

# Q3 2019 Clean Transportation Program Advisory Council Meeting

October 16, 2019



Together, Building  
a Better California



# Agenda

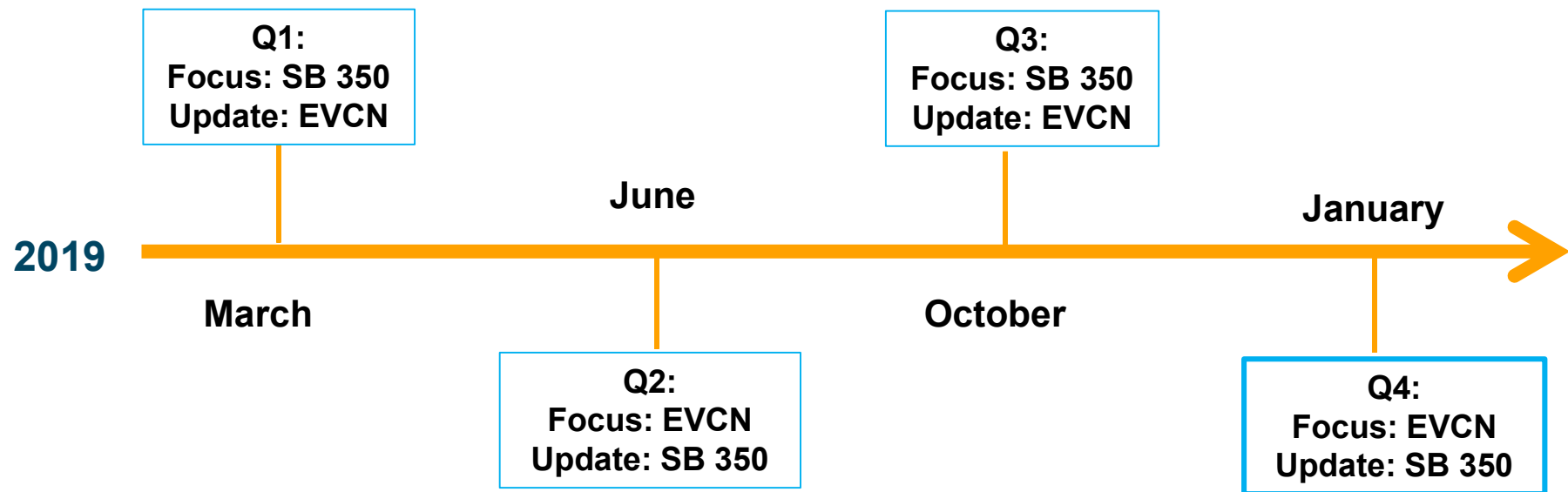
<b>Safety/ Introductions</b>	<b>9:00 – 9:10</b>
<b>Meeting Overview / EV Market Update</b>	<b>9:10 – 9:20</b>
<b>EV Charge Network Program Update</b>	<b>9:20 – 9:50</b>
<b>SB 350: Priority Review Projects</b>	<b>9:50 – 10:45</b>
<b>BREAK</b>	<b>10:45 – 11:00</b>
<b>SB 350: Standard Review Projects</b>	<b>11:00 – 12:00</b>



# Clean Transportation Program Advisory Council

## Overview

- PG&E has expanded our efforts on transportation electrification, with a number of filings, pilots and programs in development
- CPUC has directed PG&E to consult a Program Advisory Council in the development of these pilots and programs to gain feedback from industry stakeholders
- This platform will serve to gather insight and feedback on PG&E's proposals and ongoing programs



# EV Market Update



Together, Building  
a Better California



# Q3 2019 EV Market Update

2

6

2

,

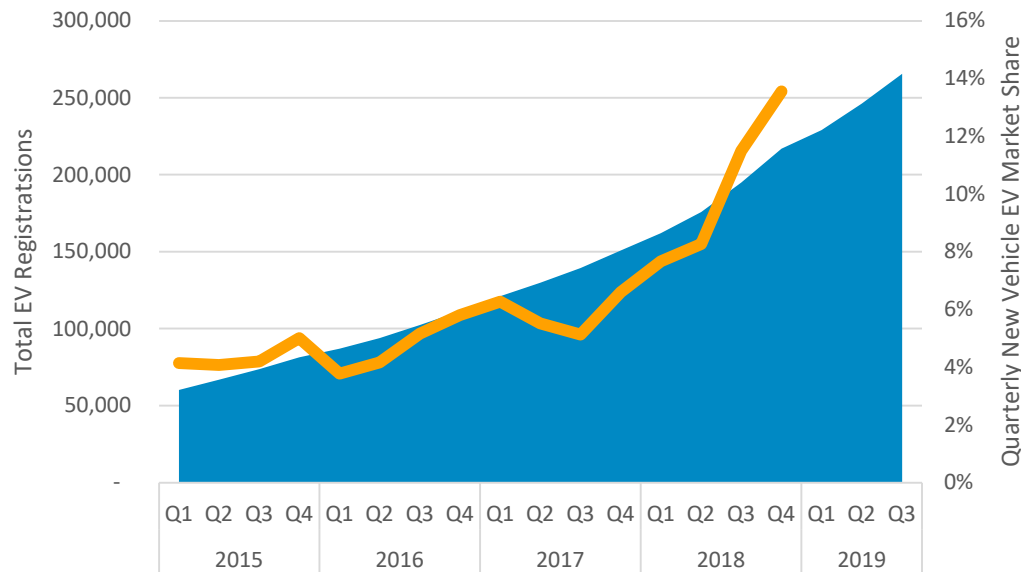
5

8

2

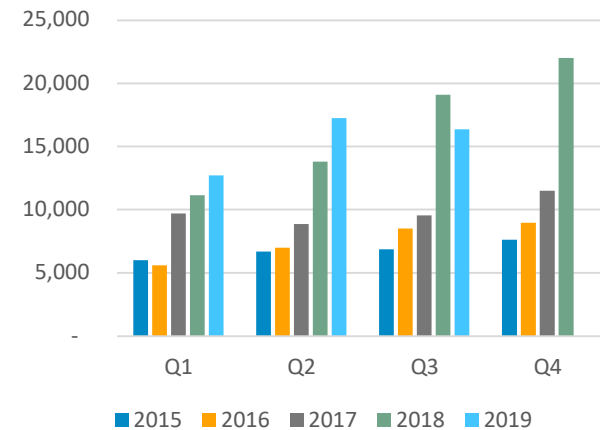
**EVs registered** in PG&E service territory, through Q3 of 2019

### Cumulative New EV Registrations PG&E Service Territory



Q3 EV registration shows a slight decrease in growth compared to 2018

### New EV Registrations by Quarter



Source: EPRI, Based on external registration data & Veloz CA Sales Dashboard

Note: In 2019, PG&E has switched the data source for registrations to Veloz CA Sales Dashboard, estimating PG&E represents 40% of statewide EV sales, based on historical trends



# Expect More EVs in Fleet Sector

## Rivian partners with Amazon bringing new electric delivery vans

- Now Amazon has a \$4 billion order for **100,000** fully electric delivery vans; each costing ~ **\$40,000**
- First deliveries expected as soon as **2021** with an anticipated completion by 2024



Source: Electrek: <https://electrek.co/2019/09/19/rivian-electric-van-picture/#more-103916>

Image: The Verge: <https://www.theverge.com/2019/9/19/20873947/amazon-electric-delivery-van-rivian-jeff-bezos-order>

## Daimler group committed to electric

- By 2022 the company will add **10 different** EV models to the market
- They will also electrify the entire Mercedes-Benz portfolio totaling to **50 electric models**



Source: Daimler: <https://media.daimler.com/marsMediaSite/en/instance/ko/Plans-for-more-than-ten-different-all-electric-vehicles-by-2022-All-systems-are-go.xhtml?oid=29779739>

# EV Charge Network



Together, Building  
a Better California



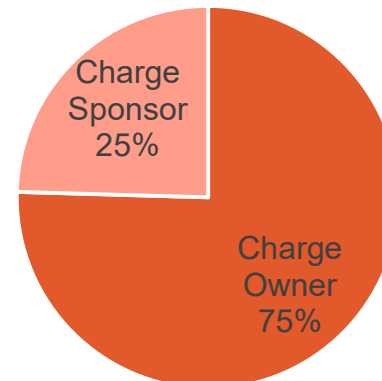
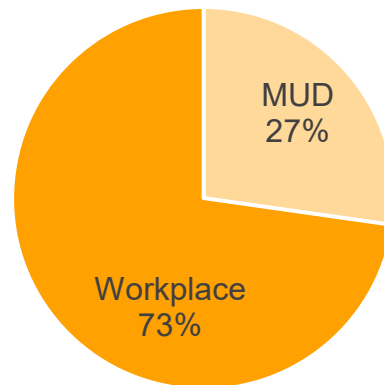
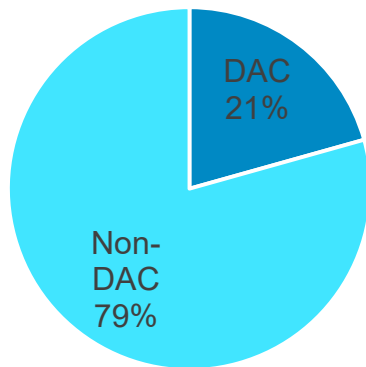
# Overall Progress Update

## Current status<sup>1</sup>

	Ports	Sites
Submitted	15,721	820
Viable	4,728	204
Final Design	3,265	122
Construction substantial complete	1,568	88
Activated	1,458	81

- **Customer acquisition** complete: application portal closed Q2
- **Site eligibility** complete: all customer agreements in place
- **Final design** at steady capacity, with aim of completing 4,500 final designs by Q1 2020
- **Construction** at steady capacity, with aim of consistent construction of 200-250 ports/month

## Installed port portfolio<sup>1</sup>



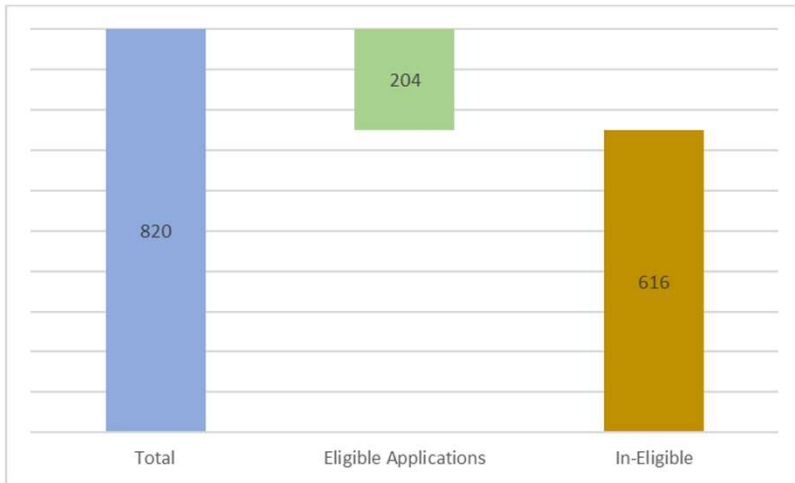
<sup>1</sup> As of Sep. 30, 2019





# Customer Acquisition Metrics

Number Applications by Current Phase (9/30/19)

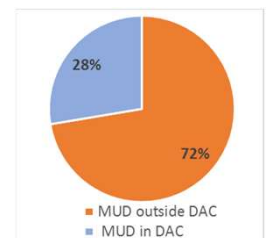
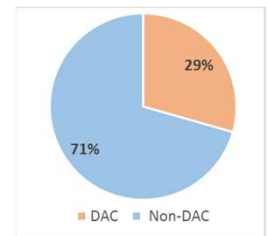
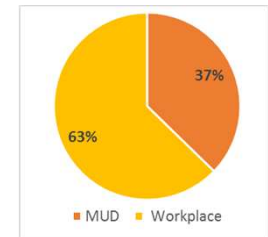
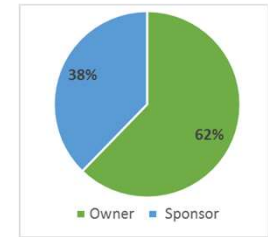


Of the 820 applications received, 204 have been approved as eligible sites and are in design, construction, or utilization phases.

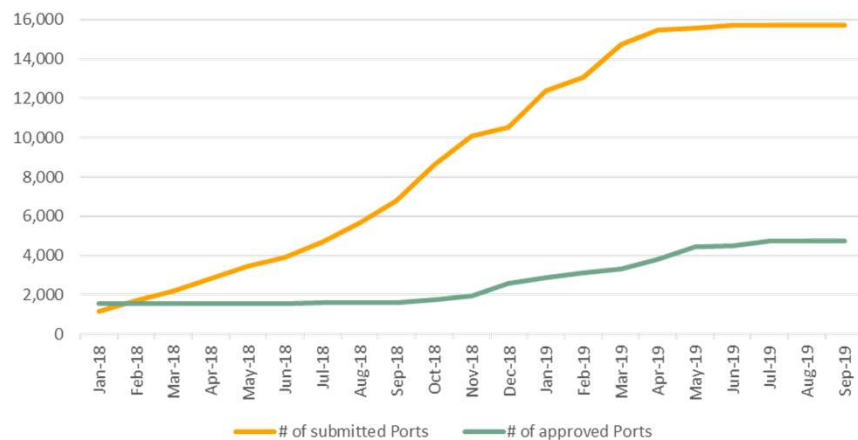
Application intake was been driven by PG&E sales reps, with roughly 58% of applications coming in from a sales rep.

PG&E stopped actively marketing the program in Q2, 2019.

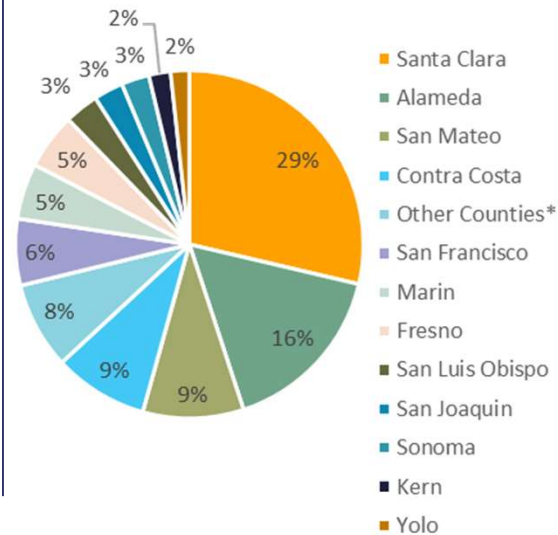
Site Type Breakdown (of 204 Eligible Applications)



Cumulative Ports Submitted and Approved (9/30/19)



Submitted Application Geography (9/30/19)

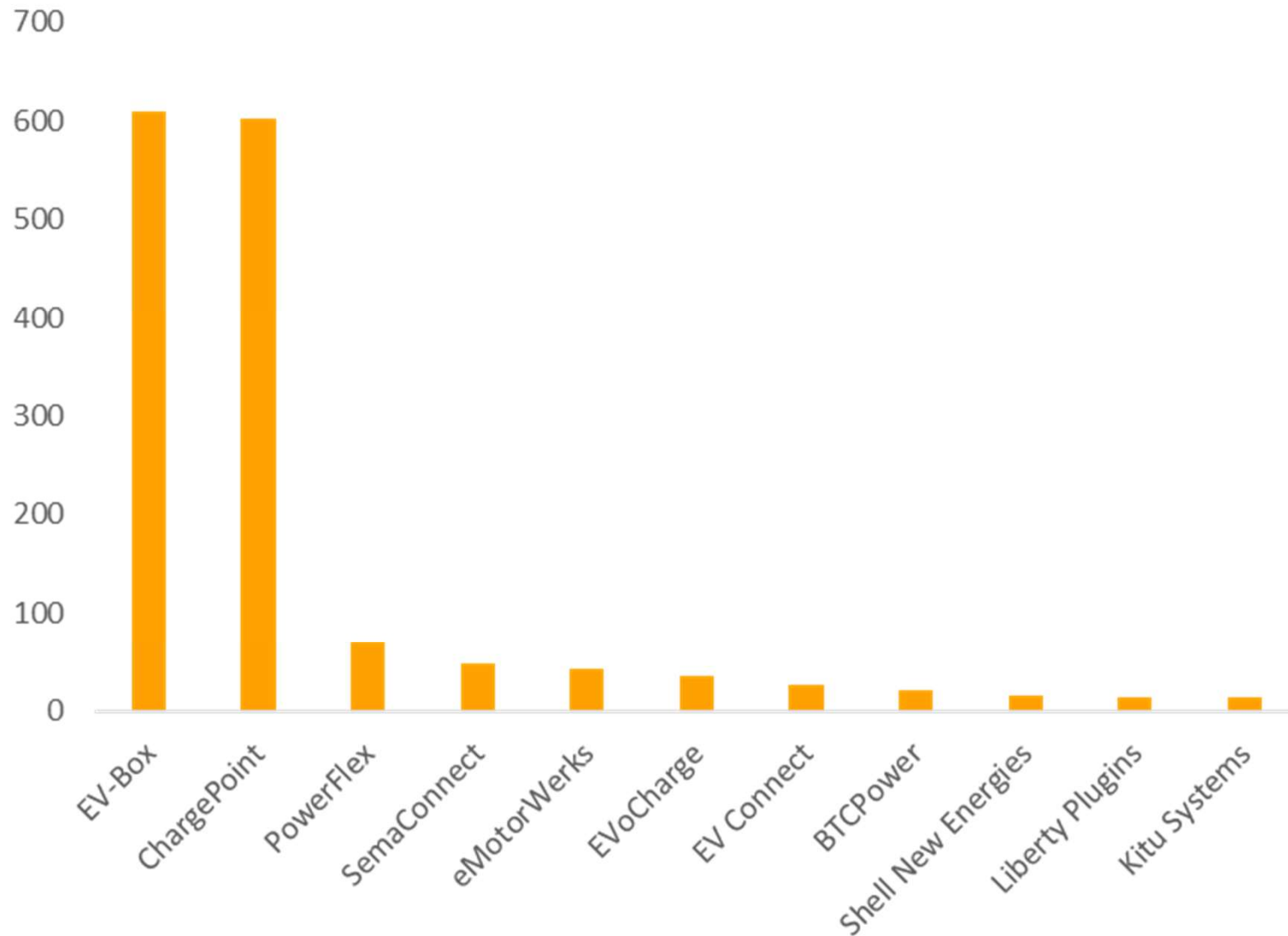


\* Other Counties: Makes up 17 counties with fewer than 10 applications submitted

\* Submitted ports are conservative rough estimates since not all applications receive precise port counts before cancellation.



# Installed Ports per Primary Vendor





# EVCN Construction and Activation Map

- Activated sites and sites in construction updated on [public map](#)
- Sites are summarized by zip code to maintain site host anonymity

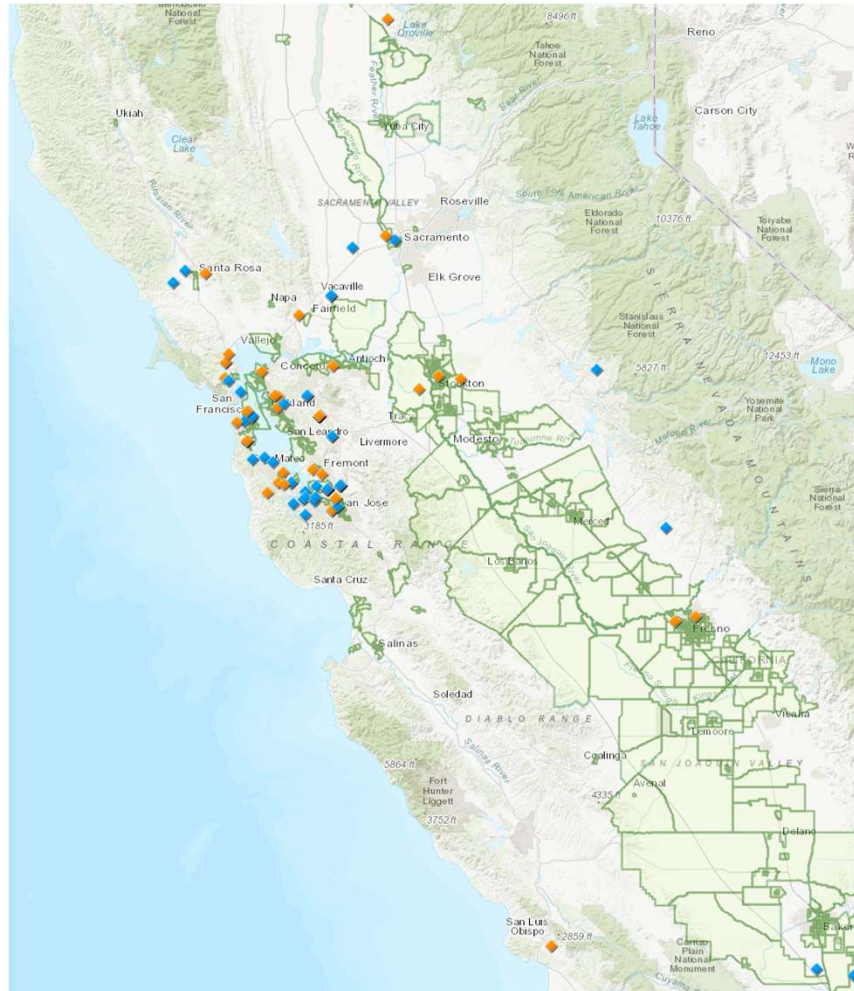
## Legend

### EVCN Chargers

- ◆ In Construction
- ◆ Activated

### PG&E DAC

- ▭ DAC



# Total Cost of Ownership Tool “EV Savings Calculator”

[ev.pge.com](http://ev.pge.com)



Together, Building  
a Better California

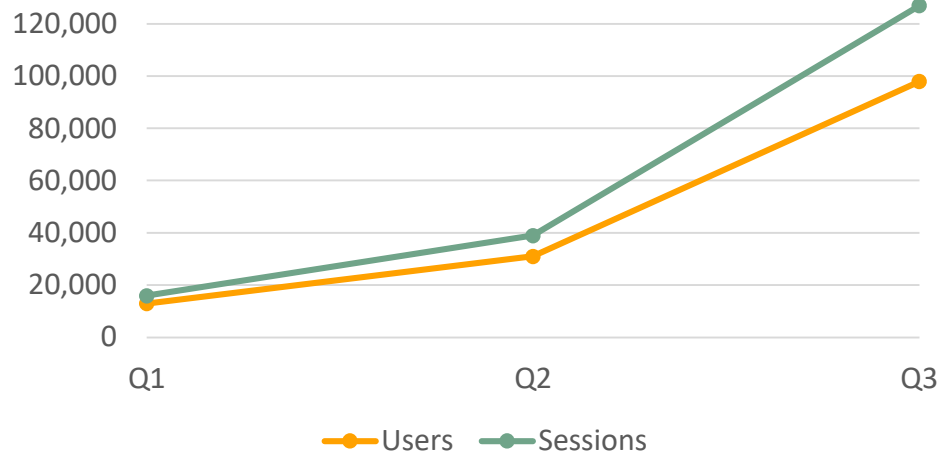


# EV Savings Calculator

ev.pge.com

PG&E tool	2019 unique users – 9/30	2019 total sessions – 9/30
Solar calculator comp.	n/a	~28,000*
<b>EV Savings Calculator</b>	<b>98,000</b>	<b>127,000</b>

## Quarterly Metrics



- Sep 18<sup>th</sup>, largest day with 12k users
- Avg. session duration 2m 07s
- >4,400 total hours of engagement in 2019

\*There is no active marketing campaign for the solar calculator

# SB350

## Priority Review Projects



Together, Building  
a Better California



# PG&E SB350 Priority Review Projects

## High-level Project Status:

- 1 Medium/Heavy Duty Fleet Customer Demonstration  
**Five 60kW Chargers Activated, Battery Install In Progress, Expanded Testing Development In Progress**
- 2 Idle Reduction Technology  
**25 ports for eTRU Under Construction - Repairs In Progress**
- 3 Electric School Bus Renewables Integration  
**Nine Level 2 19kW Chargers Activated, Test Phase 2 In Progress**
- 4 Home Charger Information Resource Pilot  
**Project Scope in Progress**

---

**Statewide Evaluation**



# Medium/Heavy Duty Fleet Customer Demo



## Project Partner

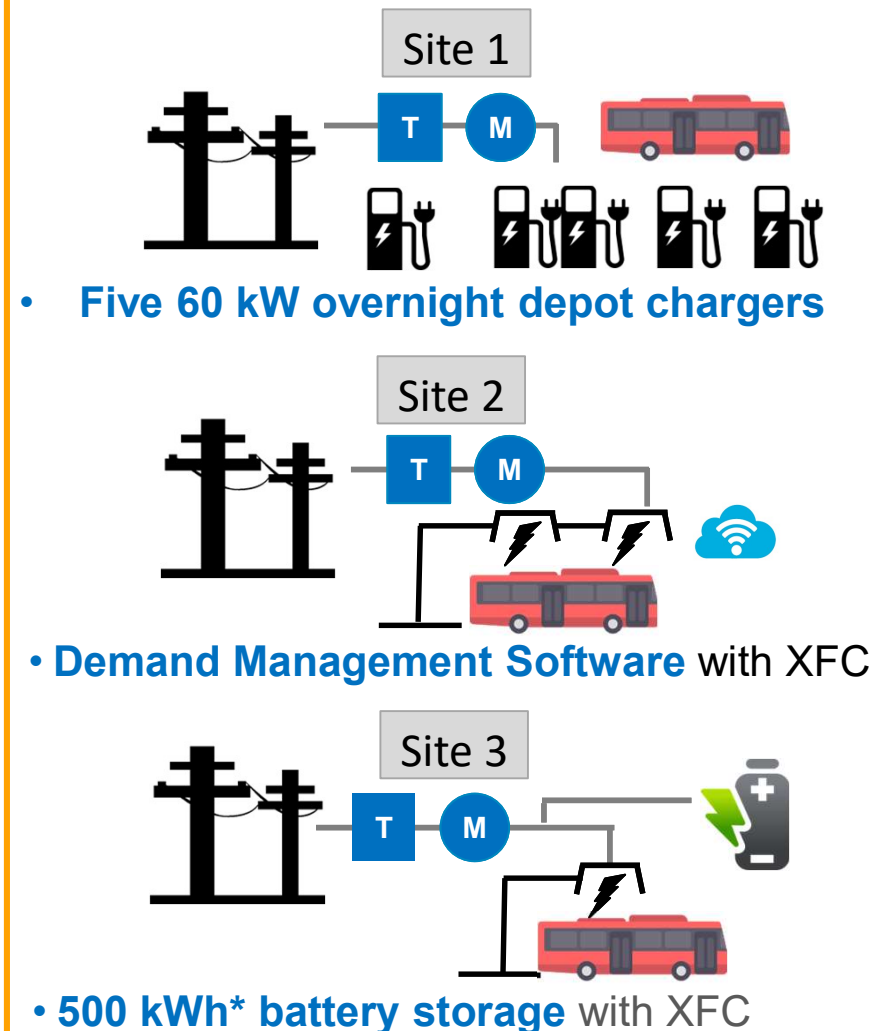


### San Joaquin Regional Transit District (SJRTD)

- SJRTD is located in and serves a **Disadvantaged Community**
- Existing fleet of **17 electric buses**
  - 12 legacy electric buses (49-62 mi range) using **three overhead extreme fast chargers (XFC) on-route**. Each charger rated for up to 500 kW
  - 5 new electric buses (251 mi range) joined the fleet in 2018
- Plan for **all-electric bus fleet** (~100 buses) by 2025



## Project Scope



*\*capacity in AC at full nameplate power*





# MD/HD Fleet Pilot Goals

## High Level Pilot Goals

*Transit Electrification*

*Battery Storage Integration*

*Readiness for EV Fleet Program*

## Pilot Goals

1. **Reduce the Total Cost of Ownership (TCO) of electric buses:**
  - a. Minimize infrastructure costs – work closely with partners to find efficiencies
  - b. Minimize fuel costs – manage charging to reduce usage during expensive times

---

2. **Compare Total Cost of Ownership (TCO) using three unique charging models:**
  - a. Overnight charging at the depot
  - b. On-route extreme fast charging paired with demand management software
  - c. On-route extreme fast charging paired with battery energy storage system

## Test Cases

(1) Overnight Depot  
Charging

(2) On-Route + Demand  
Management

(3) On-Route + Battery



# MD/HD Fleet Test Cases

## Test Cases

### (1) Overnight Depot Charging

1. Can the new electric buses be fully recharged every night at the depot and meet their route needs?

#### Observations from RTD:

- The electric buses *can* be fully recharged at night.
- Actual range is less than the nominal range.
- Drivers are pulling the buses off the route at 20% state of charge each afternoon, unable to finish the route during summer operations.

#### Next Steps:

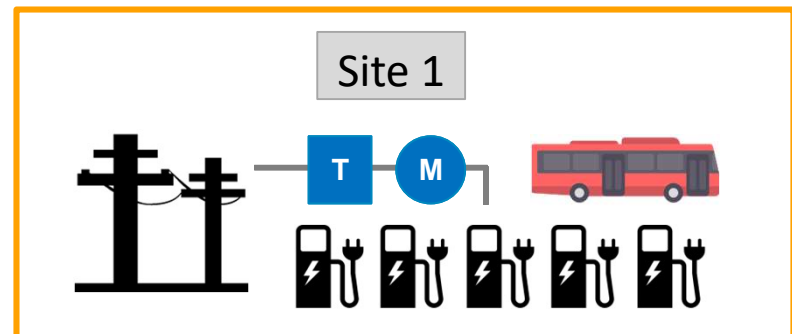
- Determine causes of difference between nominal and actual range.

2. Can total cost of ownership (TCO) be reduced relative to the diesel-hybrid buses on the same route?

**Hypothesis:** Overnight depot charging *can* reduce TCO of electric buses due to off peak charging.

#### Next Steps: Test three charging protocols

- 1) Overnight depot charging only
- 2) On-route charging only
- 3) Depot + On-route





# MD/HD Fleet Test Cases

## Test Cases

### (2) On-Route + Demand Management

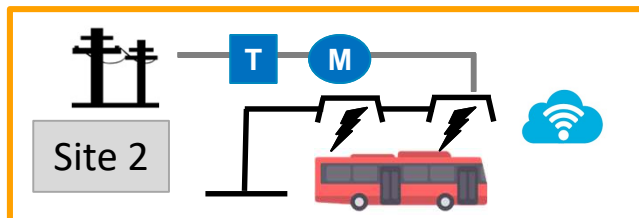
1. Can the Demand Management Software reduce operational costs of 12 legacy electric buses relative to uncontrolled charging and meet their route needs?

#### Observations from RTD:

- The demand management software saves RTD \$6000-7000/month with a cap of 300kW.
- The software supports one bus charge per 15 minute interval.
- When an on-route charger is down, RTD cannot charge multiple buses on one charger due to the software.

#### Next Steps:

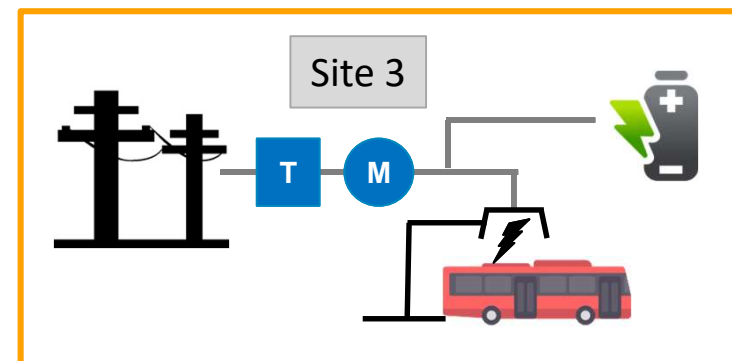
Investigate demand management software limitations and options for RTD.



### (3) On-Route + Battery

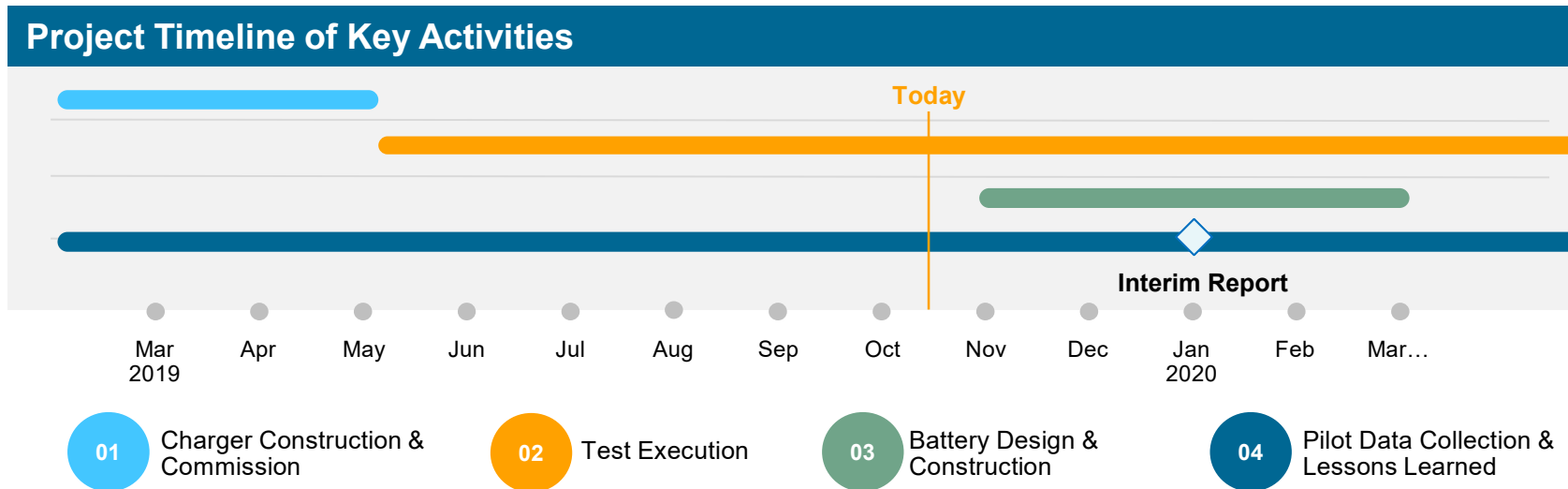
1. To what extent can the Battery Energy Storage reduce on-route charging costs at Site 3?
2. Do the additional savings make a Battery Energy Storage addition economical?

The battery is estimated to be installed in Q1 2020.





# MD/HD Fleet Project Timeline



## Key Upcoming Milestones

- **Testing of Charging Protocols Begin** ..... **Nov 2019**
- **Complete Battery Installation** ..... **Q1 2020**
- **3<sup>rd</sup> party Evaluation Interim Report** ..... **Jan 2020**



# Electric School Bus Renewables Integration



## Project Partner



### Pittsburg Unified School District

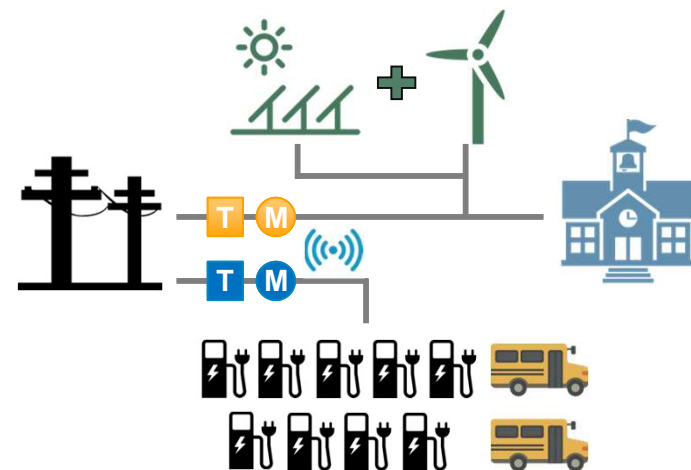
- K-12 school district, serving 13 school sites, including 8 elementary schools
- Pittsburg is located in and serves a **Disadvantaged Community**
- Current fleet of **2 electric buses**
  - Adding 7 electric buses to bring electric fleet to 9 buses
- Installing **~200KW onsite wind and solar renewable generation**
- Built **Learning Center** for students



## Project Scope



- Installed **9 Level 2 Chargers**
  - At 19kW each, about ~180kW total load
- Charge management software and platform to **optimize charging** for economics and GHG reductions
- Architecting **novel communications design** to integrate onsite renewables





# Electric School Bus Project Phases

Test charging scenarios to help lower total cost of ownership of electric transportation and reduce greenhouse-gas emissions for the school district.

## Phase 1: Static schedules

### Goals:

- Minimize PUSD bill based on existing rate structure and support route service with fixed, pre-determined charge schedules.
- Demonstrate technical system integration.

*May 2019*

## Phase 2: Excess Supply Pilot (XSP)

### Goals:

- Demonstrate system's ability to deliver load-increase events with PG&E's XSP program.
- Capture value of consuming green energy from the grid during wholesale overgeneration.

*Aug 2019 – Oct 2019*

## Phase 3: Renewable Self-Consumption

### Goals:

- Demonstrate the system's ability to dynamically maximize local renewable powering of e-school bus fleet.
- Minimize PUSD bill while maximize onsite renewable consumption.

*Nov 2019 – Dec 2019*

## Phase 4: Renewable Optimization

### Goals:

- Demonstrate the system's ability to combine wholesale and local renewable generation to maximize green energy for the e-school bus fleet.

*Jan 2020 – Apr 2020*



# Electric School Bus Project Phases

Test charging scenarios to help lower total cost of ownership of electric transportation and reduce greenhouse-gas emissions for the school district.

## Phase 1: Static schedules

Goals:

- Minimize PUSD bill based on existing rate structure and support route service with fixed, pre-determined charge schedules.
- Demonstrate technical system integration.

*May 2019*

## Phase 2: Excess Supply Pilot (XSP)

Goals:

- Demonstrate system's ability to deliver load-increase events with PG&E's XSP program.
- Capture value of consuming green energy from the grid during wholesale overgeneration.

*Aug 2019 – Oct 2019*

## Phase 3: Renewable Self-Consumption

Goals:

- Demonstrate the system's ability to dynamically maximize local renewable powering of e-school bus fleet.
- Minimize PUSD bill while maximize onsite renewable consumption.

*Nov 2019 – Dec 2019*

## Phase 4: Renewable Optimization

Goals:

- Demonstrate the system's ability to combine wholesale and local renewable generation to maximize green energy for the e-school bus fleet.

*Jan 2020 – Apr 2020*



# PUSD Phase 2 XSP Highlight

## What is the PG&E Excess Supply Pilot (XSP)?

### Initiated in 2016, the Pilot:

- Uses demand-side resources to **shift energy usage** to times of over generation or negative prices
- Modified **participation parameters for PUSD**, which may influence suggestions for a new XSP “school-friendly” option

### Recipient of the:



2019 PLMA Pacesetter Award

### In partnership with:



## PUSD's XSP Performance



1 electric school bus



11 event days (4 in Aug, 7 in Sep)



XSP Payment: \$58 in August (partial month)  
\$0 in September due to low load increase from low bus utilization



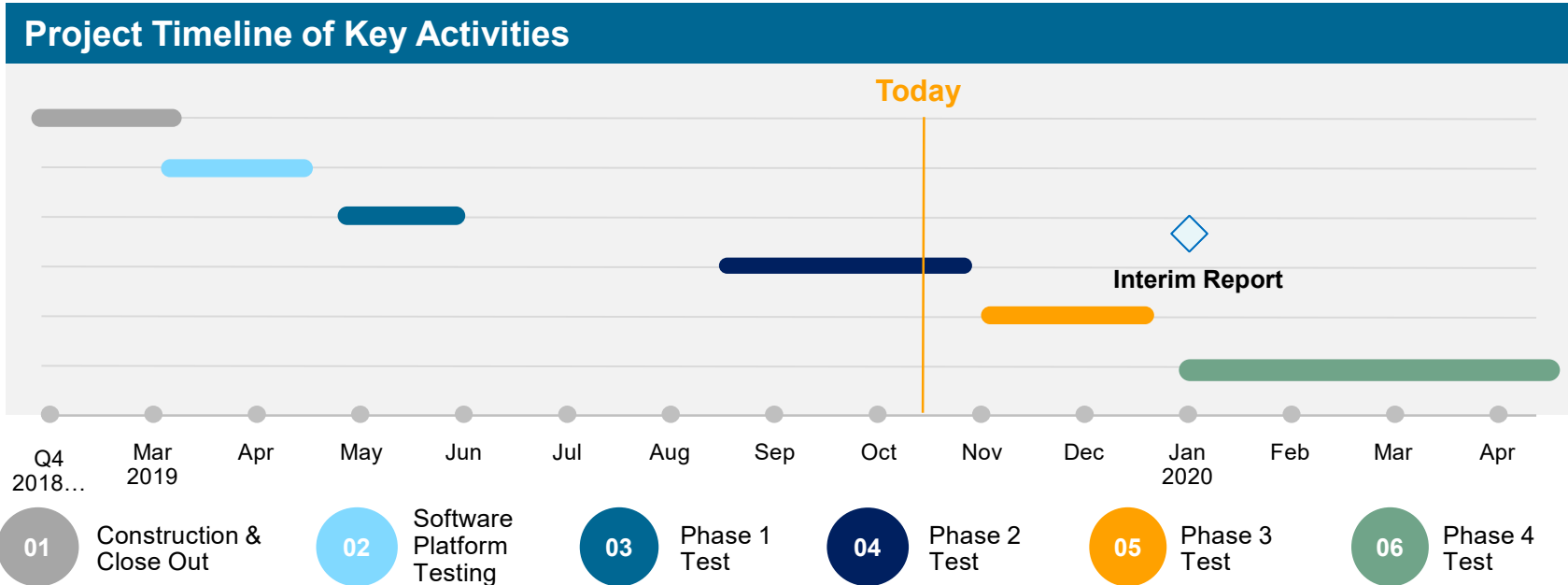
With 9 buses for full year, XSP payment could be in range of thousands of dollars per year.

Note: XSP participation in second half of August, as first day of school was 8/14.





# Electric School Bus Project Timeline



## Key Upcoming Milestones

- Phase 2 Testing Complete.....Oct 2019
- Phase 3 Testing Begins.....Nov 2019
- Learning Center Construction Complete..... Q4 2019

## High Level Pilot Goals

*Optimize renewables with low TCO*

*Best practices for schools*

*Readiness for EV Fleet Program*



# Idle Reduction Technology Project Summary



## Project Partner



### Safeway Albertson's Food Distribution Service Center Facility

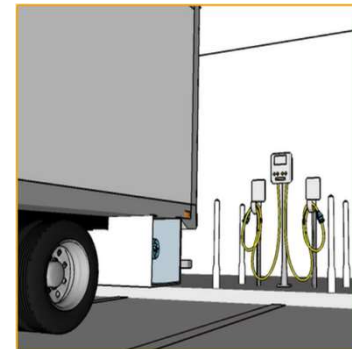
- Facility is located in and serves a **Disadvantaged Community**
- Facility is **2.2 million square feet**
- Facility has roughly **313 dock spaces**
- Current fleet
  - Consists of **664 trucks**
  - 232 trucks with eTRU units capable of running on diesel or electricity
- Plan of **360 eTRU ports** now, with total of 550 – 600 eTRU ports if pilot is success



## Project Scope

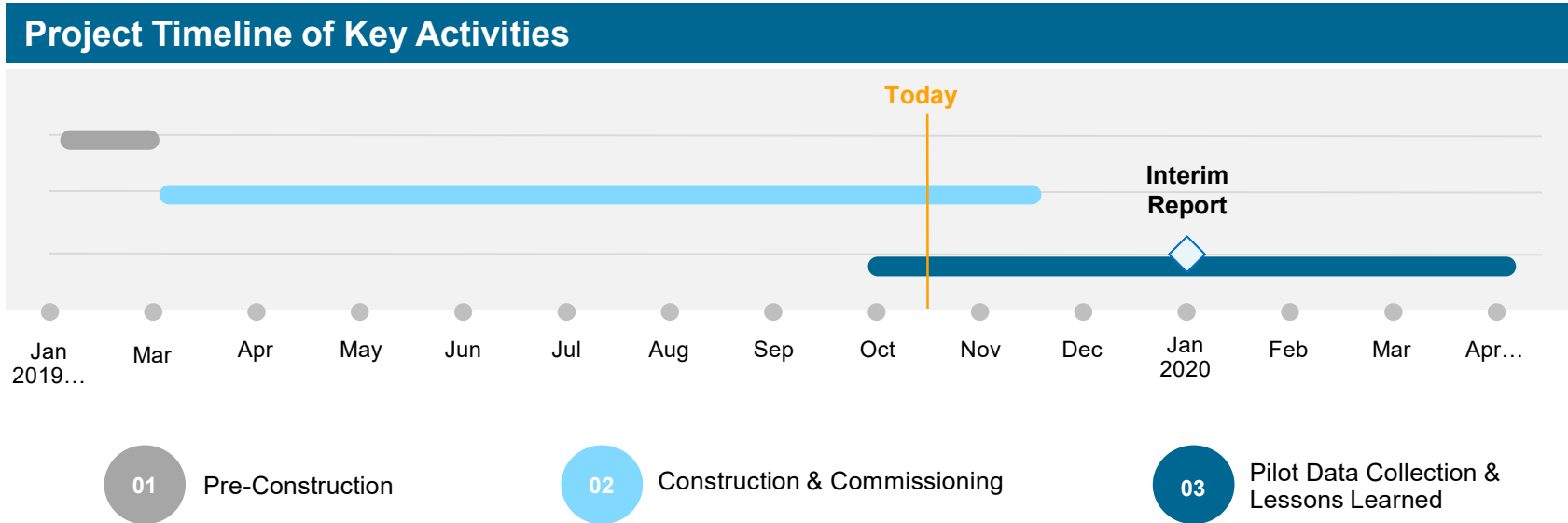


- **Deployment** of 25 electrified receptacles for eTRU connection (each 15-17 kW, adding a total load up to 425 kW)
- Demonstrate building off of customer owned infrastructure
- Demonstrate minimizing fuel costs by reducing diesel idling
- Understand deployment of eTRU technology and impact of site operations





# Idle Reduction Technology Project Timeline



## Key Upcoming Milestones

- Commission charging ports.....Q4 2019
- Begin data collection and evaluation.....Q4 2019

## High Level Pilot Goals

*eTRU Technology Adoption*

*Minimizing Fuel Cost*

*Readiness for Fleet Ready Program*



# PRP Broad Learnings

## MD/HD Technology

**1**

**MD/HD charging and electric vehicle technology is still in development and experiencing growing pains.**

- RTD's on route chargers offline for several months due to various issues.
- RTD's electric buses require customization of operating system and multiple fixes.
- PUSD's electric buses non-operational for extended periods due to issues.

**2**

**Early adopters invest in early products in the market with limitations.**

- RTD and PUSD adopted early technology products with limited capacity buses and chargers, as well as less sophisticated technology.

**3**

**Transit agencies are exploring but have not yet invested in battery energy storage systems at scale.**

- RTD has found very few sister transit agencies who have invested in a battery storage system.



# PRP Broad Learnings

## Customer Partnerships with Vendors and the Utility

4

Dedicated technical support from electric vehicle and EVSP vendors are necessary for customer success.

- RTD and PUSD staff do not yet have sufficient training and knowledge to support their electric fleet.
- Customers rely on vendors to resolve issues impacting their operations.

5

Customers do not know the steps to work with their utility to install the infrastructure they need for electrification.

- RTD seeks to understand the infrastructure required to enable full fleet electrification.
- PUSD did not have full knowledge of processes and requirements for their renewable interconnection in support of their fleet electrification.



# PRP Broad Learnings

## Electric Fleet Charge Management

6

Early MD/HD EV technology design require workarounds to optimize charging.

- RTD's new bus depot configuration does not allow use of on-route chargers if state of charge is below 40% or above 80%, nor do they charge at full capacity on-route.
- PUSD's electric bus ejects the charger when plugged in without charging, requiring workaround to enable smart charging.

7

MD/HD fleets such as Transit Agencies and Schools do not have route flexibility, posing challenges with Demand Management Software.

- The current demand management software set up does not allow RTD to charge past the cap, imposing challenges when RTD requires charging to run a route.

# Home Charger Installer Project



Together, Building  
a Better California



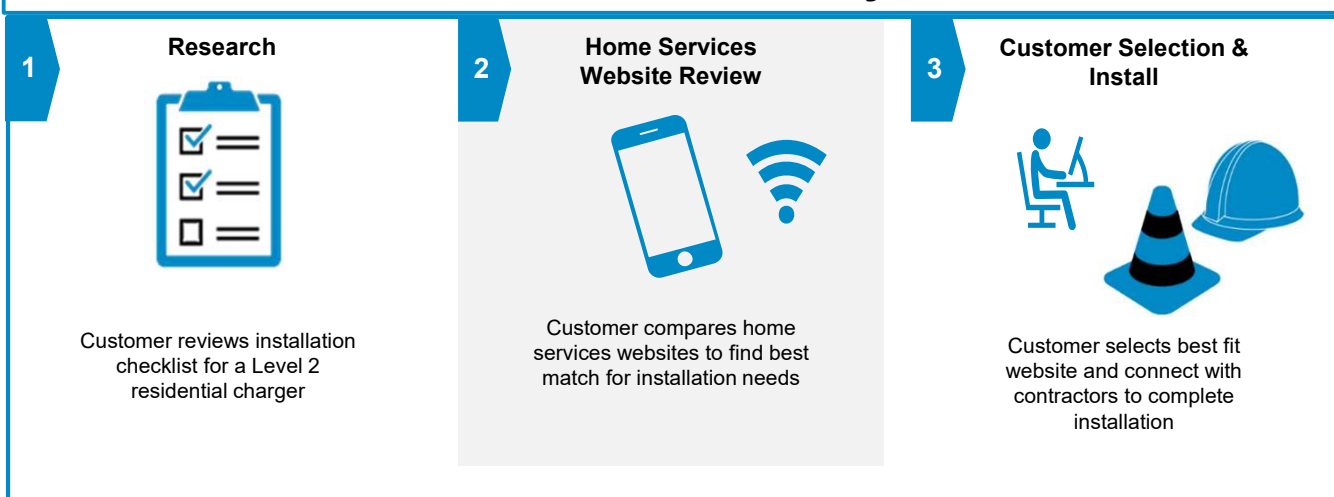
# Home Charger Information Resource Pilot

## Pilot Objective



1. Remove barriers to installation of residential EVSE through education and seamless installation process
2. Improve outreach to DAC customers by offering resources in Spanish and Chinese

## Customer Journey







# Home Charger Installation Checklist

## Existing customer installation checklist includes:

- Electrical assessment
- Electrical rate and meter selection
- Contact PG&E for service change
- Arrange for electrical work

## Performed utility benchmarking to determine best practices to improve check-list

Follow this step-by-step guide to install your EV charger

Electric Vehicles (EVs) have two types of residential chargers: Level 1 and Level 2. For faster charging at home, install a Level 2 charging station. Follow this installation checklist:

### 1 Get an electrical assessment of your home.

OF 4

Consult an electrician to assess whether your electrical panel has capacity for a Level 2 charger. Upgrades and permits at your expense may be necessary. The EV manufacturer may also offer a home assessment as part of your purchase. The electrician can also install a dedicated 240v circuit to serve the Level 2 charger if your panel does not have the necessary capacity.

Siga esta guía paso a paso para instalar su cargador para EV

Hay dos tipos de cargadores residenciales para vehículos eléctricos (EV, por sus siglas en inglés): Nivel 1 y Nivel 2. Para una carga más rápida en el hogar, instale una estación de carga de Nivel 2. Siga esta lista de instalación:

### 1 Obtenga una evaluación eléctrica de su hogar.

OF 4

Consulte a un electricista para evaluar si su panel eléctrico tiene la capacidad necesaria para un cargador de Nivel 2. Podría ser necesario realizar actualizaciones en su hogar y obtener permisos por cuenta de usted. El fabricante del EV también podría ofrecerle el servicio de evaluación de su hogar como parte de su compra. Si su panel no tuviera la capacidad requerida, el electricista también puede instalar un circuito de 240v asignado para dar servicio al cargador de Nivel 2.



## Conducted Utility Benchmarking Analysis to Determine How to Improve Existing Home Charger Installation Check-list

**Purpose:** Reviewed utilities and CCAs with similar EV programs to assess charger installation information

### **Summary of Benchmarking Analysis:**

- Total review of **15** CCAs and utilities nationwide
- Review focused on 4 key components:
  1. Connect directly to EVSE installers
  2. Targeted information on home charger installation
  3. Information offered in multi-lingual options
  4. Information easy to understand

### **Results:**

- Utilities offered examples of well-developed individual components related to home charger installation
- No utility provided a comprehensive source of installation guidance encompassing the 4 key components listed above



# Examples of Utility Benchmarking Analysis


## Georgia Power:

- Comprehensive charger information
- Pre-qualified EV Charging Installers
- Links to third-party charging guides



**EV Charging Made Easy**

If you drive an electric vehicle, you already know that fueling your car with electricity is much cheaper than gasoline or diesel. But for even greater savings, try Georgia Power's Plug-In Electric Vehicle rate.

**Plug-In Electric Vehicle Rate**



**Types of Chargers**

Level 1	Level 2
 <p>120 V (shoreline) Level 1 chargers are best suitable for home. They give you about 5 miles of range per hour of charging.</p>	 <p>208/240V/30 amp/1250W One hour of Level 2 charging gives you about 25 miles of range.</p>

## Sacramento Municipal Utility District

- Embedded home installer tools

What do you need help with?

Electric Vehicle Charging Station Installation | [Need Something Else?](#)

**Submit and Get Matched to Pre-screened Vehicle Charging Station Installers**

**Install an Electric Vehicle Charging Station**

What is the location of your project? (Enter Zip Code)\*

Postal Code

## Florida Power and Light:

- Straightforward translation tools

La recarga de vehículos eléctricos nunca ha sido tan fácil ni tan barata



**Recarga**

- La recarga costo de los vehículos a residencia aproximada nacional.
- La carga e de corriente

**En Español**

INGLÉS  ESPAÑOL

Ahora la información que necesitas sobre tu servicio eléctrico está disponible en español en FPL.com. 

## Southern California Edison

- Talking points for customer to engage with an installer

### Working With Your Electrician

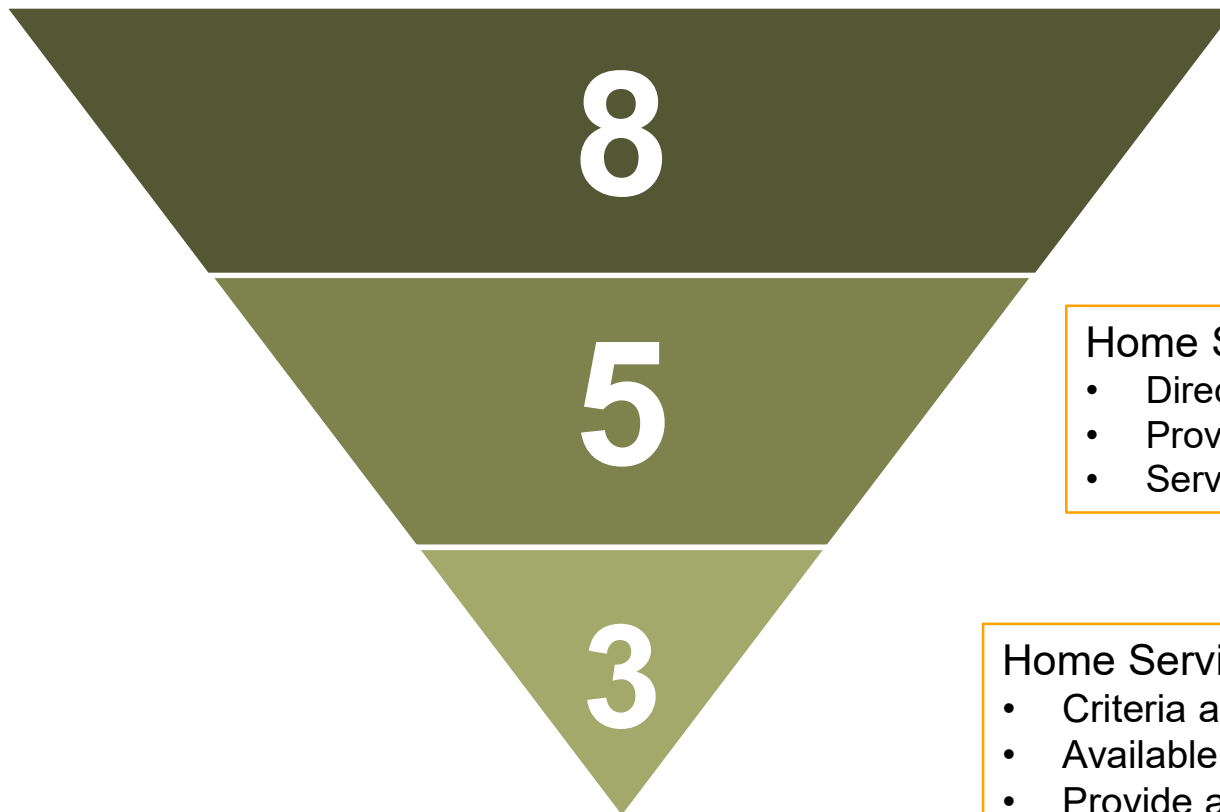
#### Things to discuss:

- The type of EV you have
- Where you'll park your EV
- The type and speed of charger you want
- The length of your charging cord



# Summary of Online Home Services Tools and Evaluation of Tools Focusing on EV Charging Installation

## Number of Home Service Tools



## Evaluation Criteria

Available Home Service websites in market



Home Service websites that include:

- Direct connection to EVSE installer
- Provide free quotes
- Service free to use

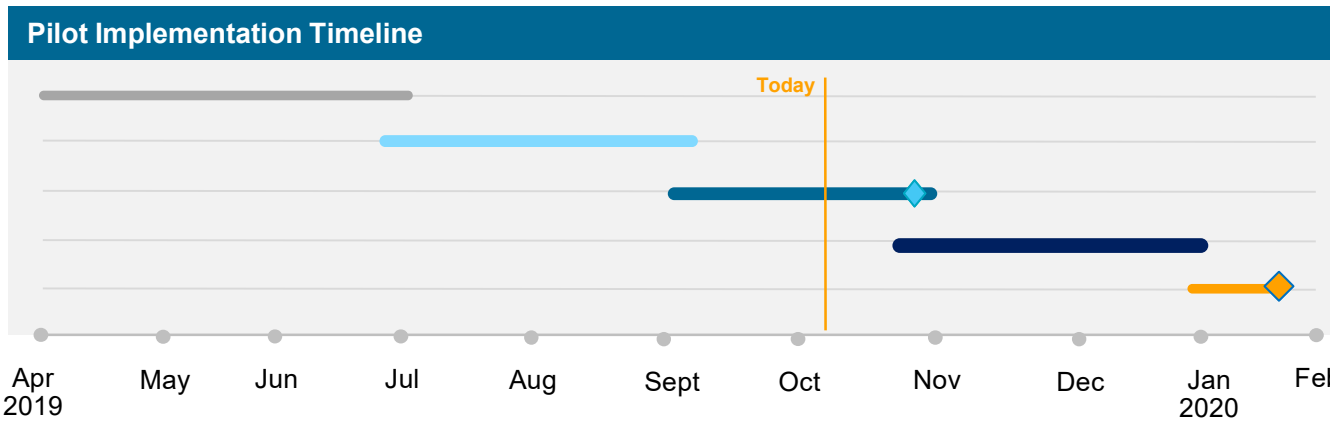


Home Service websites that include:

- Criteria above
- Available in all PG&E service territory
- Provide additional installation cost guidance



# Home Charger Information Resource Pilot



- 1** Additional Scoping and Approval
- 2** Pilot Planning
- 3** Web Content Development
- 4** Platform Design and Development
- 5** Platform Testing and Launch

## Key Upcoming Milestones

- Finalize scope of work for platform development.....10/31/2019
- Final platform launch.....01/30/2020

## High Level Pilot Goals

*Engage disadvantaged and minority communities*

*Education on home charger installation*

*Make installation process convenient*

# SB 350

## Standard Review Projects



Together, Building  
a Better California

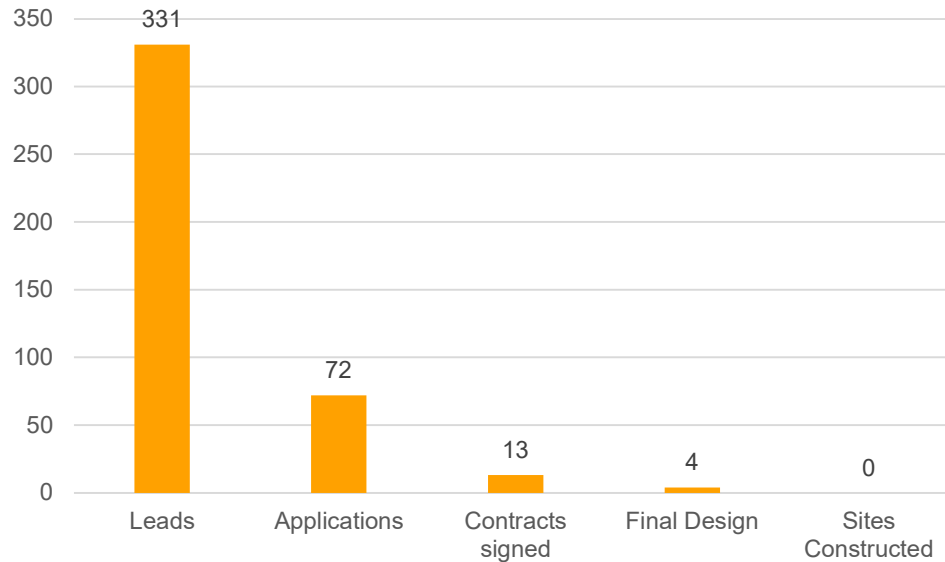
# EV Fleet



Together, Building  
a Better California



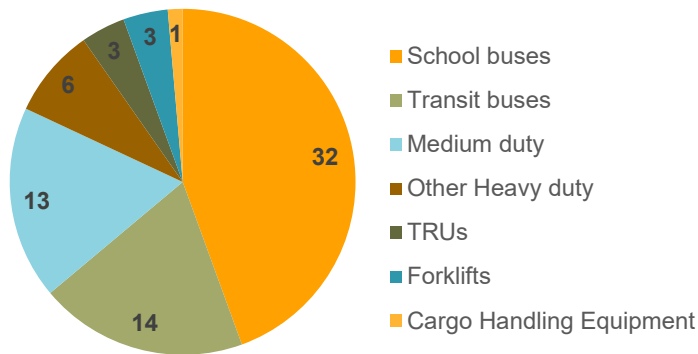
# Customer Acquisition Metrics – Applications



## Highlights

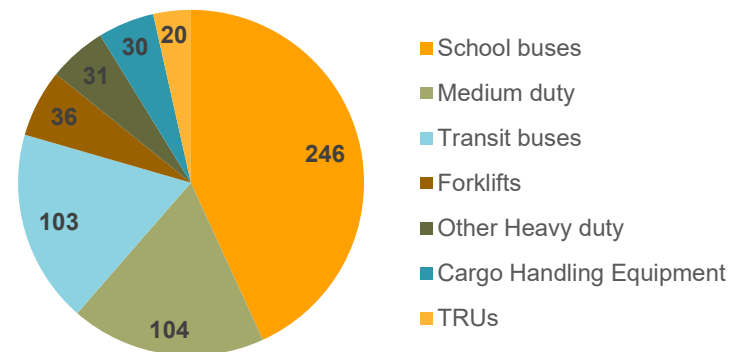
- As of Q3 2019, PG&E has contacted 331 leads to increase participation in the program
- Of those, 72 have submitted applications and 13 have signed contracts
- The below pie charts give a breakdown of the applications per market segment and the number of vehicles estimated to be procured by these customers

Applications per market segment



72 in Total

Vehicles per market segment



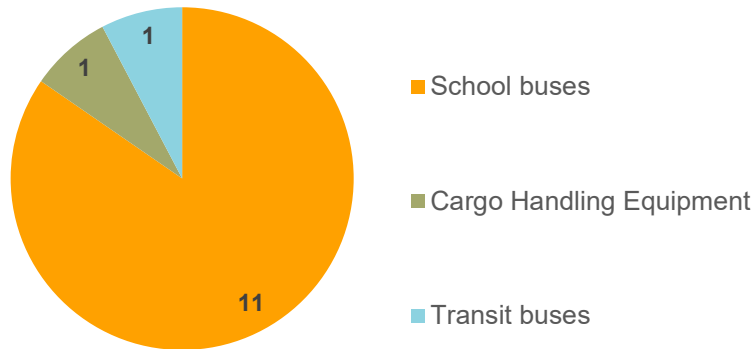
570 in Total





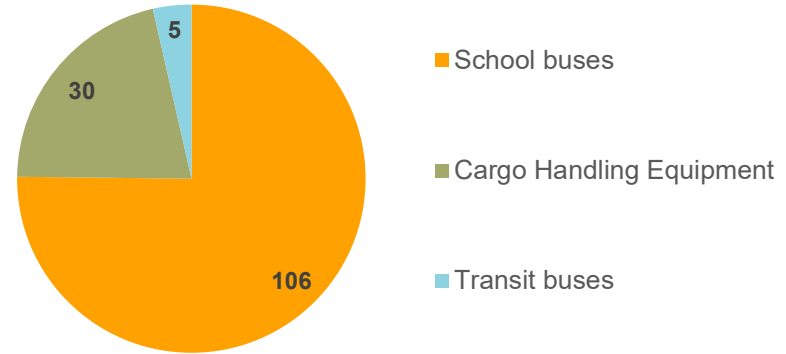
# Customer Acquisition Metrics – Contracts

Contracts per market segment



13 in Total

Contracted Vehicles per market segment



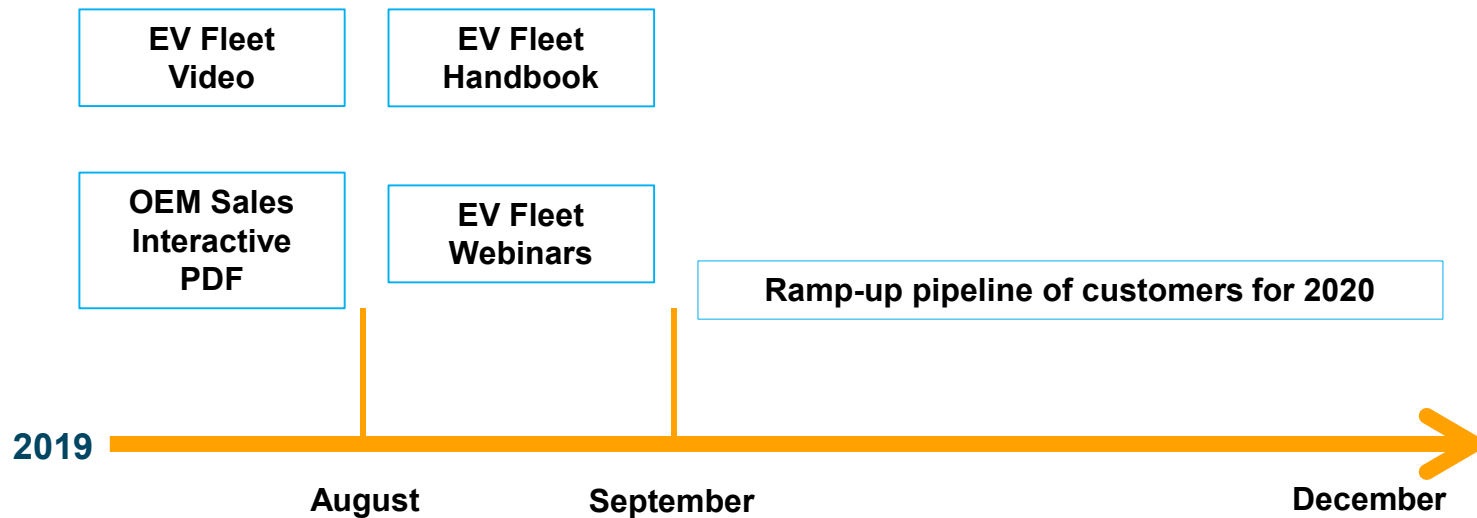
141 in Total

H  
I  
G  
H  
L  
I  
G  
H  
T

We are currently experiencing more success with Schools since many of them receive Grants which provide important financial support towards their electrification goals



# Marketing and Outreach Efforts



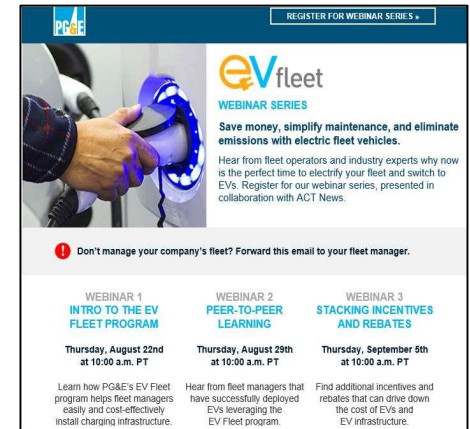
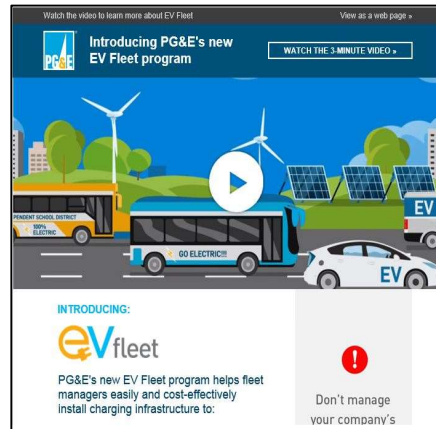
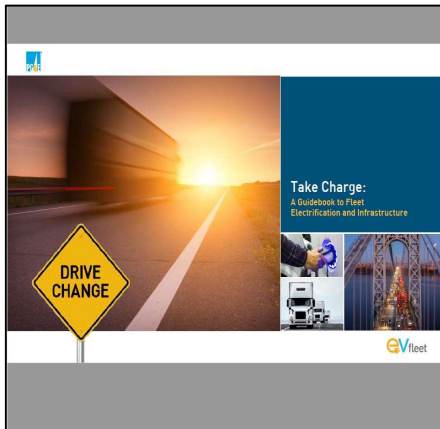
**Webinar 1:** We had 444 sign ups and 198 attendees

**Webinar 2:** We had 450 sign ups and 138 attendees

**Webinar 3:** We had 274 sign ups and 174 attendees



# Marketing and Outreach Efforts



## EV Fleet Handbook:

[https://www.pge.com/pge\\_global/common/pdfs/solar-and-vehicles/your-options/clean-vehicles/charging-stations/ev-fleet-program/PGE\\_EV-Fleet-Guidebook.pdf](https://www.pge.com/pge_global/common/pdfs/solar-and-vehicles/your-options/clean-vehicles/charging-stations/ev-fleet-program/PGE_EV-Fleet-Guidebook.pdf)

## EV Fleet Video:

[https://www.pge.com/en\\_US/large-business/solar-and-vehicles/clean-vehicles/ev-fleet-program/ev-fleet-program.page](https://www.pge.com/en_US/large-business/solar-and-vehicles/clean-vehicles/ev-fleet-program/ev-fleet-program.page)



# Current Approved EVSE Vendor List & Next Steps

## Current Vendor List

<b>SemaConnect</b>	<b>EV Connect</b>	<b>Evgo</b>	<b>EvoCharge Inc.</b>
<b>Tritium</b>	<b>ABB</b>	<b>OpConnect</b>	<b>evGateway</b>
<b>Liberty plug-ins</b>	<b>BTCPower</b>	<b>GreenWealth</b>	
<b>Nuvve</b>	<b>Greenlots</b>	<b>ChargePoint</b>	
<b>Siemens Energy Inc.</b>	<b>Kitu Systems</b>	<b>EV-Box North America</b>	

## New Vendor Approval Plan

PG&E, Southern California Edison, Southern Company, and Exelon are collaborating with EPRI to achieve the following high level goals in an effort to vet and approve new EVSE vendors into the program:

- Form a Requirements Working Group for EVSEs
- Develop a Product Requirements Document
- Vet and approve vendors based on finalized requirements
- Develop and maintain the list of equipment/technologies that have met the requirements
- Stand-up or transfer work to an organization to continue to develop and maintain the list



## Proposed 2020 strategies to increase customer base

EV Fleet's primary focus for 2020 is to increase its customer base:

- Develop sector-specific messaging or materials
- Develop paid media campaigns
- Organize open-house series or webinars to bring OEMs, EVSE Vendors, Customers, Funding Agencies, etc. together
- Building additional tools (e.g. Total Cost of Ownership tool) to better support and help customers in their decision making process
- Collaborate with grant agencies like CARB, BAAQMD, CEC, etc. to better educate customers and support their funding needs

# EV Fast Charge



Together, Building  
a Better California



# Program Overview

## Key Program Features

- Light-duty vehicles
- Publicly available chargers
- PG&E pays for and owns make-ready infrastructure
- EVSE owned by site-host, EVSP or 3<sup>rd</sup> Party
- Participation limited to top-ranking sites

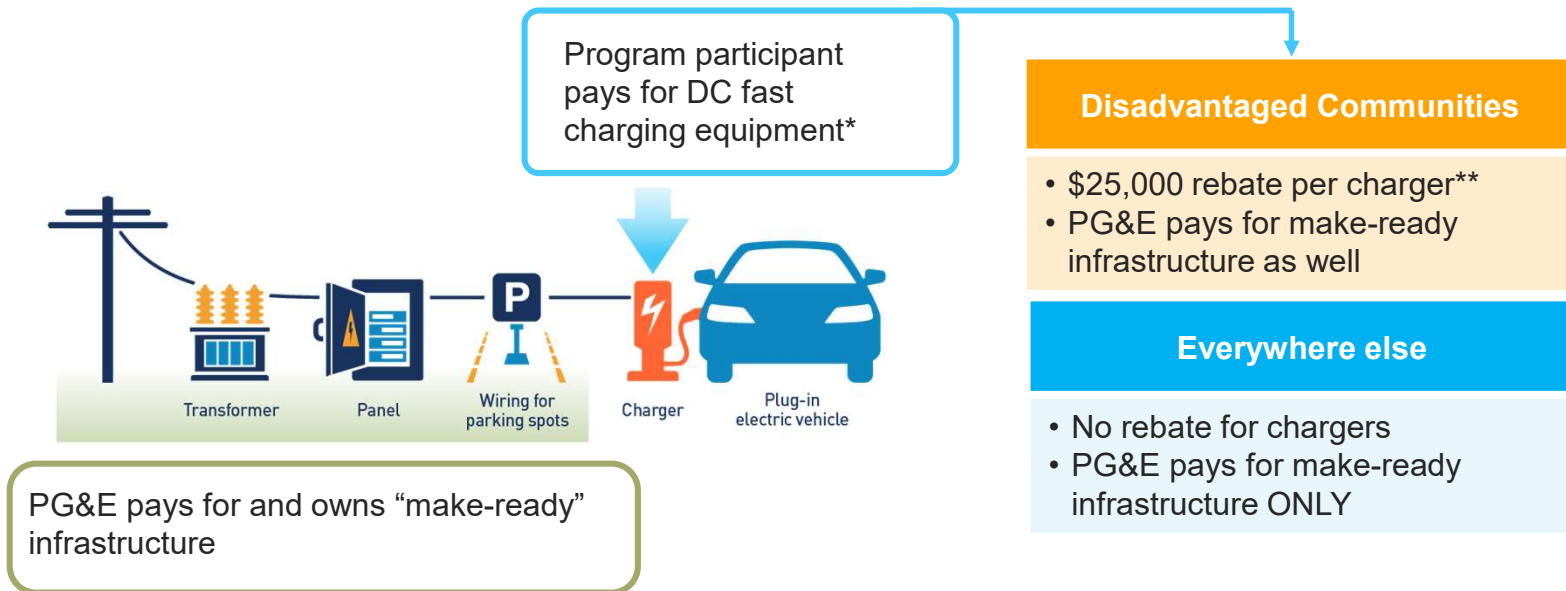
## Fast Charge Highlights by the Numbers

<b>\$22.4 M</b>	Total program budget	<b>25%</b>	Minimum sites & budget for DAC+ adjacent
<b>50kW+</b>	Hardware requirement	<b>150kW+</b>	Make-ready infrastructure capacity per port
<b>52</b>	Targeted sites	<b>234</b>	Targeted ports



## How it works

# PG&E pays for a significant portion of total costs



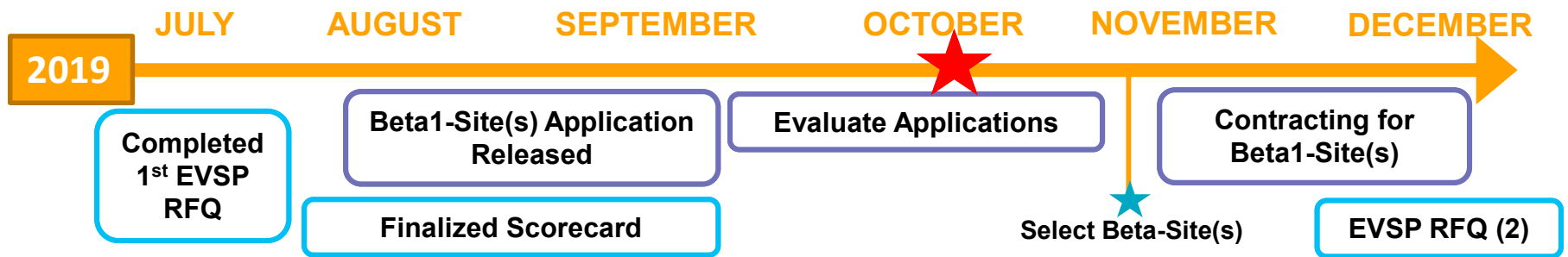
\* DC fast charger can be owned by customer, charging equipment vendor, or other third-party. PG&E can not own chargers.

\*\* Rebate amount not to exceed full cost of charger equipment and installation costs, subject to reduction at PG&E discretion.





# EV Fast Charge Timeline – 2019





## Qualified EV Service Providers

The following 8 EVSP are qualified based on the Spring 2019 RFQ. The next opportunity to qualify will be in November 2019.

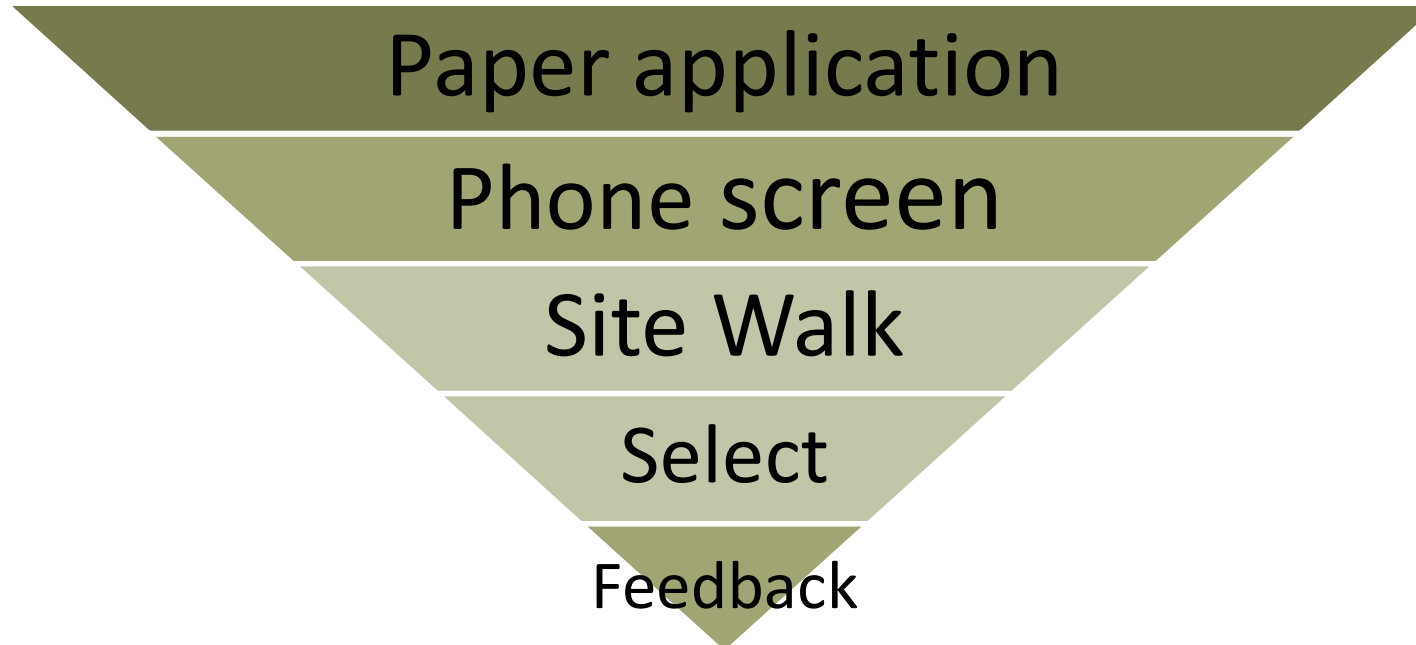
- Chargepoint
- EVgo
- EV Connect
- EvGateway
- Greenlots
- Tritium
- Verdek
- Volta





## Beta Site Application & Process

- Qualified EVSPs only
- Application window open from August 22 – September 20
- Excel based with ~50 questions excluding basic contact information
- Questions related to charger plans, site amenities, anticipated utilization, customer timelines, and overall fit





# Scoring the Paper Application



## Overall

- Application Completeness
- DAC or DAC Adjacent
- Load Mgmt. Capabilities
- Program Fit
- Estimated Utilization



## Property Characteristics

- Amenities and Availability
- Restrooms

## Project Dependencies

- Timeline alignment
- Site Host Authorization
- Site Host Flexibility



## Site Design Characteristics

- Availability of three-phase circuit at property*
- New Transformer Required (assuming desired number of chargers on application)*
- New Step Up Transformer Required*
- Approximate Feet of Trenching Required to the Most Usable Stall Area*
- Space for New Electrical Equipment in the Most Usable Stall Area*
- Level of Work Required in Most Usable Stall Area to be ADA Compliant*



# Applications Received

## Beta 1 Application Results

- 1 EVSP Submitted
- 4 Total Applications Received
- 2 different customers
  - 1 Retail
  - 1 Business park
- 3 of 4 sites located in DACs
- Charger levels all 125kW or less

## DAC Map & Site Host Applications





## Feedback from EVSPs After Beta 1 Application

### Overall

- Application process 'relatively simple'
- Application was 'inclusive but not tedious'
- Concerns over program requirements

### Feedback we can act on

- Customer consent form
- Chargers per site cap
- Too short of a window to complete application

### Feedback we can't act on

- Load management requirement
- Small scope for Beta round
- Allowing stations to be public



# Preliminary Lessons Learned & Next Steps

## Lessons Learned

- **EVSP sales pipelines and technologies** are still developing in the Fast Charge market
- More **education** needed for EVSPs on program specifics
  - DAC vs DAC adjacent rebate
  - Load management terminology
- **DAC rebate** appears to be a major driver of early applications



## Next Steps

- 1) Continue evaluating applications and **executing on Beta1 launch**
- 2) Adjust application requirements
  - Incorporate **Beta2 launch** into timeline
  - Conduct additional **training for EVSPs**
- 3) Release **Beta2** application in Q1 of 2020
- 4) Share **program collateral** and web links to support EVSPs



# Updated Timeline

