EV Workshop:
A Guide to Installing Public Chargers
Welcome & Introduction

Tony Boren
Executive Director, Fresno COG
Moderator

Rob Terry, MPA AICP
Community Development Director,
City of Reedley
Panel #1:
Siting Consideration and Charging Equipment:
“What You Need to Know”

▪ Steve White, AECOM
▪ Ann Camperson, Pacific Gas & Electric
▪ Moses Stites, Fresno County Rural Transit Agency
Enabling EV Siting FOR THE FUTURE

September 2019
Unmatched expertise and experience

Agenda

00 Introductions
01 AECOM Overview
02 Technology Options
03 Location Considerations
04 Community Goals
05 Implementation
06 Q&A
Global Reach, Local Market

- 7 Continents
- 87,000 Employees
- 150+ Countries
- US$20.2B 2018 Revenue

200 Strategically Positioned Offices

/ Share local knowledge
/ Align resources
/ Unlock opportunity

#164 Fortune 500

2019 Fortune World's Most Admired Company
Our Operating Groups

Design and Consulting Services
Bringing together disciplines and resources to deliver innovative solutions
Offers planning, architectural and engineering design, and consulting services.

Construction Services
Building the world’s most iconic, complex structures
Delivers a full suite of construction services to public and private sector clients globally.

AECOM Capital
Discovering new opportunities together
Invests directly in real estate and public-private projects and participates as a partner to advance projects with clients.

Management Services
Delivering mission success
Works with the U.S. government and other national governments and non-governmental organizations around the world.
Our Markets

Buildings + Places | Energy | Environment | Program Management and Construction Management | National Governments | Transportation | Water
## Overview

### AECOM Energy Services

<table>
<thead>
<tr>
<th>Energy Planning</th>
<th>Energy Efficiency</th>
<th>Energy Generation</th>
<th>Smart Energy</th>
<th>Transmission and Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy and Sustainability Master Planning</td>
<td>Utility Program Implementation</td>
<td>Renewables</td>
<td>Microgrids</td>
<td>T&amp;D Network Planning</td>
</tr>
<tr>
<td>Energy Benchmarking</td>
<td>Retro Commissioning/Continuous Commissioning/Data Analytics</td>
<td>Central Energy Plants</td>
<td>Electric Vehicle Infrastructure</td>
<td>Power Systems Analysis</td>
</tr>
<tr>
<td>Energy Bill and Rate Analysis</td>
<td>Energy Savings Performance Contracting</td>
<td>Combined Heat &amp; Power</td>
<td>Smart Lighting Networks</td>
<td>Substation and Transmission Design</td>
</tr>
<tr>
<td>Strategic &amp; Enterprise Energy Management</td>
<td>Utility Privatization</td>
<td>Thermal Exchange</td>
<td>Energy Storage</td>
<td>Communications &amp; Controls</td>
</tr>
</tbody>
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<tr>
<td>Overview</td>
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</table>
Industry experts predict 120 million electric vehicles on the road by 2030.

*Electric-vehicle adoption base case, million*
Is this the right EV charging model?
Gasoline energy density: 33 kW-hr per gallon
Combustion engine efficiency: 30%

At a gasoline pumping rate of 10 gallons per minute:

10 kW-hr/gal X 10 gal/min = 6 MW effective charging rate
Technology Options: Typical Chargers

Each EV’s built-in charger and its capacity will influence actual charging speeds.

- Level 1 – Basic but limited
  - Residential: passenger and light-duty vehicles

- Level 2 – Economical and effective
  - Residential and commercial: passenger and light-duty vehicles

- DC Fast Charging (DCFC) – High power, high end
  - Residential and commercial: passenger and light-duty vehicles
Wireless chargers use inductive power to charge EV batteries. A pad transfers charge to a plate fastened on the vehicle.

Technology Options: Typical Chargers

- Static Wireless – Light Duty
  - Light-duty and passenger

- Static Wireless – Heavy Duty
  - Heavy-duty and transit

- Dynamic Wireless – Charging while in motion
  - Light-duty and passenger
  - Heavy-duty with multiple receiver coils
## Charger Type

<table>
<thead>
<tr>
<th>Charger Type</th>
<th>Supply Voltage</th>
<th>Charging Rate</th>
<th>Typical Charge Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong></td>
<td>120V, 12A</td>
<td>1.4kW 2-6 miles/hour of charge</td>
<td>Eight hours ~ 40 mi of range</td>
</tr>
<tr>
<td><strong>Level 2</strong></td>
<td>208V - 240V</td>
<td>Typically up to 11kW 21-25 miles/hour of charge</td>
<td>Eight hours ~ 180 mi</td>
</tr>
<tr>
<td><strong>DCFC</strong></td>
<td>480V</td>
<td>Up to 50kW 40 miles/10 minutes of charge</td>
<td>30 min ~ 80% of battery</td>
</tr>
<tr>
<td><strong>Static Wireless – Light Duty</strong></td>
<td>Varies</td>
<td>3.6/7.7/11/22kW</td>
<td>Eight hours ~ 180 mi</td>
</tr>
<tr>
<td><strong>Static Wireless – Heavy Duty</strong></td>
<td>Varies</td>
<td>250kW-500kW</td>
<td>Varies</td>
</tr>
<tr>
<td><strong>Dynamic Wireless</strong></td>
<td>Varies – Developing direct MV connection</td>
<td>50-150kW</td>
<td>Varies</td>
</tr>
</tbody>
</table>
## Choosing a Charging Option

<table>
<thead>
<tr>
<th>Type</th>
<th>Costs</th>
<th>General Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong></td>
<td>Very affordable, little to install</td>
<td>• Suitable for low or mid-range EVs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Requires long charge times</td>
</tr>
<tr>
<td><strong>Level 2</strong></td>
<td>Economical, moderate hardware and installation costs</td>
<td>• Most common for current public chargers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Affordability to install and maintain charging speed</td>
</tr>
<tr>
<td><strong>DCFC</strong></td>
<td>High upfront installation and hardware costs but strong revenue potential</td>
<td>• Fastest charging rate and useful for long-term mobility needs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Expensive installation and hardware costs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Plug-ins and hybrids typically cannot connect</td>
</tr>
<tr>
<td><strong>Static Wireless – Light Duty</strong></td>
<td>Moderate</td>
<td>• Limited vehicle availability currently.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Allows flexibility in siting</td>
</tr>
<tr>
<td><strong>Static Wireless – Heavy Duty</strong></td>
<td>High</td>
<td>• Transfers costs from battery to infrastructure</td>
</tr>
<tr>
<td><strong>Dynamic Wireless</strong></td>
<td>Still under development</td>
<td>• Enables charging on the go</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Transfers costs from battery to infrastructure</td>
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## Location Considerations

<table>
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<tr>
<th>Where to install a station?</th>
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<tr>
<td>Curbside</td>
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<tr>
<td>Garages</td>
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<tr>
<td>Fleet vehicle storage</td>
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<tr>
<td>Public or private parking lots</td>
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<tr>
<td>Commuter corridors</td>
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<tr>
<th>What kind of parking behavior?</th>
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<tr>
<td>Dwell times and space turnover</td>
</tr>
<tr>
<td>Workplace charging or visiting user</td>
</tr>
<tr>
<td>High-usage area</td>
</tr>
<tr>
<td>Public access or restricted</td>
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<tr>
<td>Individual users or fleets</td>
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</tbody>
</table>
Engaging regular EV charging users will advance technology adoption and broader and acceptance.

- Carshare Parking
- Auto Dealership
- Emergency Vehicles
- Grocery Delivery Vehicles
- Municipal Fleets
Deployment Areas

Cluster-based approach
- Optimize charging station usage by installing near volume of visitors employees

Predictable behavior
- Identify and target areas of high demand
- Certain professions and areas of entertainment largely car-dependent
Street-side Charging

- Street direction
  - Most EV ports situated on the driver's side, orient station accordingly
- Sidewalks and fixtures
- Bus lanes and bike lanes

*Image credit: 2018 Curb Enthusiasm
New York State Energy Research and Development Authority and Dept. of Transportation*
Visibility of Charging Stations

Signage at the site
- Easily seen by drivers and clearly marked EVs-only
- Potential prime parking for EV users a plus

Online resources
- City website, park or location website

Partner support and promotion
- Part of broader campaign, celebrate pilot progress
- Social media engagement and press promo as appropriate

EV charging apps show availability
Additional Siting Considerations

- Strong cellular signal
- Street tree protections
- ADA access
- Available ground space
- Lighting and safety
- Local permitting and zoning
- Seasonal impacts and weathering
- Available ground space
Local Transportation Electrification Goals

What is the goal of the project?

➔ These factors will help prioritize siting locations, target users, and select appropriate equipment.

- Reduce demand for fossil fuels and GHG emissions to support climate resilience.
- Encourage EV adoption to diversify transit options and enable smart technology.
- Improve air quality around environmental justice communities.
EVSE Installation Community Considerations

Equitable planning
- Ensure benefits inclusive across communities
- Expand efforts beyond early adopters, include support to environmental justice communities
- Effective planning will improve air quality, especially in urban environments where asthma rates are high

Minimize disruption
- Maintain sightlines to local parks, landmarks, art pieces, plazas, walkways
- Prioritize neighborhood safety and accommodate pedestrian walkways
- Consider potential vehicle congestion and broader mobility outcomes
## Objective:
Develop a flexible tool to identify potential sites for a network of publicly available EV Chargers.

<table>
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<th>Purpose</th>
<th>Methods</th>
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| Be able to analyze and prioritize different siting scenarios based on opportunity goals | Weight the importance of each individual data layer to then prioritize and rank locations.  
• For example, do you value proximity to a commercial corridor or are there environmental justice concerns? These factors can be addressed by a weighting metrics. |
| Prioritize Open Data Layers                                             | What other factors should be considered?  
• Target sites near hospitals, for example                                                                     |
| • Adaptable                                                            |                                                                                                                                 |
| • Leverages existing data                                              |                                                                                                                                 |
| Customizable                                                            | The Model can be run comparing different siting scenarios  
• Develop a scenario to balance existing EV network and Environmental Justice concerns |
| • Identify level of detail based on existing data – zip code, block group and parcel based |                                                                                                                                 |
| Use existing data to identify underserved markets and potential siting locations | We can add and subtract out data layers as the Program evolves.                  |
| Identify skills to be further evaluated for practicability             |                                                                                                                                 |
Maximizing Existing EV Network and Community

GIS-based Modeling

Priority Area
- Low
- Medium
- High
GIS-based Modeling

Addressing Inequitable Communities within the EV Network
GIS-based Modeling

Balance between Addressing Inequities and Maximizing Existing Infrastructure
<table>
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<tr>
<th>Potential Data Layers</th>
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<tr>
<td><strong>Population Characteristics</strong></td>
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<tr>
<td>Population density (ACS)</td>
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<tr>
<td>% Low Income (ACS)</td>
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<tr>
<td>% Minority Population (ACS)</td>
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Determine local EVs goals and charging needs, then identify areas of high demand and usage.

When big data unavailable, collaborate with local stakeholders on pilot projects that will both capture user information and serve a community need.

Balance project costs and regulatory considerations in planning process.

Pair anticipated type of usage with the appropriate charging station type.

Final Takeaways
Thank you

Steve Hall, PE, LEED AP
Electrical Engineer
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E Steven.Hall@aecom.com
PG&E
EV Fleet Program
EV Fleet Program Overview

Over 700 sites will support 6,500 new EVs

Vehicle Type Estimates

Medium Duty
- Delivery (class 2-6)

Off-Road
- Truck Stop Electrification
- Transport Refrigeration Units
- Port Cargo Trucks
- Airport Ground Support Equipment

Heavy Duty
- Transit* (class 7-8)
  *15% minimum of total required
- School bus (class 6-7)
- Other (class 7-8)

*10% maximum of total allowed

Over 700 sites will support 6,500 new EVs
Transit Segment

Finding resources to pay for this new vehicle type

**Motivators**

- CARB 2040 deadline
- Grant Funding for vehicles
- Image as Sustainability Leader
- Reduce Operating Costs
- Chance for a new facility or upgrading old
- VGI

**Approach**

- Pilot to plan for the future
- Reduce risk. Collaborate with other agencies and/or use consultants
- Start with shortest routes with most visibility

**Make easy**
Transit Segment

The larger the fleet the more difficult getting consensus

**Challenges**
- Coordinating stakeholders
- Which OEM
- Funding...
- Funding....
- Bucket list: Solar, Batteries, Generators, Paving, Striping, Lighting, ect...

**Fears**
- Is there enough PG&E power
- Vehicles arrive but no way to charge them
- Vehicles don’t perform
- Unexpected costs not accounted for...

Solve my problems
EV Fleet Ownership—Customer-owned

PG&E pays for infrastructure cost up to the customer meter

Customer-owned¹

At PG&E discretion. PG&E will determine eligibility based on project scope and associated costs. Some exceptions may apply to customers who hold Primary Service with PG&E.

¹
Information Needed w/application

- Site Plan w/identified charger location
- OEM and Charge Vender information
- 5 year Deployment Schedule
- Anticipated load needed
- >500 kW
EV Fleet - Site Location
EV Fleet - Site Location
SITE ASSESSMENT

SCALE: 1' = 100'

SEE DETAIL BELOW

405' TRENCH

INTERCEPT EXISTING PRIMARY & INSTALL 3-WAY SWITCH IN EXISTING NO. 7 VAULT
A high level view of steps to participate in the program

**EV Fleet Customer Process**

- **Submit Application**
- **Capacity check / desktop review**
- **Site walk and preliminary design**
- **Calculate ROM cost estimate**
- **Sign contract**
- **Execute construction**
- **Issue rebate / Activate**

**SOLUTION DESIGN**
3-5 months

**EXECUTION**
6-8 months

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Thank you.
And I welcome your questions.

Ann Camperson
EV Fleet Specialist
Ann.Camperson@pge.com
925-459-2122
Helpful Resources / Links

• EV Fleet Website
• EV Fleet Fact Sheet
• EV Fleet Interest Form
• EV Fleet Application
• EV Fleet Rebate Calculator (for charger)
• EV Fleet Incentive Calculator (for infrastructure)
• EV Fleet Rate Calculator
• EV Fleet List of Approved Charging Vendors
• EV Fleet Terms and Conditions
• EV Fleet Customer Information Sharing Agreement
• EV Fleet Non-Disclosure Agreement
• EV Fleet Additional Funding Filtering Tool
• PG&E Service Territory Map
EV Workshop:
A Guide to Installing Public Chargers

Case Study: FCRTA Chargers & Grid Analysis Plan

Fresno County Rural Transit Agency
FCRTA Services

• FCRTA drives great distances to service Fresno County’s rural communities (Fresno to Coalinga is approximately 62 miles one way)
• Serving 13 incorporated and 29 unincorporated communities in Fresno County
• Fixed route (inter-city) service & demand response (intra-city) service
• Rural Transit and Shuttle Transit (24 hr advance reservation providing lifeline services) for residents outside the SOI of each incorporated City
• Also (2) inter-county routes with City of Dinuba and KART
• FCRTA services have remained very personal- addressing the transit needs of the disadvantaged
FCRTA’s Current Fleet

- Vehicle fleet of one hundred and ten (110) vehicles
- Forty-four (44) are powered by CNG
- Twenty-three (23) are powered by electric batteries
- FCRTA does **not** operate any diesel powered vehicles
- Goal of 2025 to have 100% EV fleet

BYD

Chevy Bolt

Zenith

Proterra
FCRTA’s Current Charging Infrastructure

- 13 Envision Solar Arc’s (Level 2)
- 4 BYD Chargers (Level 2)
- 8 Proterra Chargers (Level 3)
- 5 JuiceBox Chargers (Level 2)
Chargers & Vehicles
FCRTA Solar EV Arc Charging Stations
Charging Infrastructure & Installation

- FCRTA placed EV Envision ARCs at all 13 rural incorporated cities throughout Fresno County
- Two (2) EV Solar Trees will be installed in the Cities of Orange Cove and Coalinga (2 express routes will be starting at each City with service to Fresno)
- Level 2 & 3 chargers were installed at temporary maintenance site to charge EV fleet
- Installation for chargers was costly and time consuming
- Infrastructure analysis will establish existing grid conditions for future EV deployment
Different Chargers = Different Installations

- Major differences:
  - JuiceBox does not require a permit
  - Proterra has lower capacity but concrete pad and underground lines required for installation adding additional costs and time
  - BYD has higher amps requires more power and transformer is needed but is easier to install compared to Proterra
  - BYD charger has (2) plugins to help the load

- Approximate timeline for charger installation:
  - JuiceBox – 16 hours
  - BYD – 34 hours
  - Proterra – 40 hours
Lessons Learned

• Continued, ongoing assistance is needed by vendor. Support from vendor is needed following the commissioning of the charger
• Coordination with utility company is necessary for installation based on single, dual and three phase connections and infrastructure
• Infrastructure needed such as transformers and varies depending on the kW of charger and which vendor/manufacturer
• Heat effects the charging units, select site carefully and construct covers to protect charging units from heat
• Planning is necessary for success but expect the unexpected!!!
Challenges

• **Charging Technology**
  • Lack of standardization with vehicle chargers, different vehicles require different chargers
  • Different chargers come with different challenges, some chargers were easier to install and less costly than others
  • Vendor cooperation and support varies after the sale

• **Infrastructure**
  • Power needed for EV infrastructure is massive, costly and time sensitive
  • Grid upgrades are needed to support new loads

• **Electricity**
  • Demand charges are costly, EV rate structure is needed for an all electric fleet
  • Back-up power and on-site battery storage is needed if the power goes out
Grid Analysis Planning Project

- FCRTA was awarded $515,800 from the Caltrans Sustainable Communities Planning Grant for a project that will analyze the current grid system in rural Fresno County.
- This study will tell us the current capacity of the grid system, upgrades that are needed to support electric vehicle infrastructure and identify possible funding options available.
- This grid analysis study will prepare us for what will be needed based on current deficiencies in the grid systems in each county.
- **Cost of electricity for a 100% EV fleet is unknown and working with utilities will be needed to offer waivers and/or exemption to peak rates for public transit operators.**
### Ideal Chain of Events

<table>
<thead>
<tr>
<th>Event</th>
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<tbody>
<tr>
<td>Identify Funding Agency/ Source</td>
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<tr>
<td>Notification of funding allocation</td>
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<tr>
<td>Submit infrastructure and deployment plan to funding source</td>
</tr>
<tr>
<td>Confirm sites and work with utility companies for infrastructure</td>
</tr>
<tr>
<td>Get all appropriate permits and approvals from applicable jurisdictions for infrastructure sites</td>
</tr>
<tr>
<td>Construction and installation of charging units and commissioning by vendor</td>
</tr>
<tr>
<td>Deployment of EV buses for service</td>
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Thank you

Contact Information:
Moses Stites
mstites@fresnocog.org
Janelle Del Campo
delcampo@fresnocog.org
(559) 233-6789
Panel #2:
Overcoming Hurdles of Permitting:
“Strategies for Success”

▪ Kielan Rathjen, Governor’s Office of Business and Economic Development (GO-Biz)
  ▪ Bonique Emerson, City of Fresno
▪ Ryan Momenne, Turn Key Construction & Solar
Electric Vehicle Charging Station Permitting Guidebook

EV Workshop: A Guide to Installing Public Chargers
Fresno
- September 25, 2019 -
Key Sections

1. Planning and Site Selection
2. Permitting
   - AB 1236 Streamlining Map
3. Accessibility
4. Connecting to the Grid
5. Construction, Commissioning, and Operation
Planning and Site Selection

- Voluntary Building Codes
- Parking/Charging Clarification
- Climate Action Plans

<table>
<thead>
<tr>
<th>Authority Having Jurisdiction (AHJ)</th>
<th>Policy</th>
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<tbody>
<tr>
<td>Sacramento County</td>
<td>EVCS spaces count as two spaces</td>
</tr>
<tr>
<td>Los Angeles County</td>
<td>EVCS spaces count as one space</td>
</tr>
<tr>
<td>City of Pleasanton</td>
<td>EVCS spaces count as one space</td>
</tr>
<tr>
<td>City of Santa Barbara</td>
<td>EVCS spaces count as one space</td>
</tr>
<tr>
<td>City of West Hollywood</td>
<td>EVCS spaces count as one space</td>
</tr>
<tr>
<td>City of Stockton</td>
<td>EVCS spaces count as two spaces, for up to 10% reduction of parking requirements</td>
</tr>
</tbody>
</table>
Permitting

- Assembly Bill 1236 Permit Streamlining Law
EVCS Permit Ready Score:

Green – City or County is EVCS Permit Ready, charging infrastructure permitting is streamlined

Yellow – City or County EVCS permit streamlining is in progress, or partially complete

Red – City or County is **not** streamlined for EVCS permitting

Grey – Not yet evaluated (or in process)
*See http://www.business.ca.gov/ZEVReadiness for updated map

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<thead>
<tr>
<th>Step</th>
<th>Status</th>
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<tbody>
<tr>
<td>1. Ordinance</td>
<td>Yes</td>
</tr>
<tr>
<td>2. Checklist</td>
<td>No</td>
</tr>
<tr>
<td>3. Admin Approval</td>
<td>Yes</td>
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<tr>
<td>4. Health &amp; Safety</td>
<td>Yes</td>
</tr>
<tr>
<td>5. e-Signature</td>
<td>Yes</td>
</tr>
<tr>
<td>6. No Association</td>
<td>Yes</td>
</tr>
<tr>
<td>7. One Notice</td>
<td>Yes</td>
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<tr>
<td>8. Timeline</td>
<td>No</td>
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</table>

Public Notes: 15.04.015 - Electric vehicle charging stations
Adoption Date: September 2017
Checklist:
Ordinance: https://library.municode.com/ca/atwater/chapter-7-272?nodeId=TIT15BUCO_CH15_04GEPR_15.04.015
<table>
<thead>
<tr>
<th>Scoring Criteria:</th>
<th>Complete if:</th>
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</table>
| □ 1. **Streamlining Ordinance**  
  Ordinance creating an expedited, streamlined permitting process for electric vehicle charging stations (EVCS) including level 2 and direct current fast chargers (DCFC) has been adopted. | - Streamlining ordinance has been adopted |
| □ 2. **Permitting checklists covering Level 2 and DCFC**  
  Checklist of all requirements needed for expedited review posted on city or county website. | - Permitting checklist is available and easily found on city or county website |
| □ 3. **Administrative approval of EVCS**  
  EVCS projects that meet expedited checklist are administratively approved through building or similar non-discretionary permit. | - The streamlining ordinance states that permit applications that meet checklist requirements will be approved through non-discretionary permit (or similar) |
| □ 4. **Approval limited to health and safety review**  
  EVCS project review limited to health and safety requirements found under local, state, and federal law. | - The streamlining ordinance states that no discretionary use permit is required and permit approval will be limited to health and safety review |
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<tr>
<th></th>
<th>Electric signatures accepted</th>
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<tbody>
<tr>
<td></td>
<td>AHJ accepts electronic signatures on permit</td>
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<td>applications.*</td>
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<td></td>
<td>EVCS not subject to association approval</td>
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<td>EVCS permit approval not subject to approval of</td>
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<td>an association (as defined in Section 4080 of</td>
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<td>the Civil Code).</td>
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<td>One complete deficiency notice</td>
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<td>AHJ commits to issuing one complete written</td>
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<td>correction notice detailing all deficiencies in</td>
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<td>an incomplete application and any additional</td>
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<td>information needed to be eligible for expedited</td>
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<td>permit issuance.</td>
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</tr>
<tr>
<td></td>
<td>Bonus: Expedited timeline for approval</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Consistent with the intent of AB 1236, AHJ</td>
<td></td>
</tr>
<tr>
<td></td>
<td>establishes expedited timelines for EVSE permit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>approval compared to standard project approval</td>
<td></td>
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<tr>
<td></td>
<td>procedures.</td>
<td></td>
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<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
### Application Submission » Complete Response

<table>
<thead>
<tr>
<th>Type of Charger</th>
<th>Within Best Practice</th>
<th>Optimal</th>
</tr>
</thead>
<tbody>
<tr>
<td>L2 – Single Family</td>
<td>1 day</td>
<td></td>
</tr>
<tr>
<td>Multi L2 – Shared {Multi Family/Workplace/Public}</td>
<td>5 days</td>
<td>Same Day</td>
</tr>
<tr>
<td>DCFC</td>
<td>5 days</td>
<td></td>
</tr>
</tbody>
</table>

### Complete Package » Approval to Build

<table>
<thead>
<tr>
<th>Type of Charger</th>
<th>Within Best Practice</th>
<th>Optimal</th>
</tr>
</thead>
<tbody>
<tr>
<td>L2 – Single Family</td>
<td>1 day</td>
<td></td>
</tr>
<tr>
<td>Multi L2 – Shared {Multi Family/Workplace/Public}</td>
<td>15 days*</td>
<td>Same Day</td>
</tr>
<tr>
<td>DCFC</td>
<td>15 days*</td>
<td></td>
</tr>
</tbody>
</table>

### Construction Complete Notice » Inspection

<table>
<thead>
<tr>
<th>Type of Charger</th>
<th>Within Best Practice</th>
<th>Optimal</th>
</tr>
</thead>
<tbody>
<tr>
<td>L2 – Single Family</td>
<td>5 days</td>
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<td>Multi L2 – Shared {Multi Family/Workplace/Public}</td>
<td>5 days</td>
<td>Same Day</td>
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<td>DCFC</td>
<td>5 days</td>
<td></td>
</tr>
</tbody>
</table>
Accessibility

- California is first in the nation to provide ADA compliance specificity

<table>
<thead>
<tr>
<th>Total Number of EVCS at a Facility¹</th>
<th>Minimum Number (by type of EVCS Required to Comply with Section 11B-812:¹)</th>
<th>Minimum Number (by type of EVCS Required to Comply with Section 11B-812:¹)</th>
<th>Minimum Number (by type of EVCS Required to Comply with Section 11B-812:¹)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Van Accessible</td>
<td>Standard Accessible</td>
<td>Ambulatory</td>
</tr>
<tr>
<td>1 to 4</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5 to 25</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>26 to 50</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>51 to 75</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>76 to 100</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>101 and over</td>
<td>1, plus 1 for each 200, or fraction thereof, over 100</td>
<td>3, plus 1 for each 60, or fraction thereof, over 100</td>
<td>3, plus 1 for each 50, or fraction thereof, over 100</td>
</tr>
</tbody>
</table>

¹ According to Section 11B-812 of the Statewide Guidelines for Accessible Design.
Connecting to the Grid

• Working with Utilities
Construction, Commissioning, and Operation

- Weight and Measures Certification
- Signage
Contact us with your questions:

Tyson Eckerle

tyson.eckerle@gobiz.ca.gov
(916) 322-0563

Kielan Rathjen

kielan.rathjen@gobiz.ca.gov
(916) 447-7936
City of Fresno

EV Charging Stations

Streamlined Planning Process

Bonique Emerson, City of Fresno
Feedback from the Industry

* We received feedback that the Planning process was overly cumbersome

* About a year ago we created a handout to help simplify the process

* It wasn’t enough
In April, we followed up with a more complete checklist to help streamline.

It still wasn’t enough.
Even with the handout and the checklists, the majority of submittals still had issues

Resulted in Resubmittals and Delays to project approval
It took some collaboration with several departments and divisions to work through a streamlined process.

Decided on a self-certification process that would allow projects to move straight to building permits without planning review.
## About to Launch a New Streamlined Process

In order to streamline the review and approval of Electric Vehicle Charging Stations (EVCS) (as defined by Section 65950.7 of the California Government Code) and related equipment, the Planning entitlement process may be bypassed in certain situations if an applicant agrees and attests that the EVCS is proposed in accordance with the following standards:

### Instructions:

- A. Complete form
- B. Sign and attest to compliance
- C. Attach this document to your Building Permit submission (building permit is required)

### 1. Site Information:

<table>
<thead>
<tr>
<th>Address:</th>
<th>APN:</th>
<th>Building Permit Application No:</th>
</tr>
</thead>
</table>

### 2. Existing Parking Spaces:

- a) Total Number of Parking Spaces to be Removed:____
- b) Total Number of Spaces within the existing parking lot:____
- c) Is the number of stalls to be removed less than 10% of the total number of existing stalls?
  - [ ] if the answer is no, this streamlined process is not allowed.

### 3. EV Spaces Proposed:

<table>
<thead>
<tr>
<th>Total Number of Electric Vehicle Spaces Proposed:____</th>
</tr>
</thead>
<tbody>
<tr>
<td>Of these stalls:</td>
</tr>
<tr>
<td>b) Total Number of Standard Parking spaces proposed:____</td>
</tr>
<tr>
<td>c) Total Number of Accessible spaces proposed:____</td>
</tr>
</tbody>
</table>

### 4. Parking Lot Requirements:

In order to utilize this streamlined process, the following items are required. Please initial in the lines, attesting to compliance with these requirements.

- [ ] Applicant has verified that there is an existing (previously approved) stamped and signed site plan approved by the Planning Division through the entitlement process (Application Number ________) depicting the approved parking lot layout.
- [ ] Applicant has verified that the existing parking lot layout is constructed and striped in accordance with the approved site plan noted above. If the parking lot is currently not built in accordance with this site plan, this streamlined process is not allowed.
- [ ] Applicant has verified that they have conducted a site visit and that all existing raised pads, curbs, ramps, planters, trees, landscaping, utility vaults, transformers, backflow prevention devices, gas meters, free standing mailboxes, light/light poles, hydrants, fences or other structures in the vicinity of the proposed equipment is shown on the plan and will not interfere with the placement of the proposed equipment or any required path of travel.

### 5. Stall Requirements:

In order to utilize this streamlined process, the following items are required. Please initial in the lines, attesting to compliance with these requirements.

- [ ] Minimum 27-foot clear width for vehicular back-up between ends of parking spaces (27-foot vehicular aisle width must be maintained)
- [ ] If sidewalk is present in front of stall where EV station is being placed, must ensure there is 4-foot of clear width in addition to space allocated for EV equipment for pedestrians either by:
  - Utilizing wheelchair turn or 3-foot offset from sidewalk
  - Having 7-foot wide sidewalk in front of stalls, clear of any structures
About to Launch a New Streamlined Process

9. Stall Types:

All stalls must be constructed to one of the standards below. If the stall cannot meet one of the standards below, this streamlined process is not permitted. Please initial next to the stall types to be provided, verifying compliance with these standards.

10. Example Site Plan:

The site plan submitted with the building permit application must include all of the information detailed below as applicable. The applicant must verify that the information contained below is included on the site plan. __________ (initial)

I _______________ attest that the building permit that I am submitting for the installation of Electric Vehicle Charging Stations (EVCS) complies with all requirements outlined in this document. I understand that failure to comply with any of these requirements will result in non-compliance and the equipment may be required to be removed and relocated.

Signature ___________________________ Date ____________
Ryan Momenne

*Turn Key Construction and Solar*
Panel #3:
Costs and Operations:
“Who Owns It, Maintains It, and Pays For It?”

▪ Brian Fauble, California Energy Commission
▪ Ann Camperson, Pacific Gas & Electric
▪ Omar Faris, Southern California Edison
▪ Ashely Burrow and Matt Bischoff, San Joaquin Valley Air Pollution Control District
▪ Doug Sampson, ChargePoint
California Electric Vehicle Infrastructure Project (CALeVIP)

Clean Transportation Program

Brian Fauble
Energy Commission Specialist II
• Goals:
  • Implement targeted incentive projects throughout California that address a specific region’s EV charging needs.
  • Provide a mechanism that speeds up the installation, reporting, and funding processes.
CALeVIP Background

- CALeVIP vs Incentive Projects within CALeVIP
  - CALeVIP is the platform for all Incentive Projects
  - Incentive Projects within CALeVIP are geographically targeted projects
- Total Active Projects: $51 million
  - Up to $200 million in future funding
<table>
<thead>
<tr>
<th>Incentive Project</th>
<th>Launch Date</th>
<th>Counties</th>
<th>Funding</th>
<th>Technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresno County</td>
<td>December 2017</td>
<td>Fresno</td>
<td>$4 million</td>
<td>Level 2</td>
</tr>
<tr>
<td>Southern California</td>
<td>August 2018</td>
<td>Los Angeles, Orange, Riverside, San Bernardino</td>
<td>$29 million</td>
<td>DC Fast Chargers</td>
</tr>
<tr>
<td>Sacramento County</td>
<td>April 2019</td>
<td>Sacramento</td>
<td>$15.5 million*</td>
<td>Level 2 &amp; DC Fast Chargers</td>
</tr>
<tr>
<td>Northern California</td>
<td>May 2019</td>
<td>Shasta, Humboldt, Tehama</td>
<td>$4 million</td>
<td>Level 2 &amp; DC Fast Chargers</td>
</tr>
<tr>
<td>Central Coast</td>
<td>Launching October 2019</td>
<td>Monterey, Santa Cruz, San Benito</td>
<td>$7 million**</td>
<td>Level 2 &amp; DC Fast Chargers</td>
</tr>
<tr>
<td>San Joaquin Valley</td>
<td>Launching December 2019</td>
<td>San Joaquin, Kern, Fresno</td>
<td>$14 million</td>
<td>Level 2 &amp; DC Fast Chargers</td>
</tr>
</tbody>
</table>

**Total:** $73.5 million

*Includes SMUD’s $1.5 million investment that is in the process of being added.
** Includes MBCP’s $1 million investment. MBCP is investing $1M/year for 3 years.
San Joaquin Valley Incentive Project
April 2019

Available Funding = $14M

Regions

- San Joaquin County = $6.05M
  - $2.675M = Level 2
  - $3.375M = DCFC

- Kern County = $5.25M
  - $2.625M = Level 2
  - $2.625M = DCFC

- Fresno County = $2.7M + FCIP
  - $0 = Level 2*
  - $2.7M = DCFC

- Minimum 25% to DAC

*Remaining funds from Project 1 will be merged into project the San Joaquin Valley Incentive Project, specifically into Fresno County Level 2 funding.
Rebate Amounts

<table>
<thead>
<tr>
<th>Charger Type</th>
<th>Non-DAC</th>
<th>DAC</th>
<th>MUD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 2</td>
<td>Up to $3,500/connector*</td>
<td>Additional $500/connector</td>
<td>Additional $1,000/connector</td>
</tr>
<tr>
<td>DCFC</td>
<td>Up to $70,000/DCFC or 75% of the total project cost, whichever is less</td>
<td>Up to $80,000/DCFC or 80% of the total project cost, whichever is less</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

**Link to CalEnviroScreen 3.0 Tool**

* SJVAPCD has the ChargeUp! Program offering rebates for level 2 and DC fast chargers ($5,000 for single port level 2 chargers and $6,000 for dual port level 2 chargers)
• DCFC = 1-4 chargers
• Level 2 = 1-10 connectors

• Additional stations may be installed, but will not be eligible for funding from CALeVIP
Rebate Cap Limits

• County level dollar cap on Applicants’ active applications
  • A cap on the dollar amount of active applications for an applicant
  • Based on the county of the project site
  • Once an application is completed and paid, then the applicant is eligible to apply for more funds
### San Joaquin Valley Incentive Project

<table>
<thead>
<tr>
<th>County</th>
<th>Funding Available</th>
<th>Active Cap Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Joaquin</td>
<td>$6.05M</td>
<td>$320K</td>
</tr>
<tr>
<td>Kern</td>
<td>$5.25M + FCIP</td>
<td>$320K</td>
</tr>
<tr>
<td>Fresno</td>
<td>$2.7M</td>
<td>$320K</td>
</tr>
</tbody>
</table>
Eligibility - Applicants

- **Private companies**
  - Business owner, EVCS manufacturer, EVSP, contractors, not-for-profits, community/faith-based organizations, etc.
  - Not required to be the site owner or host

- **Public agencies**
- **Tribal communities**
- **Must have a valid California Business License**
Eligibility – Level 2

Site locations

• Commercial
  • Public

• Workplace
  • Public or private
  • Must be shared use

• MUD
  • Public or private
  • Must be shared use

• Fleet
  • Public or private
  • Must be shared use

Single family residence and assigned parking installations are excluded

Both DCFC and Level 2 sites must be well-lit, secure and in compliance with all federal, state and municipal laws, ordinances, rules, codes, standards and regulations
Eligibility – DCFC
Site locations

- Urban/suburban retail core and/or Retail shopping centers
- Grocery Stores
- Restaurants
- Gas stations
- Hospitals
- Sheriff/police station
- Airports

- Colleges/universities
- Hotels
- Casinos
- Public Transit Hub
- City or county owned parking garages and surface lots (not workplace parking)

Charger(s) **must** be available to the public 24 hours a day, 365 days a year
Eligible Equipment

DISCLAIMER
The Center for Sustainable Energy and the California Energy Commission are not endorsing the EV charger companies or chargers in this document. The EV chargers listed below meet the minimum eligibility requirements for CALeVIP and have been submitted by their manufacturer for eligibility listing. Charger stock availability is based on each respective company and is not guaranteed by CALeVIP.

The EV charger(s) must meet these requirements.

LEVEL 2 CHARGERS

➢ Be new equipment installing for the first time, installing on a wall or pedestal mounting at the corresponding site address. Resale units, rebuilt, rented, received from warranty insurance claims, won as a prize or new parts installed in existing units do not qualify.

➢ Utilize the SAE J1772 charging connector.

➢ Be networked, which is defined as a charger connected to a back-end network operations center.

➢ Be capable of delivering electricity to a plug-in electric vehicle at a minimum rate of 6.2 kilowatts (kW).

DC FAST CHARGERS

➢ New EV charging equipment.

➢ Include DCFC dual standard chargers with both CHAdeMO and SAE CCS connector options.

➢ Networked: Equipment and network must have remote diagnostics and be capable of "remote start." Must also be capable of usage data collection. Minimum five-year networking agreement (eligible towards total project cost).

➢ Capable of 50 kW or greater.

➢ If payment is required, must accept some form of credit cards and multiple forms of payment.

➢ Be approved by a NRTL program for EVSE testing and certification.

Rebates for Level 2 EV chargers and DC fast chargers vary by project. For details on rebate amounts, visit CALeVIP.org/find-project and select a specific incentive project.
Eligible Costs

- Equipment: EVSE, transformers, panels, advanced energy storage
- Planning/design
- Installation costs (labor & materials)
- Utility service orders
- Demand management equipment
- Networking agreements
- Extended warranties
- Stub-outs
- Signage
Ineligible Costs

- Permits or anything required by law
- Solar panels
- Costs paid by other rebate or incentive programs/projects
• DCFC or Combo installations = 15 months
• Level 2 installations = 9 months
• Each application must be completed before the deadline which starts when the application funds are reserved.
  • Stations must be 100% operational by the application deadline
  • Applicants cannot apply until they have an executed site host agreement and completed Site Verification Form
  • Planning costs incurred prior to funding be reserved are eligible costs (Once landing page is live)
  • Communicate with the necessary utility provider from the beginning
  • All application documents must be submitted and approved by the application deadline
  • Reach out to CSE staff if delays arise
<table>
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<tr>
<th>Incentive Project</th>
<th>Launch Date</th>
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* Includes MBCP’s $1 million investment. MBCP is investing $1M/year for 3 years.
Future CALeVIP Information

• CALeVIP Website (www.calevip.org)
• Energy Commission Block Grant/CALeVIP docket webpage
  http://www.energy.ca.gov/altfuels/zev/2017-EVI-01/
• Center for Sustainable Energy email
  calevip@energycenter.org
Thank You

Brian Fauble
(916) 654-3974
brian.fauble@energy.ca.gov
PG&E will help you install EV infrastructure for medium- and heavy-duty fleets

$236 million budget over 5 years from 2019-2023

700+ sites supporting 6,500 new EVs

Support conversion of commercial and public fleets to electric

Examples:
Delivery vehicles, school buses, transit buses, and more…
EV Fleet Program Overview

Over 700 sites will support 6,500 new EVs

Vehicle Type Estimates

**Medium Duty**
- Delivery (class 2-6)

**Off-Road**
- Truck Stop Electrification
- Transport Refrigeration Units
- Port Cargo Trucks
- Airport Ground Support Equipment

**Heavy Duty**
- Transit* (class 7-8)
- School bus (class 6-7)
- Other (class 7-8)

*15% minimum of total required
*10% maximum of total allowed

Over 700 sites will support 6,500 new EVs
EV Fleet Program Overview

Two ownership options offering significant cost benefits

Customer-Owned
Participant constructs, owns and pays for behind-the-meter make-ready infrastructure and receives cost offset\(^1\)

PG&E-Owned
In select few cases, PG&E constructs, owns and pays for all make-ready infrastructure from power pole to charger\(^1\)

OR

AND

EVSE Rebate
Additional Electric Vehicle Service Equipment (EVSE=charger) rebate available for schools, transit agencies and Disadvantaged Communities\(^2\)

---

\(^1\) At PG&E discretion. PG&E will determine eligibility based on project scope and associated costs. Some exceptions may apply to customers who hold Primary Service with PG&E.

\(^2\) EVSE must meet minimum and standard requirements to be eligible for rebate.
EV Fleet Ownership—Customer-owned

PG&E pays for infrastructure cost up to the customer meter

Customer-owned

1

At PG&E discretion. PG&E will determine eligibility based on project scope and associated costs. Some exceptions may apply to customers who hold Primary Service with PG&E.
**EV Fleet Ownership—Customer-owned**

PG&E pays for infrastructure cost up to the customer meter

**Customer-owned**\(^1\)

<table>
<thead>
<tr>
<th>Vehicle type</th>
<th>Per vehicle incentive cap(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transit buses &amp; Class 8 trucks</td>
<td>$9,000 per vehicle</td>
</tr>
<tr>
<td>Transportation refrigeration units, truck stop electrification, ground support equipment &amp; forklifts</td>
<td>$3,000 per vehicle</td>
</tr>
<tr>
<td>School buses, local delivery trucks, and other vehicles</td>
<td>$4,000 per vehicle</td>
</tr>
</tbody>
</table>

---

1. At PG&E discretion, PG&E will determine eligibility based on project scope and associated costs. Some exceptions may apply to customers who hold Primary Service with PG&E.
2. Limited to 25 vehicles per site; sites with more vehicles to be considered on an individual basis.
PG&E pays for infrastructure cost up to the customer meter

**Customer-owned**

Program participant pays for charging equipment

### Charging equipment rebates for Schools, Transit Agencies and Disadvantaged communities

<table>
<thead>
<tr>
<th>EVSE power</th>
<th>Max. rebate amount³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 50kW</td>
<td>$15,000 per charger</td>
</tr>
<tr>
<td>50-150kW</td>
<td>$25,000 per charger</td>
</tr>
<tr>
<td>150kW+</td>
<td>$42,000 per charger</td>
</tr>
</tbody>
</table>

### Customer-owned infrastructure

Eligible for incentive up to capped amount based on vehicle sector

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<th>Vehicle type</th>
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¹ At PG&E discretion. PG&E will determine eligibility based on project scope and associated costs. Some exceptions may apply to customers who hold Primary Service with PG&E.

² Limited to 25 vehicles per site; sites with more vehicles to be considered on an individual basis.

³ EVSE rebate amounts subject to change based upon EVSE RFQ. Rebate not to exceed 50% of charger equipment and installation costs. EVSE must meet minimum and standard requirements to be eligible for rebate.
PG&E pays for a significant portion of the total costs

**PG&E-owned**

Program participant pays for charging equipment

**Charging equipment rebates for Schools, Transit Agencies and Disadvantaged communities**

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2 EVSE rebate amounts subject to change based upon EVSE RFQ. Rebate not to exceed 50% of charger equipment and installation costs. EVSE must meet minimum and standard requirements to be eligible for rebate.
How to Prepare

What we need from you...

Demonstrate commitment to procurement of a minimum of 2 electric fleet vehicles

Demonstrate long-term electrification growth plan and schedule of load increase

Provide data related to charger usage for a minimum of 5 years

Own or lease the property where chargers are installed, and operate and maintain vehicles and chargers for minimum of 10 years
EV Fleet Customer Process

A high level view of steps to participate in the program

SOLUTION DESIGN
3-5 months

EXECUTION
6-8 months

Start
Submit Application → Capacity check / desktop review → Site walk and preliminary design → Calculate ROM cost estimate → Sign contract → Execute construction

Complete
Issue rebate / Activate
1. Customers choose subscription level, based on charging needs

Subscription Charge

$184 / 50 kW connected charging

Customers that want to manage charging loads can opt for a lower subscription level.

2. Subscription remains consistent month-to-month

If site charging power exceeds subscription, customer pays an overage for that month.

3. Energy usage is billed based on time-of-day pricing

Energy Charge

Charging is cheapest mid-day, when PG&E has higher levels of renewable energy generation.

Customers should avoid charging during peak hours from 4-10 p.m., when possible.

1 CEV rates are not yet approved. Values above represent CEV-Large secondary proposed rates. CEV-Small proposed rate has a lower subscription charge ($25 per 10 kW connected charging).
Estimated Bill Savings Model\(^1\)

For modeled customer sites, new CEV rates can enable significant savings compared to existing commercial rate plans.

Note: actual bill impacts will vary for each customer depending on charging usage patterns.

\(^1\) Rate and billing estimates are preliminary and only reflect the sample site modeled. Actual costs will vary based on approved rate values, as well as individual site energy usage.
Thank you.
And I welcome your questions.

Ann Camperson
EV Fleet Specialist
Ann.Camperson@pge.com
925-459-2122
Helpful Resources / Links

• EV Fleet Website
• EV Fleet Fact Sheet
• EV Fleet Interest Form
• EV Fleet Application
• EV Fleet Rebate Calculator (for charger)
• EV Fleet Incentive Calculator (for infrastructure)
• EV Fleet Rate Calculator
• EV Fleet List of Approved Charging Vendors
• EV Fleet Terms and Conditions
• EV Fleet Customer Information Sharing Agreement
• EV Fleet Non-Disclosure Agreement
• EV Fleet Additional Funding Filtering Tool
• PG&E Service Territory Map
Energy for What’s Ahead
Our Transportation Electrification Pathway

Omar Faris
Account Manager, SCE
September 25th, 2019
SCE is accelerating vehicle electrification across multiple sectors

- Medium- & Heavy-Duty
- Transit/School Buses
- Workplace & Public
- At Home Charging
SCE Business TE Programs Cover the Cost to Build EV Charging Infrastructure

- SCE will cover cost of make-ready infrastructure and may offer a rebate to offset cost of procuring and installing charging stations
- Participant is responsible for procuring charging stations

**Diagram:**
- Transformer
- Service
- Meter
- Panel
- Conduits and Wires
- Utility Distribution Infrastructure
- Participant Site Infrastructure
- Charging Stations

Program covers costs associated with service drop, meter, panel, and circuit dedicated to EV charging.
Charge Ready Transport provides infrastructure for fleet electrification

- Approved total program budget of $356.4M
- Achieve minimum 870 sites with 8,490 electric vehicles procured or converted
- Covers cost of all infrastructure needed up to charging station
- Charging station rebates available for transit/school buses and sites in disadvantaged communities

Apply → Procurement → Design & Build → Rebate

- 2-3 months
- 45 days
- 6-9 months
- 1 month

Energy for What’s Ahead™
SCE will advise customers throughout the process

Transportation Electrification Advisory Services
- Fleet Analysis Services
- Fueling calculation and Rate Analyses

Transportation Electrification Project Management
- Single Point of Contact for multi-site projects
- Dedicated project management group for EV charging projects
Plan for Charge Ready 2: Speed, Scope, and Scale

Proposal to deploy 32,000 level 2 ports at 3,200 workplaces, apartments, destination centers and fleets; Install an additional 200 DC Fast Chargers.

Offer apartments and government customers a turnkey solution: SCE can install, own, and maintain up to 4,230 new charging ports.

Up to $3,500 rebate per port to exceed CalGREEN building code and install a minimum of 16,000 ports at new construction multi-unit dwellings.

Multi-prong marketing strategy:
- Mass media advertising of EVs and benefits;
- Targeted marketing on EV experience;
- Support businesses to convert fleets to electric;
- Program-specific marketing.
SCE will continue to develop new programs to spur EV adoption

AB1082 Schools

- No-cost or utility owned infrastructure to serve level 1 or level 2 EV charging
- Available to K-12 Schools
- One-time rebate (with the no-cost option) to offset the costs of charging stations

AB1083 Parks

- Utility owned infrastructure (for existing or new construction) to serve level 2 or DCFC EV charging
- Available to California State parks and beaches
Claim your Clean Fuel Reward - $1,000 Rebate on Your EV

- Available to SCE residential customers who drive electric vehicles (EV)
- Offers a one-time $1,000 rebate (increased from $450)
- Lease or purchase qualifies
- New or used vehicles - up to three different owners of the same EV can qualify
- For more information or to apply for the Clean Fuel Rewards Program visit www.scecleanfuel.com

Available NOW

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Over 6 million internal combustion engine cars are sold in the US each year. Successfully decarbonizing the transportation sector will require all of us working together.
Join us on this ride.

Omar Faris
Account Manager
Southern California Edison
Charge Up! Incentive Program

Fresno COG Workshop: A Guide to Installing Public Charging Stations

Wednesday, September 25, 2019
Valley Needs More Clean Vehicles

- San Joaquin Valley faces multiple challenges due to emissions from mobile sources
  - Over 85% NOx emissions
  - Valley home to 23 out of top 30 disadvantaged communities in California (CalEnviro 2.0)

- Valley lags behind the rest of the state in market penetration (electric, plug-in hybrid, natural gas, etc.)
  - 3% of participants in state electric vehicle programs
  - Minimal infrastructure to support electric vehicles

- May 2014: Governing Board approved comprehensive action plan for promoting use of clean vehicle technology
Charge Up! Program

• Charge Up! Program launched: June 2015
• Goals include:
  – Strengthen Valley’s electric vehicle charging network,
  – Reduce “range anxiety”
  – Increase awareness of EV technology to Valley residents
• Provides incentives for public agencies, Valley businesses, and MUDs to install publically-accessible electric vehicle chargers throughout the Valley
Funding

• Funding Levels:

<table>
<thead>
<tr>
<th>Charger Type</th>
<th>Funding Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 2 Single Port</td>
<td>Up to $5,000 per unit</td>
</tr>
<tr>
<td>Level 2 Dual Port</td>
<td>Up to $6,000 per unit</td>
</tr>
<tr>
<td>Level 3 DC Fast Chargers</td>
<td>Up to $25,000 per unit</td>
</tr>
<tr>
<td>Funding Cap</td>
<td>$50,000 annually per applicant/site</td>
</tr>
</tbody>
</table>

• Incentive designed to cover 50 -75% of cost to purchase and install infrastructure
Program Criteria

• Minimum applicant requirements:
  – Enter into an agreement with the District to receive funds
  – Be approved by the District for funding prior to the purchase and installation of EV charger(s)
  – Own, operate, and maintain EV charger(s) for the duration of agreement
  – Own site where EV chargers will be installed, or receive written permission from property owner

• Minimum site requirements:
  – Be located within SJVAPCD boundaries
  – Have designated parking stalls and appropriate signage
  – Home charging is not eligible
Program Criteria (cont.)

• Minimum EV charger requirements:
  – Be a hard-wired or a stand-alone, solar-powered unit
  – Meet the SAE J1772 standard
  – Be UL listed (certified by Underwriters Laboratories, Inc.)
  – If applicable, have an open source protocol for payment
  – Have smart charging capabilities to track usage
Application and Claim Process

• **Step 1**: Applicant submits a complete application to the District:
  – Applicants are not allowed to purchase, install the EV charger(s) prior to the voucher being issued
  – Quotes for all project costs
  – IRS Tax Form W-9
  – Site Map of Proposed Charger Location

• **Step 2**: Application is reviewed and if approved, District will offer a Voucher to applicant
Application and Claim Process (cont.)

• **Step 3**: Applicant purchases and installs EV charger(s)
  – Applicant is provided a one year period to purchase and install EV charger(s), striping and signage as applicable.
Application and Claim Process (cont.)

• **Step 4**: Applicant submits a complete claim to the District for reimbursement
  – Invoices for EV charger(s) and installation costs
  – Site photos of installed EV charger(s) required
  – Publicly accessible charger sites must be reported to the Department of Energy’s Alternative Fueling Station Locator website: [https://www.afdc.energy.gov/locator/stations/](https://www.afdc.energy.gov/locator/stations/)

• **Step 5**: District reimburses applicant
Annual Reports

• 1 annual report per year for 3 years from project completion date:
  – Utilization of the EV charger(s)
  – Frequency and Duration

• Project complete once all annual reports are received
Additional Funding Opportunities

- Program allows utilization of multiple grants
- CalEVIP Fresno County Incentive Project: $4,000 per Single Port. $7,000 per Dual Port.
- PG&E EV Charge Network: Large scale installation projects (10+ chargers)
- SCE Charge Ready: Currently only accepting applications for MUDs.
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Public Benefit Grants Program

New Alternative Fuel Vehicle Purchase
Public Benefit Grants Program

• Innovative program to assist local agencies in the Valley with funding for clean-air projects that provide broad benefits to Valley residents
• Projects encourage use of state-of-the-art clean-air technology on local level and achieve sustainable, long-term air quality benefits
• More than $25,000,000 has been funded for more than 1,600 new, advanced technology light and medium duty vehicles (plug-in hybrid, battery-electric, CNG, LNG, etc.)
Eligible Applicants

• Public Agencies and Community Action Agencies
  – Cities, counties, special districts, public educational institutions, or any other public agency defined by Government Code section 6252, including those provided in Article IV and Article VI of California Constitution

• Must be located in the SJVAPCD boundaries
Eligible Vehicles

- Must be a new OEM vehicle
- Must be electric, plug-in hybrid, or alternative fueled (CNG, LNG, LPG)
  - Hybrid pursuit rated vehicles recently added for law enforcement purposes
- Must have a GVWR of 14,000 lbs or less
- Must be domiciled in and have at least 75% VMT in the SJVAPCD boundaries
Funding

• First-come, first-served basis
  – Regional allocations based upon population
    • North: San Joaquin, Stanislaus, and Merced
    • Central: Madera, Fresno, and Kings
    • South: Tulare and Kern

• Agencies are restricted to the following:
  – Up to $20,000 per vehicle
  – Maximum funding of $100,000 per calendar year
Application Process

• Must apply and receive executed grant agreement prior to purchase
  – Currently there is a waiting list for each region
• Purchase vehicle(s) after executed grant agreement
• Make claim for payment after purchase of vehicle(s) for reimbursement
Questions

Ashley Burrow

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559-230-5869
Charging Stations – Post Installation

Doug Sampson, ChargePoint Account Executive

9/25/2019
Agenda

1. What happens after a charger is installed?
2. Who owns and maintains them?
3. What is the ongoing cost?
4. User fee-based and free programs?
After Installation – Function and Ongoing Costs

+ Hopefully, they charge vehicles
  - Non-networked stations function as an extension cord
  - Networked stations provide intelligent feedback on usage, functionality, and make the station visible to drivers

+ Ongoing Costs
  - Maintenance/Warranty
    • Typically optional
  - Network Agreements
    • Typically mandatory
After Installation – Ownership Models

+ Who owns and maintains stations?
  - Typically, ownership is the site host where the station is located
    • There are very few options for third party or vendor ownership of equipment
  - Networked stations will typically have warranty options from the manufacturer
    • These options will allow you to fix your costs for ownership and may even provide an “uptime” guarantee

+ Fee Based and Free Programs for stations
  - There are a few limited options in today's market
Wrap Up

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Coming Up – October 23, 2019

Featuring a panel on electrification and much more!

Register now for this all-day event at fresnocog.org