California Energy Commission
San Joaquin Valley Air Pollution Control District

San Joaquin Valley Plug-In Electric Vehicle Coordinating Council

Date: Thursday, March 7, 2013
Time: 10:00 a.m. – 12:00 p.m.
Location: SJVAPCD Fresno Office
1990 E. Gettysburg Ave.
Fresno, CA 93726

Teleconference information: Call-in: 646-364-1285 Access Code: 6619701

Video Teleconferencing at the following locations:

Modesto	Bakersfield
4800 Enterprise Way	34946 Flyover Court
Modesto, CA 95356	Bakersfield, CA 93308

March 7, 2013 Meeting Agenda (+ next to an item indicates an attachment)

1. Welcome and Introductions (Nhia Vu, SJVAPCD)

2. Announcements and Public Comments (All)

+3. Summary of February 7, 2013 Meeting (Jessica Thoma, CCSE)

+4. Regional PEV Readiness Plan Development (SJVPEVCC members and Tyler Petersen, CCSE)

A. PEV Zoning and Parking Rules
- Review *San Joaquin Valley Readiness Assessment* Results and Recommendations
- SJV PEVCC Member Feedback and Discussion
- Identify Member Action Items

B. Lack of Public Knowledge of PEV and EVSE
- Review *San Joaquin Valley Readiness Assessment* Results and Recommendations
- SJV PEVCC Member Feedback and Discussion
- Identify Member Action Items

C. Training and Education for Municipal Staff and Electrical Contractors
- Review *San Joaquin Valley Readiness Assessment* Results and Recommendations
- SJV PEVCC Member Feedback and Discussion
- Identify Member Action Items

+5. Barrier topics for April 4, 2013 Meeting (SJVPEVCC members and Tyler Petersen, CCSE)

A. Permitting/Inspection of EVSE
B. On Peak Charging – TOU Utility Rates and Grid Impacts

The next SJV PEVCC meeting will take place on **April 4, 2013 from 10:00 a.m. - 12:00 p.m.**

San Joaquin Valley Plug-in Electric Vehicle Coordinating Council

February 7, 2013 MEETING SUMMARY

ATTENDEES:

Video Teleconference (VTC): Fresno (Central), Modesto (North) and Bakersfield (South)

Central Office Attendees:				
Fresno COG	**Merced County**	**Kings County**	**Madera County**	**City of Clovis**
Lauren Dawson	Jeff Fugelsang	George Cowett	Johannes Hoevertsz	Kendall Cook
City of Fresno	**Southern CA Edison**	**SJV Clean Energy Organization**	**Charge Point**	**SJVAPCD**
Joseph Oldham	Beth Neaman	Courtney Kalashian	Kumar Gogineni	Juan Cano
SJVAPCD	**SJVAPCD**	**CCSE**	**CCSE**	
Samir Sheikh	Nhia Vu	David Almeida	Tyler Petersen	

North Office Attendees:			
Stanislaus County Association of Governments	**Modesto Irrigation District**	**City of Stockton**	**Turlock Irrigation District**
Mike Costa	Queta Maldonado	David Stagnaro	Chris Poley

South Office Attendees:	
Kern County	**SJV Clean Cities/Kern COG**
Robert Dmohowski	Linda Urata

Conference Call Attendees:	
City of Tracy	**Madera CTC**
Kimberly Matlock	Dylan Stone

San Joaquin Valley Plug-in Electric Vehicle Coordinating Council

Agenda Notes:

ITEM #1: WELCOME AND INTRODUCTIONS

Samir Sheikh, Director of Strategies & Incentives at the San Joaquin Valley Air Pollution Control District welcomed the group to the first San Joaquin Valley Plug-in Electric Vehicle Coordinating Council (SJVPEVCC) meeting. Mr. Sheikh made note of the efforts made in coordinating this group and stressed the important work the group will undertake this year.

Mr. Sheikh highlighted the following items:

- With 50% of emissions in the Valley emanating from mobile sources, the Coordinating Council faces a daunting challenge.
- Plug-in electric vehicles (PEVs) play an important role in reducing harmful emissions so it is important that this group work together to find ways to advance the PEV market.
- In an effort to promote PEV's, the San Joaquin Valley Air Pollution Control District (SJVAPCD) has implemented one of the most generous rebate programs in the state. Coupling this incentive with education and outreach is one of the next important steps that must be taken.
- Mr. Sheikh announced that the group has been assembled to create a regionally-focused and recognized joint PEV readiness plan that will serve as a living document.
- Mr. Sheikh recognized the District staff and the California Center for Sustainable Energy (CCSE) for their work in creating the San Joaquin Valley PEV Readiness Assessment report; and the staff's efforts in coordinating this group.

Attendees at the Fresno, Modest and Bakersfield office introduced themselves as well as attendees on the phone.

ITEM #2: ANNOUNCMENTS AND PUBLIC COMMENTS

Linda Urata, Kern Council of Governments & San Joaquin Valley Clean Cities, introduced the SJV Clean Cities Program which works on alternative fuel development.

ITEM #3: SAN JOAQUIN VALLEY PLUG-IN ELECTRIC VEHICLE COORDINATING COUNCIL (SJVPEVCC) OBJECTIVES

The SJVPEVCC objectives were provided to the group for review and feedback. The following are comments provided by the Coordinating Council members:

- Joseph Oldham, City of Fresno, stated that he believed the goals are broad enough.
- David Stagnaro, City of Stockton, questioned if there has there been any thought to creating model ordinances and/or general plan components that would facilitate the deployment of PEVs. These types of models would be valuable in the Valley considering the lack of resources available. Providing these model rules would save money and resources.
- Mr. Oldham informed the group that the City of Fresno included EV language in their general plan update. He recommends visiting www.coolcalifornia.org to view a list of robust recommendations.
- Courtney Kalashian, SJV Clean Energy Organization, argued that smaller populated and rural communities will need to be continually brought into the conversations among the Council.
- Johannes Hoevertsz, Madera County, stated PEV adoption in his community is almost non-existent and discussing the viability of public EVSE infrastructure is difficult.
- Jeff Fugelsang, Merced County, recommended that we work with the Office of Planning and

Research to get an exemption to CEQA, if public EVSE space requirements are less than 10,000 square feet.

- Ms. Urata stated that the Kern Council of Governments is in the process of updating the Regional Transportation Plan (RTP). Referring to the second goal, Ms. Urata stated that RTPs vary from community to community and the second SJV PEVCC goal should be re-worded to reflect the regional variance.
- Kimberly Matlock, City of Tracy, stressed the importance of receiving community "buy-in"
    - If the community is not supportive then it will not resonate.

The members all agreed that the next steps should be to reword the second goal and send out to the larger group.

ITEM #4: IDENTIFIED PEV BARRIERS IN SAN JOAQUIN VALLEY

Prior to the meeting, all attendees received a list that identified 12 barriers. During this section of the meeting, each participant was given a few minutes to review the list of barriers and then was asked to report back to the group with their top 3 barriers.

The responses that were received were added up and a scoring metric was created. A #1 vote received three points, a #2 vote received two points and a #3 vote received one point. The three highest scoring barriers, as identified by each SJV PEVCC member and their associated scores are identified in the table below.

Ranking	Barrier	# of Total Votes Received	Total Score
1.	Lack of Public Knowledge of PEV and EVSE	11	27
2.	Zoning and Parking Rules	10	21
3.	Training and Education for Municipal Staff and Electrical Contractors	5	9

Based on this information provided by the group, the most pressing barriers are: the **Lack of Public Knowledge of PEV and EVSE** and **Zoning and Parking Rules**. This feedback has identified the barrier priorities for the Council, and will determine the focus of our upcoming meetings.

During the barrier conversation, a number of members identified additional PEV readiness barriers. The additional barriers are listed below:

1. Ms. Urata stated that there is a need to develop and share policy, liability, and management documents. This means creating guidelines for management regarding public and workplace operations and maintenance relating to EVSE. . Laura Dawson, Fresno COG, reiterated the comments provided by Ms. Urata.
2. Queta Maldonado, Modesto Irrigation District, argued that an important barrier is the lack of dealership knowledge. He recommended that dealership outreach be a main focus for this group.
3. Mike Costa, Stanislaus COG, stated that it is important to incorporate PEV friendly policies in RTPs.
4. Mr. Oldham highlighted the importance of incentives. With the lack of PEV infrastructure, it is important to incentivize people in order to get the industry off the ground. Kumar Gogineni, Charge Point, agreed with Mr. Oldham that incentives should be a focus and stressed that agencies should p focus on reducing cost of EVSE for consumers.

5. Kendell Cook, City of Clovis, supported Ms. Urata's recommendation highlighting the importance of identifying information such as the responsibility of maintenance and operation of public EVSEs. Ms. Cook also noted the importance of interoperability of infrastructure.

ITEM #5: SAN JOAQUIN VALLEY PLUG-IN ELECTRIC READINESS ASSESSMENT

David Almeida, CCSE, introduced to the group the San Joaquin Valley PEV Readiness Assessment that has been published. The assessment is a PEV planning resource for San Joaquin Valley cities. The assessment includes a "PEV 101" which provides basic information on vehicles and charging stations, information on incentives available in the Valley, and vehicle deployment and regional driver demographic data. Mr. Almeida highlighted that the assessment focuses on five core areas:

1. Zoning & Parking
2. Permitting and Inspection
3. Building Codes
4. Training and Education
5. Outreach to Local Businesses and Residents

Each issue area includes an evaluation of readiness based on surveys of jurisdictions during 2012, and then targeted recommendations based on local and external best practices. Some of the proposed recommendations are to update zoning and parking policies, update building codes and streamline permitting and inspections for EVSE. Additionally, it was recommended to provide training and education programs as well as PEV outreach to local residents and businesses.

During the assessment, a one-stop shop website was created for homeowners, businesses, installers and cities/governments. The plug-in and get ready website can be found at: www.energycenter.org/pluginready. The complete assessment along with information relating to the SJVPEVCC can all be found at this site.

ITEM #6: PROPOSED MEETING TIMELINE AND STRUCTURE

All members agreed to meet monthly. The members also stated that in-person meetings are most beneficial. The SJV PEVCC will meet on the first Thursday of every month from 10:00am-12:00pm. VTC will be provided at the Fresno, Modesto and Bakersfield office. The next meeting topic will be dependent on the results of the prioritized barriers.

SECTION 5: ZONING AND PARKING

This section focuses on zoning and parking ordinances and policies and their relationship to the installation of residential and public PEV charging infrastructure in the San Joaquin Valley. The first part identifies potential gaps and areas for improvement in local zoning and parking policies for EVSE from the results of the San Joaquin Valley PEV readiness survey. The second part provides a summary of the actions taken to date regarding addressing signage and parking guidelines for PEVs in the San Joaquin Valley. The final part provides concise recommendations for zoning and parking polices in the region based on lessons learned since the project's inception.

Policy Gaps and Areas for Improvement: Zoning and Parking

Eighteen jurisdictions in the San Joaquin Valley region completed the zoning and parking section of the PEV readiness survey. This is only 31% of the 64 cities and counties that were included in the survey. Despite the low participation rate, based on the results on this section, we have identified that most of the agencies in the region have not considered zoning and parking policies for EVSE. In fact, only 5% of cities responding to the survey have looked at EVSE requirements of other agencies to determine what zoning and parking requirements are best for their jurisdiction. The table below highlights the results.

Participating Jurisdictions in the San Joaquin Valley: **Clovis**, **Coalinga**, **Tracy**, **Merced**, **Fresno**, **Tulare**, **Bakersfield**, **Kingsburg**, **Orange Cove**, **Arvin**, **McFarland**, **Madera**, **Modesto**, **Newman**, **Taft**, **Visalia**, **Lodi** and **Manteca**

Note: The **City of Clovis** and **Merced** had two individuals provide separate responses for their jurisdiction, each was credited. This information is based on surveys conducted in 2012, some cities may have begun working on PEV readiness since the survey was implemented but this will not be reflected in the section below.

Assessing Zoning and Parking Requirements for EVSE and PEVs

Percent*	Agency Assessment
0%	Agency has already adopted requirements for EVSE that we feel would be a best practice example for the state of California
0%	Agency is in the process of adopting requirements for EVSE
5%	Agency is looking at other agencies' requirements for EVSE to determine what is best for their jurisdiction (**Merced**)
25%	Agency requires further information to determine requirements for EVSE (**Clovis**, **Orange Cove**, **Madera**, **Manteca**)
15%	Agency has only started to consider how to adapt requirements for EVSE (**Tracy**, **Fresno**, **Arvin**, **Visalia**)
55%	Agency has not started to look at how to adapt requirements for EVSE (**Coalinga**, **Tulare**, **Bakersfield**, **Merced**, **Kingsburg**, **McFarland**, **Modesto**, **Newman**, **Taft**, **Lodi**)

*All percentages are rounded to the nearest whole number; as a result, the total percentage may not equal 100%

Lack of Staff Resources Throughout the Region

From personal phone calls conducted while administering the survey, it was clear that the lack of staff resources was a significant barrier for the majority of regional agencies. In some cases, the planning department consists of only one person. This makes any update to a city's municipal code a daunting task. The **City of Madera**, for example, acknowledged that it was in the process of updating zoning ordinances to include EVSE but needed more information to determine how to properly incorporate EVSE. Furthermore, the **City of Madera** had only one staff person responsible for updating their municipal code. Despite this, the planner indicated that a draft of the updated municipal code is on schedule to be completed by the end of 2012, with a public hearing process in spring 2013 and possibly adoption of EVSE zoning and parking policies in summer 2013. Subsequently, CCSE shared with Madera staff a set of recognized best practices that regional governments in California and Canada have adopted to promote PEV infrastructure. These best practices include building code requirements and zoning and parking ordinances for PEV infrastructure.

In support of this practice, a significant majority of jurisdictions (85%) said that it would be helpful to have other best practice zoning and parking ordinances available for reference; however, only 30% would be willing to share best practice documents with regional partners, if they felt their zoning and parking requirements were identified as a best practice example in the state.

Majority of Local Agencies Have Not Developed or Modified Existing Ordinances for EVSE

A significant majority (80%) of cities in the San Joaquin Valley have not developed or modified existing ordinances for the incorporation of EVSE into their municipal code. The lack of staff resources is one reason, but survey respondents also indicated they have not experienced the public demand to justify the use of resources to incorporate specific EVSE policies. The **City of Modesto**, for example, has not considered adopting zoning and parking policies because of the lack of public demand for PEV infrastructure in the city. The **City of Newman**, on the other hand, indicated that they are reactive to state policies and would adopt new zoning and parking EVSE requirements if mandated by the state. Otherwise, staff will make no changes to the municipal code. The **City of Newman** is also short staffed, as it currently employs only one individual to run the planning department. As mentioned previously, the distribution of zoning and parking best practices is critical to spur EVSE deployment in the region.

Again, while none of the jurisdictions responding to the survey have developed unique zoning and parking ordinances for EVSE installations, jurisdictions such as the **City of Tracy** reported that if their planning agency was in the process of adopting revised zoning and parking ordinances for EVSE, staff anticipated it would take up to six months for adopting new ordinances. In addition, the cities of **Merced**, **Modesto**, **McFarland** and **Manteca** would likely take six to eight months to amend their zoning ordinance. Times for other cities, such as **Newman**, **Taft** and **Lodi**, are slightly shorter with ordinance adoption taking anywhere from a few months to four to six months. On the other hand, the cities of **Coalinga** and **Tulare** expect a year for any revised ordinances that include EVSE zoning and parking regulations to be included. It should be noted that the **City of Coalinga** reported that it had used consultants to develop general zoning and parking ordinances for EVSE.

Addressing Policy Gaps and Areas for Improvement

While addressing EVSE zoning and parking policies in the San Joaquin Valley is a significant issue, there has been only one jurisdiction working on developing internal policies. The following section describes the **City of Tracy's** work to address parking guidelines at PEV charging stations. Additionally, this section describes the regional adoption of CALGreen Building Codes and the statewide effort to create more consistent PEV signage.

Local Sustainability Action Plan: The City of Tracy

The City of Tracy Sustainability Action Plan, published in February 2011, includes an analysis of sustainability targets, specific measures and a summary of expected benefits.[14] In the transportation and land use sustainability measures, the plan calls for the "increased use of low-carbon fueled

[14] The City of Tracy Sustainability Plan, 2011, www.ci.tracy.ca.us/documents/Sustainability_Action_Plan.pdf

vehicles" to support low-carbon fueled vehicles policies, which inherently stimulate the adoption of PEVs and PEV infrastructure.

Transportation and Land Use Measure: *Increased Use of Low-Carbon Fueled Vehicles*[15]

Conduct the following to promote the use of low-carbon fueled vehicles:

- Amend the zoning ordinance or city standards to require new projects to provide parking spaces reserved for hybrid or **electric vehicles (EVs)**, carpool or car share vehicles.
- Require dedicated parking spots for alternative fuel, hybrid, carpool, or car share vehicles in city parking lots **and consider installing charging connections**.
- Encourage the use of hybrid and **electric construction equipment** and the use of alternative fuels for construction equipment.

Parking Guidelines

Some jurisdictions are in the process of adopting CALGreen Building Code requirements that designate 10% of parking be set aside for all alternative fuel and low-emission vehicles in public spaces. However, none of the jurisdictions in the San Joaquin Valley has adopted the voluntary measures for EVSE included in CALGreen that specifically recommend prewiring for EVSE in residential and nonresidential new buildings. The 2010 California Green Building Standards Code (CALGreen) became effective on January 1, 2011.

The **City of Merced**, for instance, has adopted the 10% parking set aside, but has yet to complete any public EVSE installations. On the other hand, the city has recently purchased 22 hybrid vehicles and has multiple city-owned compressed natural gas (CNG) trucks for garbage collection. This highlights that regional communities are taking measures to become more sustainable in the transportation sector, however, more education on the benefits of fleet conversion to PEVs (e.g., financial incentives and economics) and the installation of EVSE are needed. The city has identified that the low volume of PEV vehicle purchases in the region does not justify the use of public funds for PEV infrastructure. Further, the city indicated that the implementation of specific EVSE zoning and parking policies into the city's municipal code is unlikely with limited staff resources.

EVSE Signage

While not a regional effort, it is important to recognize work on the state level to develop more consistent signage for PEVs. The California Department of Transportation, Sonoma County Department of General Services and the California PEV Collaborative have developed a proposal to add five signs, one plaque and an optional pavement marking to the 2012 edition of the *California Manual on Uniform Traffic Control Devices* (CA MUTCD). This effort is tied directly to Governor Brown's Zero Emission Vehicle Executive Order, which has a goal of reaching 1.5 million PEVs and fuel cell vehicles by 2025.

These signs are categorized into regulatory and general service signs. Examples of the new signs are included.

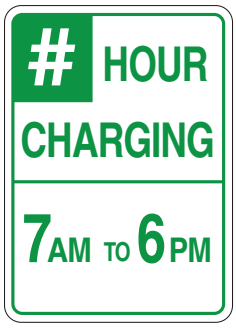
Regulatory Signs

PEV Tow-Away Symbol: This sign indicates that vehicles will be towed if not utilizing the available charging station (per CVC 21511). This sign will include the tow-away symbol with the following language "UNAUTHORIZED VEHICLES NOT CONNECTED FOR ELECTRIC CHARGING PURPOSES WILL BE TOWED AWAY AT THE OWNER'S EXPENSE . . ." with red text on a white background and be 24" x 24".

[15] The EV parking recommendation also calls for other sustainable transportation measures such as encouraging employers to create vanpool or shuttle programs for employees and converting the municipal automotive fleet to cleaner fuels and lower emissions. All low-emission vehicle recommendations are located in T-17: Increased Use of Low Carbon Fueled Vehicles, pp. 5-13.

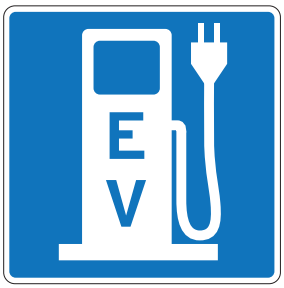
No Parking Symbol: This sign indicates no parking unless for charging a PEV. This will include the following language "EXCEPT FOR ELECTRIC VEHICLE CHARGING" with red text on a white background and be 12" x 18".

Permissive Charging Symbol: This sign indicates the time that charging will be available and will include the following language "[Electric Vehicle] __ HOUR CHARGING - __AM TO __PM" with green text on a white background and be 12" x 18".

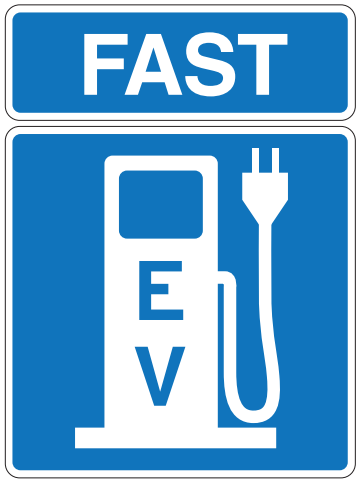


General Directional Signs

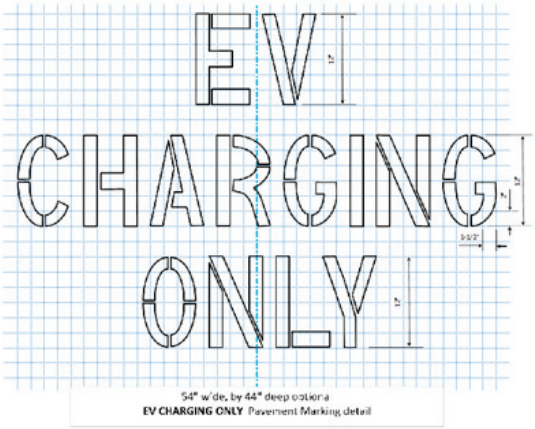
Electric Vehicle Charging Station Symbol and Word Message Signs: These signs will assist in directing PEV drivers to charging stations from the freeway, local streets and at charging locations. The sign includes the EV charging station symbol (shown) or the following text "ELECTRIC VEHICLE CHARGING STATION" with white text on blue background. Sign sizes should be 30" x 30" for freeway or major arterial highway application, 24" x 24" for local streets, and 18" x 18" off-street parking application.



FAST Electric Vehicle Charging Station: This plaque indicates the charging station is capable of a charge in less than one hour (faster charge compared to a Level 2 station). The sign will include the language "FAST" in white text on a blue background and be 24" x 6" or 30" x 8". This plaque is for use only with the Electric Vehicle Charging station symbol and word message.



Optional EV charging Pavement Marking: This pavement marking will indicate a parking space is for EV charging only for on- and off-street electric vehicle charging station stalls. The pavement marking will include the following language "EV CHARGING ONLY" in white text.



Recommendations for Regional Next Steps

Based on the feedback from the PEV readiness survey, we have identified that zoning and parking policies for EVSE are practically nonexistent in the San Joaquin Valley. Jurisdictions across the region have expressed interest in receiving information on how other agencies have developed these policies. While a few agencies have begun to address some of these issues, there are additional areas where clear guidance is needed.

Through the lessons learned in the San Joaquin Valley and a review of national and state best practices, we have identified four recommendations. The first three are focused on consistent signage, designated parking for PEVs and parking accessibility guidelines. The fourth recommendation is more of a strategy that utilizes the San Joaquin Valley Plug-in Electric Vehicle Coordinating Council to review and prioritize national and state best practices and identify how these will be implemented in the region. Note that a complete list of best practices reviewed in preparation of this plan is included in the zoning and parking section of the Appendix.

Consistent General Service and Regulatory Signage

Recommendation: Collectively adopt across the San Joaquin Valley region the general service and regulatory PEV signage recommended by the California Department of Transportation, the California Plug-in Electric Vehicle Collaborative and the County of Sonoma amendments to the 2012 edition of the California Manual on Uniform Traffic Control Devices.

Benefits: Standardizing signs for PEV parking across the San Joaquin Valley will decrease costs, create uniformity. This signage was based on signage currently endorsed by the state and the U.S. Department of Transportation Federal Highway Administration (FHWA). Aligning regional signage policy with state and federal efforts allows for more consistent signage and less confusion for PEV drivers.

Update Municipal Zoning Language for Dedicated PEV Parking

Recommendation: Incorporate PEV parking requirements in public, private and government facilities based on market growth of PEVs in the region. Further, municipalities should leverage the "Hawaii State Plug-in Electric Vehicle Parking Requirement" and update their zoning ordinances to reflect the following language.

Updated Zoning Language to be Adopted:

All public, private and government parking facilities that are available for use by the general public and that include at least 100 parking spaces must designate at least the number of parking spaces outlined in the following table specifically for the use of PEVs. The spaces designated for PEVs will continue to increase by 1% for each additional 5,000 registered PEVs until the percentage reaches 10%.

Total Number of Parking Spaces	Number of Required PEV Spaces
1 – 50	1
51 – 200	2
201 and over	4

Benefits: Provides certainty in the marketplace that there will be dedicated parking spaces for PEVs. The addition of the market threshold provision ensures that enforcement policies are enacted when there is sufficient demand for this infrastructure.

EVSE Parking Accessibility

Recommendation: Utilize the *City of San Diego Technical Policy 11B-1* as policy for installing charging equipment serving accessible EVSE.

Benefits: Provides a simple template for adopting accessible zoning and parking guidelines for PEVs and EVSE. This makes available three options that will ultimately lower the cost of installation for installers and EVSE hosts. This policy also leverages guidelines developed by the Division of the State Architect and 2010 California Building Code (CBC) that requires accommodations and services to be made accessible to persons with disabilities.

As mentioned previously, a complete description of *City of San Diego Technical Policy 11B-1* specifications for disabled accessible EV charging stations and requirements can be found in the Appendix.

Utilize the SJV PEV Coordinating Council (PEVCC) to Identify, Prioritize and Implement Zoning and Parking Best Practices to Regional Stakeholders

Recommendation: Leverage SJV PEVCC members and the list of existing best practices collected by CCSE to identify and prioritize EVSE zoning and parking best practices that will assist in promoting PEVs through policies and processes that are relevant to the San Joaquin Valley. Once these best practices have been prioritized, work with the SJV PEVCC members to disseminate and develop appropriate implementation plans, on either the regional or jurisdictional level.

Benefits: Working with SJV PEVCC members will help to ensure regional support for zoning and parking best practices and thereby greater likelihood of implementation. In addition, leveraging the members of SJV PEVCC's extensive network of regional contacts allows for a more efficient way to direct best practices and other resources to municipalities with the greatest needs.

APPENDIX

San Joaquin Valley
PLUG-IN ELECTRIC VEHICLE (PEV) READINESS PLAN

Phase One Regional PEV Assessment

APPENDIX

Plug-in Electric Vehicle (PEV) Readiness Planning Best Practices

Complied by the California Center for Sustainable Energy (CCSE)

Zoning and Parking

Throughout California, the US and Canada, a number of cities have implemented electric vehicle supply equipment (EVSE) installation zoning ordinances in an effort to promote the deployment of PEVs and charging infrastructure. The following section provides a brief description of policies and mandates that other cities and states have implemented in regards to parking capacity regulations for PEVs and other alternative-fuel vehicles, parking enforcement procedures for spaces with electric vehicle infrastructure and accessibility standards for PEV parking.

Best Practices

Parking Capacity

Los Angeles County
Designated parking 8% for any combination of low emitting, fuel-efficient, and carpool/van pool vehicles. The parking provider must make available appropriate marking or signs.

California Green Building Standards Code
A5.106.6 Parking Capacity. Design parking capacity to meet but not exceed minimum local zoning requirements.

A5.106.6.1 Reduce parking capacity. With the approval of the enforcement authority, employ strategies to reduce on-site parking area by

1) Use of on street parking or compact spaces, illustrated on the site plan or
2) Implementation and documentation of programs that encourage occupants to carpool ride share or use alternate transportation.

California Green Building Standards Code
Nonresidential Mandatory Measures
5.106.5.2 Designated parking. Provide designated parking for any combination of low emitting, fuel-efficient and carpool/van pool vehicles, including PEVs for up to 10% of total designated parking spaces.
5.106.5.2.1 Parking stall marking. Paint, in the paint used for stall striping, the following characters such that the lower edge of the last word aligns with the end of the stall striping and is visible beneath a parked vehicle.

City of Vancouver, British Columbia, Canada
13.2.1. Electric Vehicle Charging
13.2.1.1. Parking Stalls
1) Each one of the 20% of the parking stalls that are for use by owners or occupiers of dwelling units in a multi-family building that includes three or more dwelling units, or in the multi-family component of a mixed use building that includes three or more dwelling units must include a receptacle to accommodate use by electric vehicle charging equipment.

State of Hawaii
Hawaii State Legislature passed Act 156, the "Hawaii State Plug-in Electric Vehicle Parking Requirement."
The law states:

All public, private, and government parking facilities that are available for use by the general public and that include at least one hundred parking spaces must designate at least 1% of the spaces specifically for EVs by December 31, 2011. The spaces designated for EVs will continue to increase by 1% for each additional 5,000 registered EVs until the percentage reaches 10%.[1]

This law was revised in 2012 to Act 089 or SB 2747 to require that:

Places of public accommodation with at least 100 parking spaces available for use by the general public designate at least one space for the exclusive use of EVs, and are equipped with an EV charging system by July 1, 2012.[2]

Parking Enforcement

City of Santa Monica
3.12.835 Electric vehicle parking: The Director of Planning and Community Development, or his or her designee, is authorized to designate parking spaces or stalls in an off-street parking facility owned and operated by the City of Santa Monica or the Parking Authority of the City of Santa Monica for the exclusive purpose of charging and parking a vehicle that is connected for electric charging purposes. (Adopted at City Council Meeting 07/24/2012)[3]

Accessibility

The City of San Diego
Technical Policy 11B-1: Accessibility to Electric Vehicle Charging Stations: The City of San Diego requires public accommodations and services be made accessible to persons with disabilities. Technical Policy 11B-1 requires that a ratio of parking spaces with EVSE in existing or new construction be accessible. A full detail of the specifications for disabled accessible EV charging stations and requirements can be found below.

County of Sonoma
Electric Vehicle Charging Station Program and Installation Guidelines[4]
Existing Parking Facilities
The first charger may also be installed at an existing accessible parking space that is also part of the required number of accessible stalls for that parking lot; provided signage clarifies that this stall can be used for accessible parking and/or electric vehicle charging by vehicles displaying a DP placard or license plate.

New Buildings, Site Construction or Redevelopment
When EVSE are planned as part of a new building, a redevelopment or major site reconstruction at least one EVSE in ten (10) shall comply with the accessibility requirements in the C.B.C. Title 24 and A.D.A. The one in ten ratio is not an A.D.A. requirement, but one developed by the County of Sonoma "Permit and Resource Management Department." When equipped with card readers, the C.B.C. requires the first two EVSE to be accessible.

Signage for PEV Parking

U.S. Department of Transportation Federal Highway Administration (FHWA)
EV Charging General Service Symbol Sign: The United States FHWA adopted the General Service symbol at the request of the Oregon and Washington Departments of Transportation. The PEV Collaborative supports the use of standardized signs to minimize confusion and provide the greatest ease of use for PEV drivers. To this end, the Collaborative recommends that Cal Trans adopt the use of the candidate signs currently being tested in Oregon and Washington, and that local jurisdictions request the use of those signs during the test period with the expectation that they will ultimately be approved at the federal level and become the uniform standard nationally.

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[1] Alternative Fuels & Advanced Vehicles Data Center. (2011 June 15). Hawaii Incentives and Laws for EVs. Retrieved from http://www.afdc.energy.gov/afdc/laws/laws/HI/tech/3270
[2] Ibid
[3] http://www.smgov.net/departments/council/agendas/2012/20120724/s2012072407-A-1.htm
[4] http://www.sonoma-county.org/prmd/docs/misc/ev_prog_guidelines.pdf

Proposal to the California Manual on Uniform Traffic Control Devices

The California Department of Transportation, Sonoma County Department of General Services, and, the California Plug-In Electric Vehicle Collaborative requested that the following 5 new signs, 2 updated sign codes for existing signs; and, optional pavement markings be considered for the *California Manual on Uniform Traffic Control Devices, 2012 edition* (CA MUTCD) for Electric Vehicle Charging Station locations. Examples of the new signs and updates are included below:

Regulatory Signs

PEV Tow-Away Symbol: This sign indicates that vehicles will be towed if not utilizing the available charging station (per CVC 21511). This sign will include the tow-away symbol with the following language "UNAUTHORIZED VEHICLES NOT CONNECTED FOR ELECTRIC CHARGING PURPOSES WILL BE TOWED AWAY AT THE OWNER'S EXPENSE . . ." with red text on a white background and be 24" x 24".

No Parking Symbol: This sign indicates no parking unless for charging a PEV. This will include the following language "EXCEPT FOR ELECTRIC VEHICLE CHARGING" with red text on a white background and be 12" x 18".

Permissive Charging Symbol: This sign indicates the time that charging will be available and will include the following language "[Electric Vehicle] __ HOUR CHARGING - __AM TO __PM" with green text on a white background and be 12" x 18".

General Directional

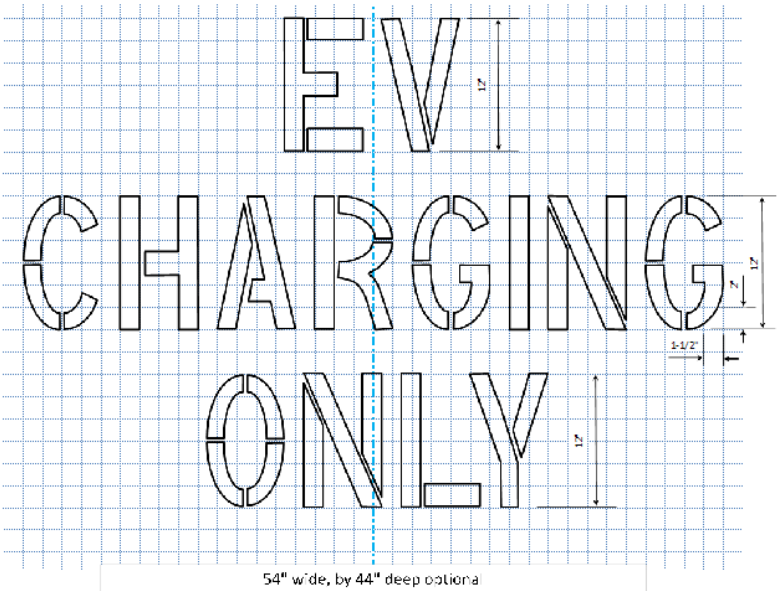
Electric Vehicle Charging Station symbol and word message signs: These signs will assist in directing PEV drivers to charging stations from the freeway, local streets and at charging locations. The sign includes the EV charging station symbol (shown) or the following text "ELECTRIC VEHICLE CHARGING STATION" with white text on blue background. Sign sizes should be 30" x 30" for freeway or major arterial highway application, 24" x 24" for local streets, and 18" x 18" off-street parking application.

Electric Vehicle Charging Station
Symbol Sign

ELECTRIC VEHICLE CHARGING STATION
Word Message Sign

FAST Electric Vehicle Charging Station: This plaque indicates the charging station is capable of a charge in less than one hour (faster charge compared to a Level 2 station). The sign will include the language "FAST" in white text on a blue background and be 24" x 6" or 30" x 8". This plague is for use only with the Electric Vehicle Charging station symbol and word message.

Optional EV charging Pavement Marking**:** This pavement marking will indicate a parking space is for EV charging only for on- and off-street electric vehicle charging station stalls. The pavement marking will include the following language "EV CHARGING ONLY" in white text



54" wide, by 44" deep optional
EV CHARGING ONLY Pavement Marking detail

City of San Diego Technical Policy 11B-1 Specifications and Requirements:

New Construction: The accessible EV charging station(s) must be located in close proximity (DSA recommends within 200 ft.) to a major facility, public way or a major path of travel on the site. This policy is in conjunction with new buildings or parking facilities such as surface parking lots or parking garages.

Existing Sites: An accessible path of travel connecting the accessible EV charging station to a major facility, public way or major path of travel on the site is required to the extent that the cost of providing such path does not exceed 20% of the cost of the EV equipment and installation of all EV charging stations at the site over a three-year period.

Number of Accessible EV Charging Stations Required: When the number of EV charging stations proposed exceeds 25, they shall be provided at a rate of one accessible EV charging station for every 25 stations proposed. Not more than a total of 4 accessible EV charging stations are required on the same site.

Identification for Accessible EV Charging Stations: To identify an accessible EV charging station an informational sign must be posted which reads, "Parking for EV Charging Only; This Space Designed for Disabled Access; Use Last." When an EV charging station is placed in conjunction with an accessible parking space this sign shall be omitted.

Dimensions for Accessible EV Charging Stations: The charging equipment, and when applicable card readers, must meet all applicable reach range provisions of CBC Section 1118B and Ch. 11C for a 30 by 48 inch wheelchair space used for side or front approach. (ii) A clear path of travel measuring not less than 36 inches in clear width shall be provided to access the charging equipment.

The EV charging station shall include a space to place the electric vehicle that is not less than 9 foot wide by 18 feet deep to accommodate the vehicle. The space shall also include a 5 ft. wide access aisle that extends the full depth of the vehicular space and located on the passenger side of the vehicle. Alternatively, the access aisle can be located between an accessible parking space and an accessible EV charging station. See figures 1, 2 and 3 for possible configurations.

Figure 1. Diagram of an EV charging station in an ADA accessible spot and a regular space.

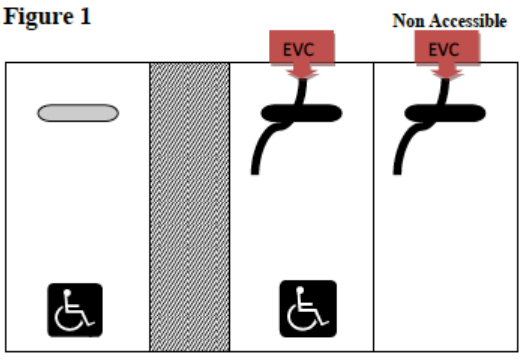


Figure 2. Diagram of an EV charging station installed in the ADA accessible spot, but with charging access in the ADA space and regular space.

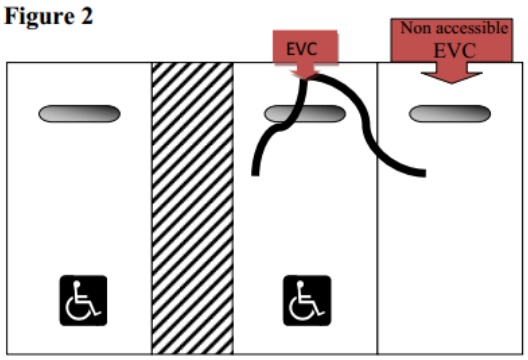
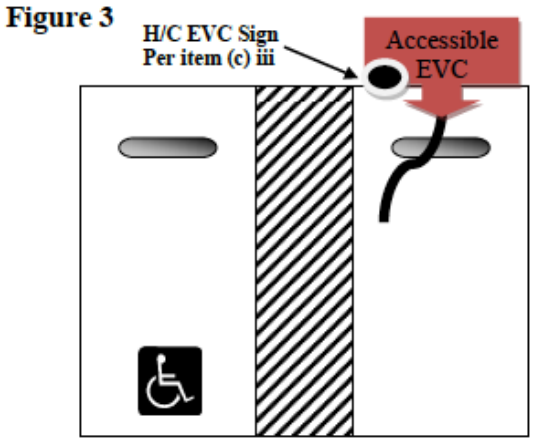


Figure 3. Diagram of one accessible EV charging station that is not designated as an ADA spot but designed to accommodate ADA requirements. In this case there needs to be signage that states "Parking for EV Charging Only; This Space Designed for Disabled Access; Use Last."



Issue Date: April 19, 2012
http://www.sandiego.gov/development-services/industry/pdf/tpolicy11b1.pdf
City of San Diego Development Services, Division of Building, Construction & Safety

Streamlining Permitting and Inspection

Throughout California and the US, a number of cities have implemented EVSE permitting and inspection requirements in an effort to streamline the installation process of EVSE. This section was designed to account for the entire permitting and inspection process and as a result, it is considerably longer than compared to the other sections. The following section provides a brief description of permitting and EVSE installation guidelines prepared by the **City of Turlock** and survey results for each of the jurisdictions that participated in this section.

Best Practices

The permitting requirements fact sheet for residential EVSE installations designed by the City of Turlock is included below:

SECTION 9: OUTREACH TO LOCAL BUSINESSES AND RESIDENTS

This section focuses on PEV outreach to residents and businesses in the San Joaquin Valley. The first part recognizes the barriers and potential policy gaps toward providing PEV and EVSE education and outreach programs and events in the San Joaquin Valley. The next part provides a summary of past and ongoing PEV outreach efforts. The final part offers recommendations to assist municipalities and PEV stakeholder groups in providing PEV and EVSE outreach to businesses and local residents.

Policy Gaps and Areas for Improvement: Outreach to San Joaquin Valley Business and Residents

Overall, there exists a steep learning curve with regard to PEVs and EVSE that spans the entire market from the changes in fueling habits to consumers' interactions with electricity providers. This is especially true for municipalities, residents and businesses in the San Joaquin Valley. The limited amount of knowledge by all stakeholders throughout the San Joaquin Valley stresses the importance of supporting education and outreach across the PEV market spectrum.

Lack of PEV and EVSE Education at Regional Dealerships

Through our research, we have identified that car dealerships in the region have limited knowledge of incentives for PEVs and EVSE. For example, dealerships in the **City of Fresno** are directing prospective PEV owners to the SJVAPCD office for general information on PEV charging stations and PEV incentives. This highlights that many dealerships may not be aware of the significant amount of incentives that are available to residents within the jurisdiction of the SJVAPCD.

These incentives can be as high as $12,500 per vehicle for individuals and businesses and up to $22,500 per vehicle for public agencies and local governments (see Section 5: PEV and EVSE Incentives in the San Joaquin Valley).[29] In addition, lack of information about incentives on the dealer level creates an extra step in the PEV purchasing process. Ideally, consumers would have clear information about incentives either before or when they step onto the dealer's lot. If prospective PEV drivers in the San Joaquin Valley visit an area dealer and the dealer fails to effectively communicate information regarding the PEV and EVSE programs and incentives available, then the potential for that customer buying a PEV decreases dramatically.

Limited PEV Knowledge and Budget Shortages for Municipalities

Communities in the San Joaquin Valley have experienced economic constraints, and as a result, San Joaquin Valley cities and counties have cut staff and significantly reduced public spending. These limitations in public agency resources are a significant barrier to implementing PEV education and outreach programs. Increasingly, these agencies are looking for ways to do more with fewer resources.

Many municipal staff we contacted and polled expressed that they are learning about this new PEV/ESVE market along with residents and businesses located in their respective jurisdictions. This is highlighted in the PEV readiness survey results, where staff from the cities of **Newman** and **McFarland** reported that there have not been any PEV outreach events or workshops conducted in their communities. This lack of knowledge, coupled with limited resources, creates a significant barrier to developing municipal PEV education and outreach programs targeting local residents and businesses. Despite this, staffs from the **City of Fresno** and **PG&E** have collaborated on numerous efforts to help drive PEV consumer awareness and promote PEV-user rates for PG&E customers in the Fresno area.

No PEV Resources Available on San Joaquin Valley Municipally Owned Utility Websites

Municipally owned utilities (MOUs) in the San Joaquin Valley do not have a website or accessible link dedicated

[29] The incentive amount for residents and local businesses assume the purchase of a battery electric vehicle that includes the federal tax credit, rebate from California's Clean Vehicle Rebate Project and rebate from the SJVAPCD DriveClean! Rebate Program.

to PEVs or PEV charging. It is important to note that the cities of **Modesto**, **Turlock**, **Lodi**, **Merced** and **Patterson** are serviced by MOUs and that each of these has a higher PEV adoption rate compared to the region as a whole.

In the fourth quarter 2012, CCSE conducted research of all MOUs in the San Joaquin Valley in order to gauge each utility's level of PEV readiness. The research results were collected by either personal phone calls with utility staff or research from each MOU website. The San Joaquin Valley MOUs are:

- **Modesto Irrigation District**
- **Turlock Irrigation District**
- **Merced Irrigation District**
- **Lodi Electric**

According to our research, none of these MOUs had PEV resources available for area customers on their respective websites. In addition, no MOU offered PEV-specific rates to area PEV owners. While not specific to PEVs, the **Turlock Irrigation District (TID)** has an environmental and conservation section on their website dedicated to sustainability programs, such as energy efficiency, renewable energy and climate change. TID also offers residential and business customers an option to participate voluntarily in a renewable energy program called BGreen Program.[30] This program should be leveraged to possibly incorporate businesses providing PEV infrastructure and area dealers selling these vehicles.

Addressing Policy Gaps and Areas of Improvement

Overall, there has been limited outreach and education to businesses and residents in the San Joaquin Valley. However, some organizations and utilities have developed PEV-related websites and implemented consumer-focused events. The section below provides a brief description of some of these events and resources made available to residents and businesses in the San Joaquin Valley.

Regional PEV Websites

Pacific Gas & Electric (PG&E) PEV Website

High PEV adoption cities in PG&E's service territory: **Stockton** *and* **Fresno**

PG&E's dedicated website (**www.pge.com/pev**) for PEVs offers an array of tools and PEV resources to help customers become "PEV ready." The website has a simple three-step "Get Plug-in Ready" resource and includes a step-by-step guide for PEV owners to choose their appropriate charging level, select PEV-specific rates and learn what to do in the case of upgrading their home electric service for PEV charging. The website also contains a PEV rate calculator that allows customers to estimate their PG&E electricity costs for various PEV models. In addition, the website houses a section for nonresidential customers interested in fleet charging and providing public charging or workplace charging for their employees.

Southern California Edison (SCE) PEV Readiness Website

High PEV adoption cities in SCE service territory: **Bakersfield**, **Visalia** *and* **Tulare**

SCE has developed an extensive website (**www.sce.com/ev**) for consumers, businesses and local jurisdictions interested in PEVs. This resource provides information for SCE's residential customers to help them find rates for PEVs and tips for installation residential EVSE. In addition, a "tools and resources" page has information on PEV/EVSE rebates, incentives and charging station equipment. Businesses within SCE's service territory also can find information on the benefits of installing PEV charging stations at businesses and multifamily housing units. EVSE installers also have access to information on safety guidelines and proper EVSE installation techniques. Lastly, SCE allows jurisdictions to link their city's website to SCE's "tools and resources" page to ensure city residents and businesses have the right information about PEV fueling and EVSE literature.

[30] The Turlock Irrigation District BGreen Program, allows TID customers to opt into a rate system based on the cost of purchased renewable energy certificates. The BGreen Program is based on energy consumption and ranges from 0.5 to 4 cents per kWh, and the rate is adjusted in June and December of each year. The program will cost about $10 to $40 per month for the average TID residential customer and is in addition to a customer's regular bill. www.tid.org/environment-conservation/renewable-energy/bgreen-program

Plug-in and Get Ready Website

In early 2011, CCSE developed the Plug-in and Get Ready website (**www.energycenter.org/pluginready**) as a resource for homeowners, businesses, EVSE installers and government agencies in the San Joaquin Valley. The website provides a one-stop experience for answers about community readiness and planning for PEVs, charging infrastructure and EVSE. In addition to special sections for residents, businesses, EVSE installers and government entities, the website includes the Plug-in & Get Ready Blog. The blog houses resources and information for stakeholders interested in available PEV incentives, workshops, industry reports and PEV readiness best practices and lessons learned. The website also hosts information regarding the San Joaquin Valley Plug-in Electric Vehicle Coordinating Council (SJV PEVCC).

SJV PEVCC members and interested parties will be able to access meeting agendas, past meeting summaries, presentations and PEV/EVSE materials. San Joaquin Valley residents and businesses may also access this information to learn more about the working group meetings. Further, residents and businesses are encouraged to share their concerns, ideas and suggestions with the working group via e-mail or at the working group meetings. The working group will advise on the development of a strategic and regional-specific PEV readiness plan for the San Joaquin Valley by the end of 2013.

PEV Consumer Outreach — Clean Vehicle Rebate Project Workshops

Since 2010, CCSE has held three separate consumer-based workshops promoting the use of PEVs in the San Joaquin Valley. These workshops were held in the cities of **Fresno** and **Modesto** in association with outreach efforts to promote California's Clean Vehicle Rebate Project (CVRP).[31] Each workshop provided a venue for San Joaquin Valley residents to learn about federal, state and local incentives and facilitated a connection with infrastructure and utility providers — elements that are central to the market deployment of clean fuel vehicles. Below are brief descriptions of each workshop, including total attendance figures and key presenters.

City of Fresno — Workshops in November 2010 and March 2012

On November 2, 2010, CCSE partnered with SJVAPCD, General Electric (GE), PG&E and SJV Clean Cities Coalition in hosting the first PEV consumer workshop in the San Joaquin Valley. The event was held at the SJVAPCD office in the **Fresno**, with approximately 30 people attending. Despite low attendance, audience members were exposed to the statewide rebates and incentives offered for clean vehicles under the CVRP, along with presentations on PEV utility rates and PEV impacts to the grid. In addition, representatives from GE provided an overview of EVSE technology and the residential installation process.

On March 17, 2012, CCSE partnered with SJVAPCD and PG&E in conducting another workshop in **Fresno**. Workshop attendance increased, with more than 70 participants. In addition to incentives and utility information, the workshop offered consumer test drives of available PEVs and a "PEV driver panel." The driver panel brought together local residents to provide firsthand accounts of "life as a PEV owner." Each panelist answered questions in their own words, further helping to reduce the complexity surrounding the PEV purchasing decision.

City of Modesto — July 2012

The CVRP, in conjunction with SJVAPCD, San Joaquin Valley Clean Cities Coalition and Modesto Irrigation District, hosted an electric vehicle workshop on July 21, 2012, with more than 80 local residents attending. The workshop covered an array of topics for area residents, including local and statewide rebates, PEV charging and California PEV infrastructure as well as a local PEV driver panel. The workshop concluded with the opportunity for attendees to view a selection of electric vehicles.

Recommendations for Regional Next Steps

PEVs and charging infrastructure are new to many residents, businesses and municipally owned utilities in the San Joaquin Valley. In order to support the development of the PEV market in the region, it is critical to expand PEV outreach and education to consumers

[31] CCSE has administered the CVRP for the California Air Resources Board since the program's inception in 2009

and local businesses. This assessment recognizes that many jurisdictions in the San Joaquin Valley face budget constraints. As a result, the suggestion is that municipalities not lead PEV outreach efforts, but instead, play a central role in educating their residents by taking advantage of existing outreach resources (e.g., utility websites) to implement low- and no-cost methods to increase outreach to consumers and local businesses.

Clearly, more robust outreach to residents, businesses and public agencies will be necessary to expand the PEV market in the San Joaquin Valley. This will likely include additional investment and PEV champions within local government. The following five recommendations are focused on increasing PEV outreach to local residents and business by leveraging existing resources, supporting and expanding outreach from partnering organizations and developing new outreach efforts tailored to the San Joaquin Valley.

Develop PEV Resources Page on Regional Municipal and Municipally Owned Utility Websites

Recommendation: Create and publish a PEV resources page on each municipal and MOU website in the San Joaquin Valley. Each of these web pages should provide links to helpful regional online resources as well as links to state and federal resources.

Suggested links to include on PEV resources web page:

- General PEV readiness — CCSE's Plug-in and Get Ready, **www.energycenter.org/pluginready**
- Utility specific:
  — Pacific Gas & Electric PEV website, **www.pge.com/electricvehicles/**
  — Southern California Edison PEV website, **www.sce.com/info/electric-car/**
- General PEV information — PEV Resource Center, **www.driveclean.ca.gov/pev**
- PEV charging station locator — DOE Alternative Fuel Data Center, **www.afdc.energy.gov/locator/stations/**

Benefits: Provide relevant information to residents and business at a minimal cost to municipalities.

Support, Coordinate and Expand Existing PEV Consumer Education

Recommendation: At a minimum, it is suggested that public agencies include links on municipal websites to consumer training and education efforts from partner organizations such as CCSE, SCE and PG&E. In addition, municipalities should promote these trainings through other outreach channels to residents (e.g., newsletters, mailers, etc.). It is also recommended that SJV PEVCC, SJV Clean Cities Organization and SJVAPCD work with partner organizations to expand consumer outreach events throughout the San Joaquin Valley.

Benefits: Leveraging existing funded training and education programs in the region assists municipalities in increasing education opportunities at a minimal cost. Expanding existing outreach efforts will likely require additional investment; however, collaborating with partner organizations will minimize additional costs associated with implementing this outreach.

Utilize the SJV PEVCC to Promote PEV and EVSE Incentives to Local Governments

Recommendation: Leverage the network of SJV PEVCC members to distribute educational materials and concise messaging that highlights the opportunity available through the DriveClean! and Public Benefit programs as well as the economic and environmental benefits of PEV adoption.

Benefits: Employs an existing network of PEV stakeholders to efficiently direct messages of the significant incentives available and the public benefits from PEV adoption. In turn, greater understanding of these incentives and benefits will assist in PEV adoption in local government fleets. Further, positive messaging and broader public knowledge of PEV benefits will assist in gaining political support for backing PEV- and EVSE-friendly policies.

Leverage SJV PEVCC and SJVAPCD to Implement PEV Dealer Education

Recommendation: Utilize SJV PEVCC to implement a PEV dealership education initiative. SJV PEVCC should coordinate with SJVAPCD outreach and communication staff to target area dealerships currently selling PEVs in the San Joaquin Valley and provide specific PEV educational

materials, including the "PEV 101" educational section of this assessment, along with a user-friendly document highlighting federal, statewide and SJVAPCD clean vehicle rebates and incentives. These materials also will need to include EVSE installation materials and local utility contact information (see recommendation *Create and Distribute Regionally Focused EVSE Installation Consumer Education Materials*).

Benefits: Educates a vital group in the PEV market, with the goal that dealers will distribute PEV resources and information and in turn, educate prospective PEV drivers during the purchasing process about available PEV incentives, the EVSE installation process and other accessible PEV resources.

Create and Distribute Regionally Focused EVSE Installation Consumer Education Materials

Recommendation: Deploy regionally focused consumer education materials leveraging existing materials, such as the EVSE consumer decision flowchart produced by the Capital Area PEV Coordinating Council (PEVCC) in the Sacramento region. CCSE has updated the flowchart with information from the San Joaquin Valley (provided on next page). Municipalities are encouraged to provide this user-friendly material on municipal websites as well as at relevant consumer-facing municipal offices (e.g., permitting desks). In addition, SJV PEVCC should work with PG&E, SCE and each MOU to expand these materials.

Benefits: Provide relevant and easy-to-use resources for residents and business at a minimal cost to municipalities.

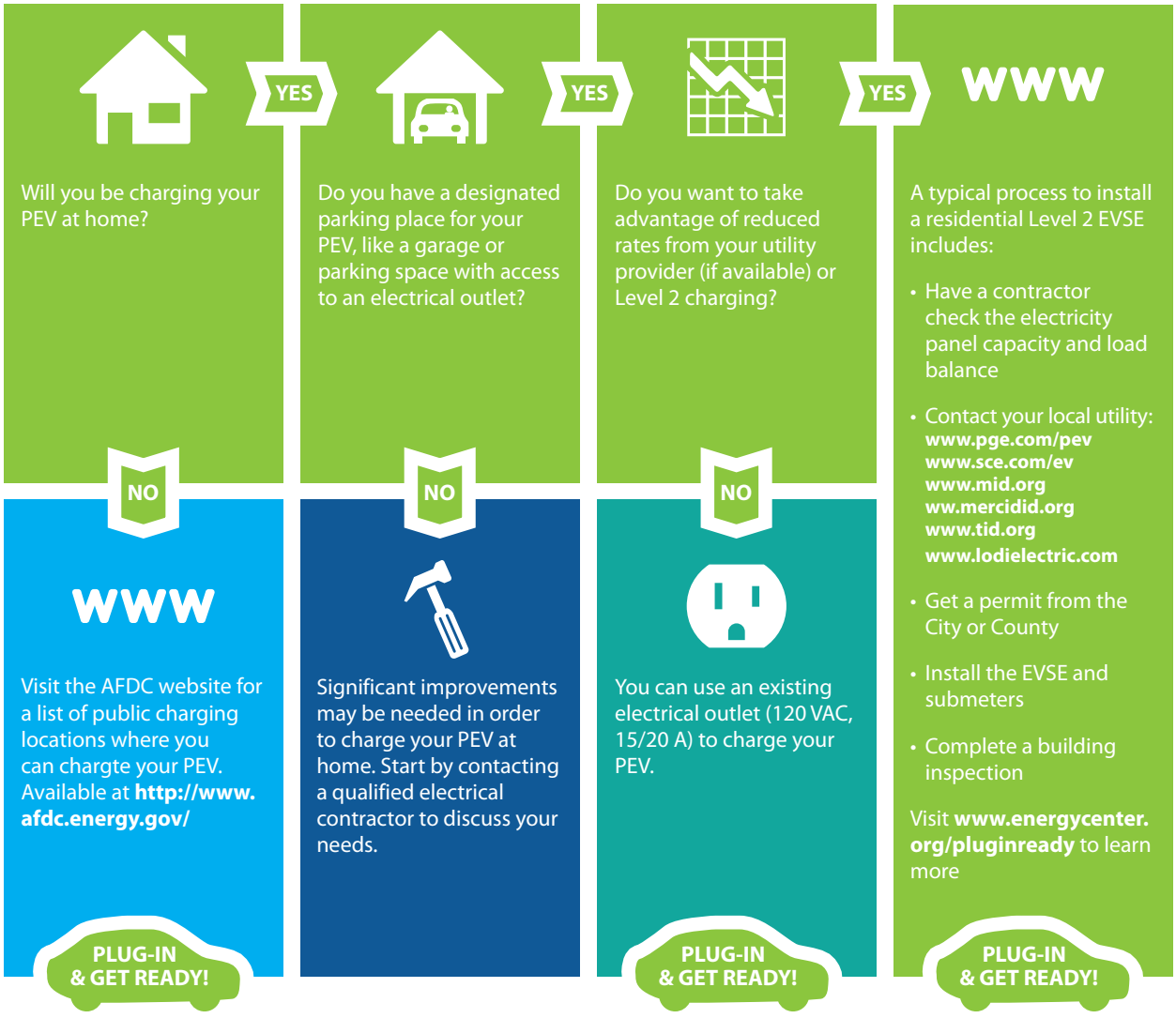
Your Guide to Plug-In and Get Ready*

There are many different ways to charge your PEV. You can charge at public charging stations near your work or home, use the existing electrical outlets in your home (Level 1), or install a Level 2 charging station in your home.

Use this guide to help you decide if installing a Level 2 charging station in your home is the right choice for you and learn about the steps needed for Residential Electric Vehicle Supply Equipment (EVSE) installations. At this time, this guide is intended for use by single-famiy residences only. If you rent your home, be sure to discuss any home modifications with the property owner first and visit your local utility provider's website for more information.

Level 1 (120 volt) — PEVs come with a 120-volt charging cord that enables PEV owners to charge their PEV with any conventional 120-volt three-pronged outlet. While it takes longer to charge, Level 1 (L1) allows PEV drivers to plug in without the installation of a dedicated charging station.

Level 2 (208 to 240 volt) — This level of charging requires a charging station, also known as electric vehicle service equipment (EVSE), be purchased and installed and generally involves the installation of a dedicated circuit at either the PEV owner's home or where a public charging station is installed. Currently, Level 2 (L2) EVSE makes up the majority of public charging stations across California.



*Adapted from *Take Charge I: A First Step to PEV Readiness in the Sacramento Region*, a report from SACOG and the Capital Area PEV Coordinating Council on preparing the region for Plug-In Electric Vehicles.

- Training Director: Byron Benton
    - Phone: 510-351-5282 Ext-15
    - Email: bbenton@595jatc.org

Sacramento JATC

- Address: 2836 El Centro Road, Sacramento, Calif. 95833
- Phone: 916-646-6688
- Fax: 916-646-0170
- Website: http://www.340jatc.org/first.asp
- Training Director: Dennis Morin
    - Email: dmorin@340jatc.org

Central Valley JATC

- Address: 1925 Yosemite Blvd., Modesto, Calif. 95354
- Phone: 209-579-5417
- Fax: 209-521-0908
- Website: http://www.cvjatc684.org/index.cfm
- Training Director: Mark Bowden

Southern California Edison (SCE)

Installers Guide

For safety guidelines and proper installation techniques, SCE's online tool for EVSE installers and contractors provides a guideline for installing EVSE at a single-family house[10] that include panel and meter options for safe installation procedures.

- Website: http://www.sce.com/info/electric-car/installers/installers.htm
- EVSE installation guide: http://asset.sce.com/microsite/Documents/PEV/EVElectricianGuide.pdf

UL Standards

Free Online PEV Training Course for Electricians

The consists of 9 training modules covering various processes, procedures and related information to help you understand how to prepare residential homes and complexes for safe and reliable electric vehicle charging.

- To register online: http://lms.ulknowledgeservices.com/catalog/display.resource.aspx?resourceid=358250
- To register by phone: 1-888-503-5536

Outreach to Local Businesses and Residents

In an effort to increase the PEV and EVSE education in the San Joaquin Valley, a number of resources are currently available to area residents and businesses. The majority of these resources are online and local municipalities should leverage these resources to make further available for their citizens and businesses. This section includes outreach materials and programs for both San Joaquin Valley residents and local businesses. In addition, short descriptions of other PEV outreach programs in California are included.

[10] http://asset.sce.com/microsite/Documents/PEV/EVElectricianGuide.pdf

Best Practices

PEV Outreach Materials

Taking Charge I: First Step to PEV Readiness in the San Joaquin Valley[11] This resource will help area residents walk through the steps to help them decide the appropriate level of charging for their PEV. This resource should be distributed to homeowners in your area. A full copy of this document is located towards the end of the report.

PEV Outreach Programs

Pacific Gas & Electric (PG&E)

(www.pge.com/pev)

High PEV adoption cities in PG&E's service territory: **Stockton** and **Fresno**

PG&E's dedicated website for PEVs offers an array of tools and PEV resources to help customers become "PEV ready." The website has a simple three-step "Get Plug-in Ready" resource and includes a step-by-step guide for PEV owners to choose their appropriate charging level, select PEV-specific rates and learn what to do in the case of upgrading their home electric service for PEV charging. The website also contains a PEV rate calculator that allows customers to estimate their PG&E electricity costs for various PEV models. In addition, the website houses a section for nonresidential customers interested in fleet charging and providing public charging or workplace charging for their employees.

- Key Industry Contact: Bob Riding, Community Energy Manager
- Address: 705 P Street, 3rd Floor, Fresno, Calif. 93760
- Phone: (559) 977-5006
- Email: rlr3@pge.com

Southern California Edison (SCE) PEV Readiness Website

(www.sce.com/ev)

High PEV adoption cities in SCE service territory: **Bakersfield, Visalia** and **Tulare**

SCE has developed an extensive website for consumers, businesses and local jurisdictions interested in PEVs. This resource provides information for SCE's residential customers to help them find rates for PEVs and tips for installation residential EVSE. In addition, a "tools and resources" page has information on PEV/EVSE rebates, incentives and charging station equipment. Businesses within SCE's service territory also can find information on the benefits of installing PEV charging stations at businesses and multifamily housing units. EVSE installers also have access to information on safety guidelines and proper EVSE installation techniques. Lastly, SCE allows jurisdictions to link their city's website to SCE's "tools and resources" page to ensure city residents and businesses have the right information about PEV fueling and EVSE literature.

Los Angeles Department of Water and Power (LADWP): CHARGE UP L.A.![12]

LADWP is currently promoting a consumer incentive and PEV education and outreach project through the LADWP Electric Vehicle Home Charger Rebate Program, "CHARGE UP L.A.!" This program provides rebates to LADWP customers who purchase or lease a PEV, install a rapid, Level 2 charging station and a separate time-of-use meter at their home.

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[11] Adapted from Take Charge I: A First Step to PEV Readiness in the Sacramento Region, a report from SACOG and the Capital Area PEV Coordinating Council.

[12] https://www.ladwp.com/ladwp/faces/wcnav_externalId/r-gg-driv-elec?_adf.ctrl-state=i715yivrq_76&_afrLoop=507557021860684

Customers can receive a rebate of up to $2,000 toward their out-of-pocket expenses for charging equipment and installation after other incentives or rebates are deducted. Out-of-pocket expenses include the customer's final cost for the charger and related equipment, including installation performed by a contractor.

The program's overall electric vehicle strategy focuses on:

- Customer Support: 7-Day Permit-to-Plug Policy
- Customer Education and Promotion (Free Level 2 EV Home Charger)
- Data Sharing and Public Information
- Improve EV Infrastructure (Public Chargers)
- LADWP Distribution System Planning Analysis
- EV Rate Discount and Rate Options

SoCal EV

The City of Los Angeles and the Southern California Regional Plug-In Electric Vehicle Plan has teamed up with the Los Angeles Department of Water and Power to create SoCal EV (www.socalev.org), an interactive website dedicated to PEV outreach and education.

Bay Area PEV Ready

The Bay Area Air Quality Management District's PEV Ready program (http://www.bayareapevready.org/) offers grants to support early PEV use, and provides an information clearinghouse to assist drivers, local governments and infrastructure providers seeking information about plug-in electric vehicles.

SECTION 8: TRAINING AND EDUCATION

This section focuses on training and education programs and efforts related to the installation of residential and nonresidential EVSE in the San Joaquin Valley. The first part recognizes the barriers and potential policy gaps toward providing training and education opportunities for PEV stakeholders in the San Joaquin Valley. The next part provides a summary of the actions taken to date regarding PEV workshops and training opportunities in the San Joaquin Valley. The final part offers concise recommendations to increase training and education opportunities for PEV stakeholders in the San Joaquin Valley.

Policy Gaps and Areas for Improvement: Training and Education

This section of the survey had minimal participation, with only five jurisdictions responding: **Tulare**, **McFarland**, **Madera**, **Newman** and **Taft**. Of these respondents, just two indicated that city staff had participated in PEV-related trainings. Only the **City of Newman** reported their planning staff have participated in educational workshops on how to incorporate PEVs into their city fleet. In addition, the **City of Tulare** indicated that outreach workshops for first responders focused on PEV technology have been held in its region. The remaining cities indicated they were not aware of PEV and EVSE workshops for municipal staff being offered in the region.

It is important to note that each of the jurisdictions surveyed indicated a demand for greater training and education programs in the region. Furthermore, none of the agencies stated that they have developed policy tools to become more PEV ready; however, all agencies were interested in receiving education materials if they are available.

Lack of Regional Training for EVSE Installers

In late 2012, CCSE contacted regional training directors from various county Joint Apprenticeship and Training Committee (JATC) offices to learn if they have implemented the Electric Vehicle Infrastructure Training Program (EVITP) in their region. EVITP was developed through a collaboration of stakeholders from both industry and government sectors. This training teaches industry best practices in PEV infrastructure installation, commissioning and maintenance.

Kern County Electrical JATC, which is located in the **City of Bakersfield**, does not include an EVITP program at its facility. However, according to the regional training director, PEV infrastructure and the EVITP will be discussed during committee meetings before the end of 2012. The committee consists of members of the International Brotherhood of Electrical Workers (IBEW) and the National Electrical Contractors Association (NECA). Funding for the EVTIP depends on committee approval.

The **San Joaquin** and **Calaveras Counties Electrical JATC** is located in the **City of Stockton**, and their training facility does not include an EVITP program. Further, the facility does not have an EVITP-certified trainer and told CCSE that they did not have the resources to fund such a program. That said, the Stockton training is in close proximity to three other NECA facilities in Northern California (Alameda County JATC, Modesto/"San Joaquin Valley" JATC,[28] Sacramento County JATC). As a result, interested EVSE installers are directed to these facilities. Unfortunately, after speaking with the training director at the Alameda County JATC (which offers EVITP at their facility), not many contractors from outside of Alameda County participate in the program. Based on this, we assume that contractors concentrated in the northern section of the San Joaquin Valley do not have adequate training for EVSE installations and procedures.

Addressing Policy Gaps and Areas of Improvement

This section will provide a brief summary of PEV workshops and training events that have been offered in the area. In addition, this section will provide a brief overview of future statewide efforts to address emergency and first responder PEV training. Note that education for PEV consumers and regional businesses are covered in the next section:

[21] Unfortunately the Modesto/San Joaquin Valley JATC was not available for comment.

Outreach to Local Residents and Businesses. See the Appendix for a complete list of both past and future PEV and EVSE training and education programs offered in the San Joaquin Valley.

Training for Municipalities

PEV Readiness Workshop for Municipal Staff Held in Fresno, Bakersfield and Modesto

On May 15, 2012, the SJVAPCD partnered with the PEV Collaborative to host a PEV Community Readiness Workshop for city and local government staff. The workshop was held at the SJVAPCD office in **Fresno** and was made available via videoconference to municipalities near the district's satellite offices in **Bakersfield** and **Modesto**. Experts from municipalities in the San Joaquin Valley, as well as on the state level, shared best practices regarding policies to promote PEV infrastructure. Specifically, the workshop focused on EVSE zoning and parking policies, the need for updated building codes to accommodate EVSE, permitting and inspection processes, available PEV/EVSE training and education programs and methods to improve outreach to local residents and businesses.

All workshop participants received a draft version of the PEV Readiness Toolkit. The toolkit, developed by the PEV Collaborative and regions across the state, is a comprehensive document of EVSE installation guidelines, best practices and policy recommendations — resources that are needed to respond to evolving issues around building codes, permitting and procedures to support the growing PEV market. All post-workshop surveys indicated that participants increased their knowledge and understanding of PEVs and were better equipped to discuss PEV readiness with others. Further, all participants stated that they felt more prepared to engage with the policy processes concerning PEV readiness as a result of attending the workshop.

Regrettably, 82% of participants taking the survey indicated their community would not be PEV ready by the end of 2012. Respondents highlighted that municipalities in the San Joaquin Valley are already understaffed and would have a difficult time seeing past financial hurdles to seek grants and funding for PEV infrastructure. Moreover, the lack of public interest in PEVs and sustainability programs overall were cited as primary reasons they will not be ready by the end of 2012.

PEV Readiness Toolkit for Municipalities

Since the survey was initially distributed, the PEV Collaborative, working with CCSE and five additional regions across the state, has developed a PEV Readiness Toolkit.

The toolkit provides a quick reference guide to developing policies promoting PEVs in each of the five core areas addressed in this document (e.g., zoning and parking). This toolkit has been distributed to municipalities in the San Joaquin Valley and published on CCSE's Plug-in & Get Ready website (**www.energycenter.org/pluginready**).

Training for Emergency First Responders

Statewide Assessment and Training for Emergency First Responders

In November 2012, the Department of Energy awarded funding to Clean Cities organizations throughout California to perform an assessment and subsequent training for emergency first responders. The first phase of the project includes an assessment of the regional needs related to training for emergency first responders on alternative fuels, including PEVs. The assessment will prioritize what trainings are needed throughout the state and identify what trainings should be conducted on a region-by-region basis. Advanced Transportation Technology and Energy (ATTE) Centers in San Francisco, Long Beach and San Diego will either conduct the trainings or coordinate with community colleges. It is anticipated the assessment will be conducted by the end of summer 2013 with trainings implemented in fall 2013.

Recommendations for Regional Next Steps

Based on the results of the survey and feedback from the PEV readiness workshop on May 15, 2012, there is

demand for municipal training regarding PEV infrastructure planning. In addition, our research and outreach with stakeholders throughout the region indicates a limited amount of PEV training programs available for EVSE installers and emergency first responders. Moreover, there is a perceived lack of funding within public agencies for these programs. Thus, alternative measures and combined efforts among PEV stakeholders will likely be needed to overcome funding barriers.

The following recommendations are focused on maximizing current resources and expanding training and education opportunities for San Joaquin Valley municipalities, EVSE installers and emergency first responders.

PEV Readiness Trainings for Municipal Staff

Recommendation: Implement additional PEV trainings targeting the needs of municipal staff. A further recommendation is that the region leverages the Electric Vehicle Infrastructure Codes and Standards curriculum developed by a coalition of industry and government stakeholders specifically designed for government officials, planers, managers and inspectors.

The region should hold at least two of these trainings. The first training should take place in the northern region of the San Joaquin Valley and the second training should be offered in the southern region. Each session should be made available via videoconference at each of the SJVAPCD satellite offices. The first training session should be scheduled in the beginning of 2013 and subsequent trainings held in the second or third quarters. The second training should build on the information covered in the first. In addition, it is recommended that workshop assessments from the first training be leveraged to help identify gaps in knowledge and assist in refining the curriculum for the second training.

Benefits: This program is nationally recognized and has been specifically developed for a one-day training to educate municipal staff on several aspects related to EVSE installation. In addition, holding two trainings that leverage each other will ensure relevant information is covered.

Training for EVSE Installers

Recommendation: Leverage funding from the SJVAPCD to implement the Electric Vehicle Infrastructure Training Program for EVSE installers at Joint Apprenticeship and Training Committees (JATCs) in the San Joaquin Valley. The SJV PEVCC should conduct outreach to the Kern County Electrical, San Joaquin and Calaveras Counties Electrical as well as the Modesto/"San Joaquin Valley" JATC regarding the SJVAPCD's funding available under the Remove II Program for alternative fuel training. In addition, the SJV PEVCC should coordinate with SJVAPCD and the JATCs to assist in completing the application and any additional necessary requirements. Once funded, EVITP training should be available to all apprentices in their last semester (after they have passed the California certification exam).

Benefits: After local contractors complete the EVITP, each participant will have exposure to industry best practices in electric vehicle infrastructure installation, commissioning and maintenance. In turn, electric vehicle service providers (i.e., electric vehicle charging station manufacturers) and vehicle manufacturers will be more attracted to the area because of the skilled and knowledgeable workforce. Leveraging funding from SJVAPCD will offset and may cover the costs of implementing EVITP training at regional JATCs.

Safety Training for Emergency First Responders

Recommendation: SJV PEVCC and other relevant stakeholders should leverage the funding from DOE to conduct a regional needs assessment and subsequent alternative fuel training for emergency first responders. This will include working with the San Joaquin Valley Clean Cities organization to provide information regarding the need to implement first responder training for PEVs to police, firefighters and emergency personnel throughout the San Joaquin Valley. This process should leverage nationally recognized training developed by the National Alternative Fuel Training Consortium (NAFTC) to educate emergency personnel.

Benefits: NAFTC training will better equip emergency first responders to safely and efficiently address an accident involving a PEV. Furthermore, the training will cover vehicle history, operations, battery technologies, infrastructure and first responder procedures, such as vehicle identification, personal protective equipment and extrication. Leveraging DOE funding for training will help to deliver training at no cost to regional jurisdictions.

Policy Report from the Office of Sustainability, Planning, Development Services and Engineering Services to the City of Vancouver Standing Committee on Planning and Environment advocating the Green Homes Program. A subsection of this program includes a recommendation in the building by-law for EVSE "pre-wiring" requirements for all new single family homes.

Over the past 5 years there has been a growing market for electric bicycles and scooters. It is also expected that plug-in electric hybrid vehicles will be available to the public in the near future, followed soon after by the widespread availability of fully electric vehicles. The adoption of this technology represents a significant opportunity to further reduce GHG's in the Vancouver community. However, a primary challenge to their adoption is the fact that they require a charging station in the user's home. To that end, staff is recommending requiring the installation of a cable raceway from the building's electricity circuit panel to an enclosed outlet box in the home's garage or carport. In doing so, staff is ensuring that the home can be easily retrofitted at a later date to allow for the installation of electric vehicle charging facilities. This recommendation recognizes that infrastructure must be put in place at the time of construction in order to ease the adoption of emerging technologies by the homeowner at a later date.

L.A. Green Building Code Standards for Non-Residential and Residential EVSE Building Code Requirements

Mandatory measure for newly constructed low-rise residential building: *Electric Vehicle Supply Wiring 99.04.106.6.*

1) For one-or two- family dwellings and townhouses, provide a minimum of:
    a. One 208/240 V 40 amp, grounded AC outlet, for each dwelling unit; or
    b. Panel capacity and conduit for future installation of a 208/240 V 40 amp, grounded AC outlet, for each dwelling unit
2) Residential occupancies where there is a common parking area, provide:
    a. Provide a minimum number of 208/240 V 40 amp, grounded AC outlet(s), that is equal to 5% of the total number of parking spaces. The outlet(s) shall be located in the parking area; or
    b. Panel capacity and conduit for future installation of electrical outlets. The panel capacity and conduit size shall be designed to accommodate the future installation, and allow the simultaneous charging, or a minimum number of 208/240 V 40 amp, grounded AC outlets, that is equal to 5% of the total number of parking spaces. The conduit shall terminate within the parking area; or
    c. Additional service capacity, space for future meters, and conduit for future installation of electrical outlets. The service capacity and conduit size shall be designed to accommodate the future installation, and allow the simultaneous charging, or a minimum number of 208/240 V 40 amp, grounded AC outlets, that is equal to 5% of the total number of parking spaces. The conduit shall terminate within the parking area

Mandatory measure for newly constructed non-residential and high-rise residential building: *Electric Vehicle Supply Wiring 99.05.106.5.2*

1) Provide a minimum number of 208/240 V 40 amp, grounded AC outlet(s), that is equal to 5% of the total number of parking spaces. The outlet(s) shall be located in the parking area

Training and Education Programs

The jurisdictions that participated in the training and education section of the PEV readiness survey indicated a demand for greater training and education programs in the region. Furthermore, none of the agencies stated that they have developed policy tools to become more PEV ready; however, all agencies were interested in receiving education materials if they are available. This is a compiled list of best practices, including a brief description of EVSE training sessions, EVSE installation guidelines and contact information.

Best Practices

Electric Vehicle Infrastructure Training Program (EVITP)

The EVITP provides training and certification for people installing EVSE. As a voluntary collaboration of electrical industry organizations, EVITP supports developing PEV charging infrastructure for residential and commercial markets. EVITP offers a one-day training seminar for regional municipal staff and PEV stakeholders. There is no cost for participants and the seminar is free to attend.

Additionally, the DOE Clean Cities works with EVITP to address technical requirements, safety imperatives, and training needs for electric vehicle industry partners and stakeholders.

- **Website**: http://www1.eere.energy.gov/cleancities/evitp.html
- **Email**: info@EVITP.com
- For more information, contact Bernie Kotlier at (408) 242-4000 or Jennifer Mefford at (248) 318-7885.

Regional JATC Offices

EVITP training for electrical contractors will likely be held in regional JATC offices. This version of the EVITP is different than the training session municipal staff, previously descried. The session for electrical contractors is a multi-day course, and participants will receive a certificate at the end of the session. There is also a cost to participate. For further information in your area on future training sessions and class content, please contact the following JATC offices and Training Directors:

Kern County Electrical JATC

- Address: 3805 N. Sillect Ave., Bakersfield, Calif. 93308
- Phone: 661-324-0105
- Fax: 661-324-4121
- Training Director: Jerry Melson
    - Email: kcett@sbcglobal.net

Fresno Madera Kings and Tulare Counties JATC

- Address: 5420 E. Hedges Ave., Fresno, Calif. 93727
- Phone: 559-251-5174
- Fax: 559-251-8402
- Website: www.fresnojatc.org
- Training Director: Edward (Chuck) Stanton
    - Email: cstanton@fresnojatc.org

San Joaquin and Calaveras Counties Electrical JATC **(Applicants are usually referred to Alameda County JATC, listed below)**

- Address: 1531 El Pinal Drive, Stockton, Calif. 95205
- Phone: 209-467-1012
- Fax: 209-462-1451
- Training Director: David J. Brooks
    - Email: stknjatc@inreach.com

Alameda County JATC

- Address: 3033 Alavarado St., San Leandro, Calif. 94577
- Phone: 510-351-5282 Ext-0
- Website: http://www.595jatc.org/default.htm

- Training Director: Byron Benton
    - Phone: 510-351-5282 Ext-15
    - Email: bbenton@595jatc.org

Sacramento JATC

- Address: 2836 El Centro Road, Sacramento, Calif. 95833
- Phone: 916-646-6688
- Fax: 916-646-0170
- Website: http://www.340jatc.org/first.asp
- Training Director: Dennis Morin
    - Email: dmorin@340jatc.org

Central Valley JATC

- Address: 1925 Yosemite Blvd., Modesto, Calif. 95354
- Phone: 209-579-5417
- Fax: 209-521-0908
- Website: http://www.cvjatc684.org/index.cfm
- Training Director: Mark Bowden

Southern California Edison (SCE)

Installers Guide

For safety guidelines and proper installation techniques, SCE's online tool for EVSE installers and contractors provides a guideline for installing EVSE at a single-family house[10] that include panel and meter options for safe installation procedures.

- Website: http://www.sce.com/info/electric-car/installers/installers.htm
- EVSE installation guide: http://asset.sce.com/microsite/Documents/PEV/EVElectricianGuide.pdf

UL Standards

Free Online PEV Training Course for Electricians

The consists of 9 training modules covering various processes, procedures and related information to help you understand how to prepare residential homes and complexes for safe and reliable electric vehicle charging.

- To register online: http://lms.ulknowledgeservices.com/catalog/display.resource.aspx?resourceid=358250
- To register by phone: 1-888-503-5536

Outreach to Local Businesses and Residents

In an effort to increase the PEV and EVSE education in the San Joaquin Valley, a number of resources are currently available to area residents and businesses. The majority of these resources are online and local municipalities should leverage these resources to make further available for their citizens and businesses. This section includes outreach materials and programs for both San Joaquin Valley residents and local businesses. In addition, short descriptions of other PEV outreach programs in California are included.

[10] http://asset.sce.com/microsite/Documents/PEV/EVElectricianGuide.pdf

Progress on Regional PEV Barriers

Barriers/Solutions Being Addressed by the SJVPEVCC		
Barriers in Order of Priority	**Progress on Solutions – Preparation of Guidance Materials**	**Action Items**
1. Lack of Public Knowledge of PEV and EVSE Municipal outreach to Local Residents and Businesses	• Barrier identified in SJVPEV Readiness Plan (pg. 43 – 47) • During the February 7, 2013 meeting, this barrier was voted as the highest priority in the Valley	• To be discussed during March 7, 2013 meeting
2. Zoning and Parking Rules Lack of standard regional ordinances that facilitate the installation and access to publicly available charging infrastructure.	• Barrier identified in SJVPEV Readiness Plan (pg. 19 – 24) • During the February 7, 2013 meeting, this barrier was voted as the second highest priority in the Valley	• To be discussed during March 7, 2013 meeting
3. Training and Education for Municipal Staff and Electrical Contractors Lack of knowledge about PEVs and EVSE	• Barrier identified in SJVPEV Readiness Plan (pg. 39 – 42) • During the February 7, 2013 meeting, this barrier was voted as the third highest priority in the Valley	• To be discussed during March 7, 2013 meeting
4. Permitting/Inspection Lack of streamlined permitting and inspection processes and inconsistent (high) costs across jurisdictions.	• Barrier identified in San Joaquin Valley Plug-In Electric Vehicle (SJVPEV) Readiness Plan (pg. 25 - 32) • To be updated as project develops	• N/A
5. On Peak Charging – TOU Utility Rates and Grid Impacts 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.	• To be updated as project develops	• N/A

Barriers/Solutions Being Addressed by Statewide Department of Energy PEV Project and SJVPEVCC		
Barrier	**Progress on Solutions – Preparation of Guidance Materials**	**Priority/Acton Items**
6. Workplace Charging Lack of understanding regarding benefits and approaches to understanding workplace charging.	• To be updated as project develops	• N/A
7. Building Codes Lack of standard building codes that accommodate charging infrastructure or dedicate circuits for charging infrastructure in new construction and major renovations.	• Barrier identified in SJVPEV Readiness Plan (pg. 33 – 38) • To be updated as project develops	• N/A
8. EVSE at Multi Unit Dwellings (MUDs) 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.	• To be updated as project develops	• N/A
9. Regional Planning for Public EVSE Siting Regional land use and transportation plans served as a basis to identify optimal public EVSE sites.	• To be updated as project develops	• N/A

Barriers/Solutions Being Addressed by Statewide Department of Energy PEV Project and SJVPEVCC		
Barrier	**Progress on Solutions – Preparation of Guidance Materials**	**Priority/Acton Items**
10. Public Agency EVSE Installations Providing local jurisdictions with knowledge of PEV market development. Need to identify barriers and find solutions.	• To be updated as project develops	• N/A
11. Promotion of 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.	• To be updated as project develops	• N/A
12. Leveraging Renewable Energy in PEV Charging Educate on the use of renewables in order to provide the fuel to power an EV	• To be updated as project develops	• N/A

Additional Barriers Identified at February 7, 2013 Meeting

Barriers/Solutions Being Addressed by Statewide Department of Energy PEV Project and SJVPEVCC		
Barrier	**Progress on Solutions – Preparation of Guidance Materials**	**Priority/Acton Items**
13. Lack of Developed Policy, Liability and Management Documents Creating guidelines for municipal management regarding public and workplace operations and maintenance relating to EVSEs.	• Barrier was identified during the February 7, 2013 meeting	• N/A
14. PEV and EVSE Incentives In the early stages of development, incentive programs should be made available and the necessary outreach must be conducted to notify the public about the existence of these programs	• Barrier was identified during the February 7, 2013 meeting	• N/A
15. PEV Friendly Policies in RTP Identify and/or create PEV friendly policies that can be implemented by all regions	• Barrier was identified during the February 7, 2013 meeting	• N/A
16. Training and Education for Car Dealerships Car dealerships have direct contact with new car buyers so it is important that they are knowledgeable and trained about EVs	• Barrier was identified during the February 7, 2013 meeting	• N/A
17. Interoperability Create the ability of diverse EVSE networks to work together	• Barrier was identified during the February 7, 2013 meeting	• N/A