging times depend on three primary factors: the size of the battery, the onboard vehicle charger, and the type of charger. The onboard charger is located in the vehicle and determines the amount of power that can enter the vehicle from the grid. Generally, BEVs have a larger battery compared to PHEVs. Three types of chargers are described in the table below:

Type of Charger	Miles of Range for 1 hour of charge	Where to charge?
Level 1 (120 volt)	3 to 4	Standard three-pronged outlet
Level 2 (240 volt)	8 to 20	At-home or public charging station
DC Fast Charger (480 volt)	50 to 60	Few public DC Fast Chargers

Are there incentives for buying a PEV?

For a limited time, rebates and federal tax credits are available for PEV owners. Incentives include a state rebate of up to **$2,500**, a federal tax credit of up to **$7,500** and HOV lane access.

- Find complete information on PEV rebates, discounts, tax breaks and other incentives available in your area: http://driveclean.ca.gov/pev/Incentives.php
- Tax credit for charging stations are also available that allow consumers to claim up to 30% of the cost of hardware and installation.

Plug-in Electric Vehicles

Workplace Charging for Businesses in San Diego

As the number of PEV owners grows, businesses can offer workplace charging to help employees meet their commuter needs. Making workplace charging available to employees allows them more environmentally conscious transportation options, demonstrates commitment to the community, helps attract and retain employees, and contributes toward green certifications.

Key Considerations for Workplace Charging

The sections below describe the following key considerations for businesses interested in installing EV charging:

- **Does your business own or lease?**
- **What type of electric vehicle supply equipment (EVSE) is needed?**
- **Who will pay for the electricity?**

What are other businesses saying?
A survey of local businesses with EVSE revealed the following top responses.

Why did your company decide to invest in EVSE?

- Achieve goals in company's sustainability plan
- Provide additional service to customers

What benefits do you see from investing in EVSE?

- Positive impact and association with the company brand
- Increased visitation
- Employee attraction and retention

Survey conducted in 2012 by CCSE of institutions in San Diego County that have installed public and workplace EVSE.

Does your business own or lease?

Building Owners
Employers that own their facility and parking area encounter fewer challenges when developing a plan for vehicle charging.

✓ Engage key stakeholders in the process, including PEV drivers, operations supervisors, building/facility manager, facility technicians and legal counsel.

Building Tenants
Employers that do not own their facility will likely be required to obtain an agreement from the building or property owner.

✓ If agreement cannot be reached with the owner, look to partner with a neighboring parking lot owner or another business to develop a cooperative PEV charging program.

What type of EVSE is needed?

Employers should determine the appropriate charging levels for the electrical capacity available at their facility.

- ✓ Vehicles park at workplaces generally 8-9 hours, which makes Level 1 charging an easy and cost-effective option.
- ✓ Consider a hybrid approach with Level 1 serving the needs of most employees, and one or two charge-per-use Level 2 EVSE available for those that need a quicker charge.
- ✓ Proximity to existing electric utility equipment is cheaper than adding new circuits and conduit that can increase capital costs significantly.
- ✓ Incorporate PEV charging in future infrastructure plans and development.

Who will pay for the electricity?

Employers can choose to cover the electricity costs and allow employees to charge their vehicles for free, or an employer may want to recoup some or all of the electricity costs by requiring employees to pay for their charging.

Option 1: Free to employees
Many businesses offer PEV workplace-charging for free to their employees. Here are some reasons why:

- ✓ Offers an incentive to employees; helps support PEV adoption
- ✓ Simplifies employee charging policy and reduces administrative time and expenses
- ✓ Free charging could be considered a reportable employee benefit

However, there are some risks with offering free charging:

- ✓ Businesses could incur demand charges and become prohibitively expensive with greater PEV adoption
- ✓ May create workplace friction among non-PEV owning employees not receiving reimbursement for gasoline costs
- ✓ Employees with home charging may choose to charge exclusively at work

Option 2: Employees pay for charging
Billing employees for PEV charging can help recuperate capital and operational costs over time. Some considerations:

- ✓ Bill for exact usage (kWh), which may require more expensive equipment
- ✓ Set up a monthly/yearly subscription rate – based on estimated usage
- ✓ Employ a turn-key model that fully covers installation, maintenance, operation and employee billing

Resources

SDG&E: San Diego Gas & Electric (SDG&E) helps employers through the process of choosing and installing EV charging at their business. They offer workplace charging seminars, assistance in evaluating billing impacts, and other helpful tips for businesses. For more information, visit: http://www.sdge.com/clean-energy/business/employers-and-property-owners

Employer EV Initiative: Best practices, case studies, and more from employers across the state. Visit: www.evworkplace.org

San Diego REVI: Request for Proposal template for public agencies or businesses interested in EVSE. Available at: www.energycenter.org/pluginready

Steps to Workplace Charging

1. Engage PEV owners, facility staff, managers, and legal council
2. Survey employees' interest in workplace charging
3. Discuss findings and PEV charging needs among employees and company decision-makers
4. Conduct a site assessment and contractor to determine ideal charging locations, costs
5. Contact SDG&E to determine the potential billing impacts of electric vehicle charging
6. Examine different types of EVSE options and compare the benefits and costs (e.g. Level 1, Level 2)
7. Determine ownership of EVSE – the building/parking lot owner, EVSE vendor or lessee
8. Establish company policies regarding employee access, definition of employee benefit and cost recovery
9. Look for any existing incentives or rebates for workplace EVSE
10. Select EVSE equipment, obtain multiple installation quotes
11. Present installation plan and budget to management for approval
12. Purchase equipment and hire a licensed electrical contractor to obtain the necessary permits, complete installation and organize inspection
13. City/county inspection of the EVSE installation
14. Install signage, alert employees
15. Issue news release and share lessons learned with the community

Adapted from the Calif. PEV Collaborative
Workplace Charging Installation Guideline

San Diego Regional Electric Vehicle and Infrastructure Readiness Plan

Preparing the San Diego Region for Plug-in Electric Vehicles (PEVs)

Table of Contents

Introduction

Accounting for about a quarter of all plug-electric vehicle (PEVs) sales in the nation, California has been regarded as a leader in the deployment of PEVs. San Diego is no exception; the region represents about 20% of the California PEV owners. As more San Diegans purchase PEVs, a robust infrastructure network will be needed to support local drivers. To support a growing PEV market, barriers must be removed that inhibit the purchase of PEVs and the installation of electric vehicle supply equipment (EVSE).

<Insert actions that will enable local government, to understand PEV barriers and PEV planning topics>

Background

Provide a background on previous PEV planning efforts and key stakeholders. Describe the establishment and funding for REVI. **Add illustration of EV activity to date (insert this information into the timeline illustration later)

State and Regional PEV trends

Describe the PEV market challenges in the early 1990s and the reemergence of PEVs in 2010. Display pictures of popular EVs from the 1990s and today.

Why use this Plan

This section will describe the role of local government in EVSE deployment. This document is intended to help planners address infrastructure needs and policy changes to support the greater adoption of PEVs in the San Diego region.

The San Diego Regional PEV Readiness Plan provides the following best practices and tools:

<Insert a table highlighting appropriate best practices and tools by chapter (with corresponding links) and brief description>.

The San Diego Regional Electric Vehicle Infrastructure (REVI) Working Group

Purpose

The Regional Electric Vehicle Infrastructure working group (REVI) was formed as a collaboration of local governments, public agencies, utilities, industry and the nonprofit sector. This group was made possible through a grant funded by the California Energy Commission (CEC), which was awarded to SANDAG with a subcontract with CCSE. The purpose of REVI was to identify, reduce and resolve barriers to the widespread deployment of private and public PEV charging stations in the region.

<Insert barriers table>

Stakeholder Engagement Process

The REVI held meetings from March 2012 to December 2013. During each meeting, REVI members discussed market barriers, which were then classified into three key topic areas: permitting, regional planning for public EVSE siting and utility solutions. REVI members provided coordination and outreach to communicate best practices to jurisdictions and multiple stakeholders in the region.

PEV Adoption in Region

This section will highlight the changes in EVSE and PEV deployment in the region from pre-REVI to the conclusion of REVI. Maps will display EVSE adoption changes during the three periods below.

January 2012 (Pre-EV Project)

January 2013

January 2014 <insert a visual chronology here>

Plug-in & Get Ready

A website has been developed as a component of the CEC grant, to facilitate and coordinate the rapid adoption of electric vehicles and associated charging equipment.

The website features PEV resources for consumers, local governments, electrical contractors, and businesses. Best practice fact sheets are currently available on the website. *Plug-in & Get Ready* also includes past REVI meeting summaries and agendas.

The Basics of PEVs and Charging Infrastructure

Overview

<Provide an introduction on PEVs and charging infrastructure>

Vehicle Types

Battery electric vehicles

Plug-in hybrid electric vehicles

<Insert a table of PEV models: current and planned for U.S. release in 2013 – source: www.driveclean.ca.gov>

Charging Stations

Level 1

Level 2

DC fast charging

Regional PEV driver charging behavior statistics

<Insert an infographic of San Diego regional PEV owner demographics that include primary charging locations and a table displaying typical dwell times for charging environments, courtesy of the UCLA Luskin Center. Other resources will leverage ECOtality quarterly report on San Diego infrastructure and AFDC electric vehicle station locator map. >

The PEV Landscape

Overview

<Provide an introduction describe the key stakeholders in the PEV-industry. Describe the major players involved in supporting the deployment of PEVs in the region.>

Purchasing a PEV

<Describe the factors consumers consider when purchasing a PEV. Describe the importance of OEM coordination with local planners, policy makers and utilities in order to support infrastructure planning.>

Government role

<Describe how the following entities can provide PEV planning guidance, influence the marketplace and serve as a resource local residents and businesses interested in PEVs and EVSE>

<Insert a table displaying stakeholders responsible for shaping PEVs policies and providing PEV and EVSE incentives>
<Insert a link to the Lack of Public Knowledge PEV Fact Sheet>

Utility role

<Describe the SDG&E's role in the regional PEV ecosystem, from PEV drivers to business owners, and, most importantly, local governments>

Charging at single-family homes

<Describe the single-family EVSE installation experience for PEV chargers. Describe the key stakeholders and their role (e.g. SDG&E and the importance of time-of-use rates to mitigate on-peak charging>

<Insert a link to the CCSE "Your Guide to Plug-in and Get Ready" residential EVSE installation guideline>

Charging at multi-unit dwellings

<Describe the challenges and opportunities to expand EVSE adoption at MUDs. Describe SDG&E MUD workshop and case study>
<Insert a link to the MUD chapter and SDG&E collateral>

Charging at workplaces, retail and public locations

<Describe the opportunities for greater workplace charging in the region and how charging at retail and public locations enhance the PEV driver experience>

<Insert a link to the chapter on workplace charging and public agency installations>

Locations of public charging stations in the San Diego region

<Insert map of existing publicly-accessible charging stations that planners can use to compare with the locations of employment centers, retail centers and trip attractors for daytime PEV drivers>

<Insert a list of "find a charging station" resources. A brief description and link will be provided for the U.S. Department of Energy's Alternative Fuels Data Center, Blink, ChargePoint, and user-generated sites, such as Recargo and PlugShare>

Regional Barriers to EVSE Deployment & Key Recommendations

<Describe the selection process of San Diego REVI barriers. Insert the REVI Barriers flow chart>
<Provide an overview of subsequent barriers and challenges that will be covered within this section>

Regional Planning for Public EVSE

Overview

<Provide an introduction on regional planning efforts, where things are to date, and opportunities to expand EVSE network in the San Diego region. Provide information about challenges that had existed in the 1990s. Discuss lessons learned from the EV Project planning.>

<Insert and describe the pyramid of PEV charging priorities (sources: Dr. Mary Beth Stanek, Director, Environment and Energy Policy and Commercialization, General Motors Company, 2001 and EPRI Charging Triangle)>

Classifying local land use statistics for PEVs

<Provide a bulleted list of priorities used to maximize and develop charging opportunities for PEV drivers. This would include a description of the land uses associated with preferred PEV parking destinations>

<Adopt and insert the BAAQMD's table on "Example of Charging Type based on Purpose" which displays typical venues for charging, available charging times and the primary and secondary charging methods. Additionally add SANDAG's table on typical user profiles and types of equipment that best suits each user's needs. >

Land use/parking analysis for EVSE

<Adopt the Luskin Center's steps in "PEV land use assessment" and describe the assumptions used in identifying potential parking availability. For example, assumptions may include counting MUDs in terms of individual units, not individual buildings; assume there is a parking space for every employee at a workplace.>

PEVs in government fleets

<Describe the opportunities and process to expand PEVs in local government fleets>
<Insert the PEVs in government fleets fact sheet>

PEVs support local government sustainability goals

<Describe integrating PEV readiness may further local agency and government climate planning and sustainability goals.>

Public electric vehicle charging stations

<Provide information on the challenges surrounding public EVSE installations. ID need for acceptable procurement language and the importance of consistent language for RFPs to get EVSE installed.>

<Describe the issues of what happens without proper RFP language. Discuss problems vendors and agencies have in terms of liability and insurance requirements, etc.>

<Insert the RFP outline accepted by REVI>

Estimating the future demand for EVSE in the region

Level 1 and Level 2 EVSE

DC fast charging

Permitting for EVSE

Overview

<Provide an introduction on streamlining the permitting process in the San Diego region. From a planning perspective, describe why addressing permitting first is critical and how this prepares jurisdictions to better address other issues, e.g. zoning & parking, commercial/MUD installations, and building code changes>

Permitting EVSE installations at single-family residences

<Describe the issues of SFR permitting (e.g. high permitting costs across the region; use ECOtality presentation for reference>

Recommendations

<Insert the residential permit and inspection guidelines accepted by REVI>

Charging at multi-unit dwellings

<Describe the importance of MUD planning generally and note specific ways in which the region is a recognized leader in MUD planning>

Planning metrics for MUD charging

<Describe which types of MUDs (e.g. higher density multifamily) could offer the most PEV charging opportunities>

MUD charging opportunities within San Diego jurisdictions

<Describe the potential for MUD charging opportunities by comparing the housing stock of MUD and single-family residential housing units in the region; compare San Diego County jurisdictions by MUD units, single-family units, and employees. Housing units and the number of employees by jurisdiction will be accessed by California Department of Finance statistics>

MUD Installation Process

<Describe complementary materials for MUD owners/occupants that fill information gaps in what SDG&E can't provide under CPUC rules>

<Insert EVSE at MUD fact sheet>

Pricing policies and models for MUD charging

<Describe state-level policies for MUDs and display Senate Bill 880. Display pricing models for cost recovery and financial viability scenarios created by the UCLA Luskin Center>

Recommendations

<Insert recommendations for property managers and building owners that reduce hard and soft costs of MUD installation>

Commercial and public sector charging

<Provide an introduction on the factors involved with public charging, associated costs and the challenges with pricing>
<Describe who is responsible for providing the charging, the costs involved, how to recoup costs>

Benchmarks public-sector and retail charging sites

<Suggest that planners consider evaluation criteria when prioritizing a site (e.g. frequency of visits per week, time cars are parked, cost of electricity (i.e. demand charges), and the opportunity cost of non-PEV parking spaces to the host)>

Cost-effective public locations

<Describe sites that offer the lowest possible costs of charging and maximize locations with longer dwell times (higher chance for Level 1 usage) and the value of regular parking to the site host (opportunity cost of a non-PEV parking space)>

Publicly-owned and retail sites

<Provide examples of public sites which generally have parking longer than two hours (e.g. government offices, transit lot stations locations [i.e. trolley, airport], recreation centers and facilities, faith centers, and clubs); examples of retail sites with more than two hours of parking (e.g. big box retailers, sporting facilities, shopping malls, fitness centers). Source: "How People Use Their Vehicles: Statistics" from the 2009 National Household Travel Survey, Krumm 2009)

Charging at the workplace

Overview

<Provide an introduction on the opportunities to expand and support workplace charging in the region>
<Describe stakeholder engagement and factors involved with workplace charging installations>
<Insert recommendations for facilitating commercial and public sector charging>

Workplace charging opportunity

<Describe the importance of encouraging charging opportunities to develop in the workplace.>

<Provide planners and SDG&E with the following tools: absolute number of employees and workplace by jurisdiction; share of employees, largest regional employers and where they are located; number high-tech workplaces by jurisdiction. These numbers can be sourced from the U.S. Census, Bureau of Labor Statistics, California Employment Development Department, and SANDAG employment information>

San Diego regional non-residential charging study

<Describe and insert the summary of the CCSE non-res EVSE report, value proposition of hosting public charging>

Workplace charging station installation process

<Describe the stakeholder engagement and factors involved with workplace charging installations.>
<Insert the California Plug-in Electric Vehicle Collaborative Workplace Charging Communication Guide, 2012>
<Insert the workplace charging fact sheet>

Recommendations

<Insert recommendations for local planners to facilitating workplace charging for regional employers>

Zoning and parking policies for PEVs

Overview

<Describe how zoning codes can shape certain types of development, including the adoption of EVSE. Describe REVI efforts for addressing accessibility for PEV parking>

Accessibility for PEV parking

<Describe the REVI comments to the OPR accessibility guidelines and the City of San Diego Technical Policy 11-B>
<Insert City of San Diego Technical Policy 11-B>

Zoning ordinances resources

<Describe and insert zoning ordinances examples of EVSE-friendly language (e.g. City of LA, City of Lancaster>
<Insert relevant OPR Guidebook info>

PEV Signage

<Describe the California Manual on Uniform Traffic Control Device PEV signage policy. Include high resolution pictures of the adopted regulatory and general directional PEV signs>

Recommendations

<Insert recommendations for facilitating PEV charging through zoning and parking policies.>

Building code changes

Overview

<Describe how building code updates for EVSE are a long-term regional goal and will likely be supplanted by statewide updates to Title 24 and the CALGreen building code>

CALGreen

<Describe the CALGreen voluntary measures that local jurisdictions can adopt for EVSE>

<Insert CALGreen EVSE code language and Title 24 updating process per Ed Pike's presentation>

Building code resources

<Describe and insert EVSE-friendly building code examples (e.g. City of LA, Temecula, Boulder County, Colorado)>

Recommendations

<Insert recommendations for facilitating PEV charging through updating local building codes with EVSE requirements>

Utility Solutions

Overview

<Provide an introduction on minimizing grid impacts due to PEV charging (e.g. PEV neighborhood clustering and support of time-of-use rate adoption among local PEV drivers><Describe the long-term challenges with high levels of PEV adoption such as clustering, congestion and capacity expansion>

Utility notification protocol

<Describe the benefits of utility documentation of EVSE locations within SDG&E territory>
<Discuss the need for local government to work with utilities in order to ensure that their constituents receive reliable service>

SDG&E Time-of-use rates

<Describe the financial benefits of TOU rates and how to support SDG&E outreach efforts>
<Describe commercial TOU rates and CPUC policies for commercial rates>

<Describe the costs and experience of installing a second meter (i.e. sometimes more than $2,000 according to the SCAG PEV readiness plan, compiling SDGE territory figures to compare). Within SDG&E territory, the installation of a second meter is at the customer's expense>

Minimizing grid impacts

<Describe the opportunities for smart grid technologies, such as battery storage and other technologies that monitor and control charge events. Also provide information on renewable energy options for PEV owners>

PEV Training, Education & Outreach

Overview

<Provide an introduction on the training and education opportunities for PEV-related stakeholders in the San Diego region>

PEV training for local government staff

<Describe the PEV readiness workshop in San Diego (June 2012) and the PEV Community Readiness training session (January 2013), include EVTIP training and other training resources>

<Insert training for municipal staff and fact sheet>

Training opportunities for local contractors

<Describe the EVITP training for local EVSE installers and provide a list of the current educational resources available, which include NECA in San Diego, and ATTE Miramar>

<Insert the training for electrical contractor's fact sheet>

First responders

<Describe the regional training programs for first responders and emergency and safety officials, which include online courses by National Alternative Fuels Training Consortium and National Fire Protection Association, and ATTE Miramar.>

Local PEV dealer outreach

<Describe the local efforts to increase training and education opportunities for local PEV dealers>
<Insert San Diego Regional Clean Cities PEV dealership outreach flier>

The Road Ahead

Overview

<Describe the importance to provide continued planning support for regional stakeholders by addressing outstanding gaps and emerging trends and future needs>

Increased PEV presence

<Describe a plan to attract PEV manufacturing, production, infrastructure, and services of PEV development in the region.>

Anticipating future PEV needs

<Develop a1-2 year, 3-5 year, and 5-10 year plan for future PEV needs>