Together, Building a Better California

Pacific Gas and Electric Company

EV Charge Network Quarterly Report

Report Period: October 1, 2018 – December 31, 2018

EV charge network

Table of Contents

1. Executive Summary

1.1 EV Charge Network Program Overview

PG&E's EV Charge Network (EVCN) program was approved on December 15, 2016 through a unanimous vote of the California Public Utilities Commission (Commission).[1] The purpose of the program is to increase access to charging for electric vehicles (EV) within PG&E's service territory. The program intends to install up to 7,500 charging ports over a three-year period focusing on two key market segments: workplaces and multi-unit dwellings. The program includes deployment targets of 15% in Disadvantaged Communities (DACs) as well as in 20% in Multi-Unit Dwellings (MUDs).[2] These targets aid in facilitating market entry for previously underserved communities and market segments. For participating site hosts, the program is organized into two ownership options: "EV Charge Owner" and "EV Charge Sponsor."

EV Charge Owner: The majority of the electric vehicle service equipment (EVSE) (a minimum of 65%) will be owned by site hosts who are PG&E non-residential customers that have EV charging stations installed on their property. All site hosts may choose to participate under this program option. For these installations, PG&E will install and maintain the EV service connection (make ready infrastructure) to support their use. The site host will be responsible for buying and installing the EV charging stations. At these locations, rebates will be offered to site hosts for the EV charging stations. The rebates will be paid after the charging stations are installed and operational.

EV Charge Sponsor: At the discretion of the individual site host, PG&E may be requested to install, own, and maintain up to 35% of the EV charging stations deployed. These EV charging stations will be installed in a turnkey operation to maximize site host convenience. EV Charge Sponsor site hosts must be multi-unit dwellings (MUDs) or workplaces located in disadvantaged communities (DACs).

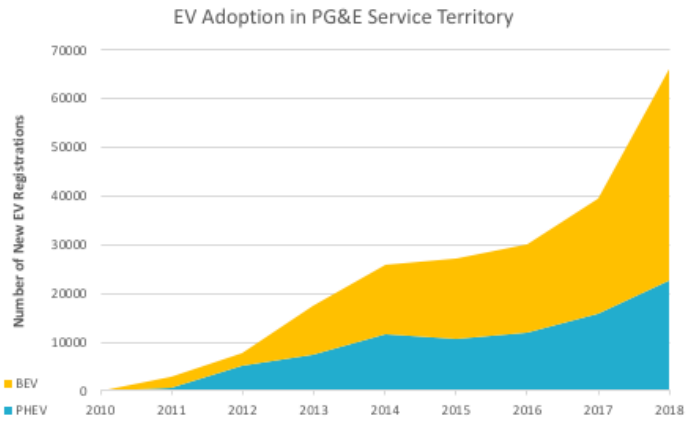
1.2 Summary for Quarter

The following section provides a brief summary of the milestones and actions performed throughout the quarter. This includes EV adoption in PG&E's service territory, program participant interest, a summary of the Program Advisory Council (PAC) meeting, program milestones, and key barriers to implementation.

EV Adoption in PG&E Service Territory

The EV Charge Network program intends to support the adoption of EVs in PG&E territory by providing the infrastructure to support adequate charging and remove obstacles to adoption. Q4 2018 is the fifth consecutive quarter reporting over 10,000 EV registrations in PG&E territory and saw a 92% improvement over Q4 2017. At the end of Q4 2018, there were 216,845 EVs registered in PG&E service territory.

FIGURE 1.1 MONTHLY EV REGISTRATIONS IN PG&E TERRITORY



SOURCE: EPRI analysis of vehicle registration data

PG&E offers two residential EV rates for customers who own an EV. Both rates are time-of-use (TOU) rates and will vary based on time of day. The EV-A rate combines the customer's EV electricity use with the main household consumption on the same meter whereas the EV-B rate tracks EV electricity consumption separately from household use through a new meter dedicated to the charging equipment. At the end of Q4 2018, 53,047 PG&E customers were enrolled in the EV-A rate and 363 customers were enrolled in the EV-B rate.

1. The Commission approved the EV Charge Network in D 16-12-065.
2. Disadvantaged Communities are defined as the top 25% most impacted census tracts within PG&E's service territory per the CalEnviroScreen3.0, or the latest version.

Program Participation Interest

PG&E officially launched the EV Charge Network program in January 2018. However, the program has been operating under a soft launch since late October 2017 when the online application was made available. PG&E has experienced steady interest from customers applying for participation in the EVCN program. Figure 1.2 shows the cumulative number of submitted and approved applications through Q4 2018; Figure 1.3 shows the cumulative number of submitted and approved ports through Q4 2018 (note that submitted ports is an estimate).

FIGURE 1.2 CUMULATIVE NUMBER OF APPLICATIONS SUBMITTED AND APPROVED THROUGH Q4 2018

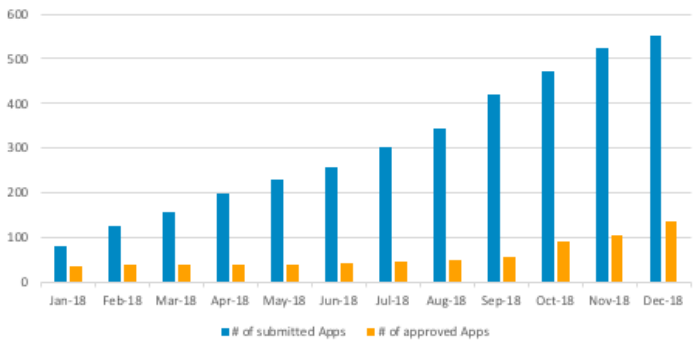
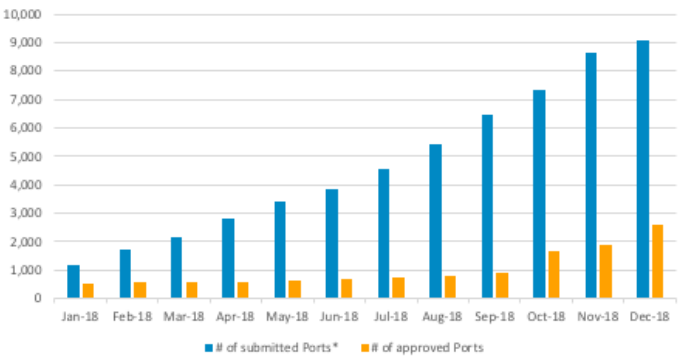


FIGURE 1.3 CUMULATIVE NUMBER OF PORTS SUBMITTED AND APPROVED THROUGH Q4 2018



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

As of December 31, 2018, PG&E had received 551 applications. At the close of Q4 2018, 165 sites representing 2,600 ports had signed agreements with customers and were active in final design and construction phases.[3] A total of 229 applications had been waitlisted or cancelled in 2018. More details on submitted applications can be found in section 2 and on approved/in-progress sites in section 5 of this report.

Program Advisory Council (PAC)

On December 12, 2018, PG&E held the fourth Program Advisory Council meeting of 2018. Beginning in 2018, PG&E expanded the focus of the PAC meeting to address broader clean transportation programs and initiatives, creating the Clean Transportation Program Advisory Council. The Q4 PAC meeting focused on the EV Charge Network program where PG&E provided a summary of the year's performance and progress including a number of process improvements to support the scale of application volume seen to date. PG&E also provided an update on the Total Cost of Ownership Tool and SB350 Priority Review Projects: the Home Charger Information Resource Pilot, Electric School Bus Renewables Integration, Medium/Heavy Duty Fleet Customer Demonstration, and Idle Reduction Technology projects. Guest speakers from the Coalition of Utility Employees presented about the Electric Vehicle Infrastructure Training Program (EVITP). EVITP offers California State Certified General Electricians the opportunity to receive certification in EV charging station installations. Lastly, PG&E gave an update on the EV Fleet and Fast Charge programs including pre-launch activities and preparation, and timeline to launch. The Clean Transportation Program Advisory Council will continue to meet quarterly to discuss progress of the EV Charge Network, EV Fleet, and Fast Charge programs.

Individuals from approximately 34 organizations, representing stakeholders from industry, government, and non-profits, attended in-person and online. The meeting's objective is to inform an external audience on the progress of the various infrastructure programs authorized by the CPUC. More details on the 2018 Q4 PAC meeting can be found in Section 7 and the Appendix of this report.

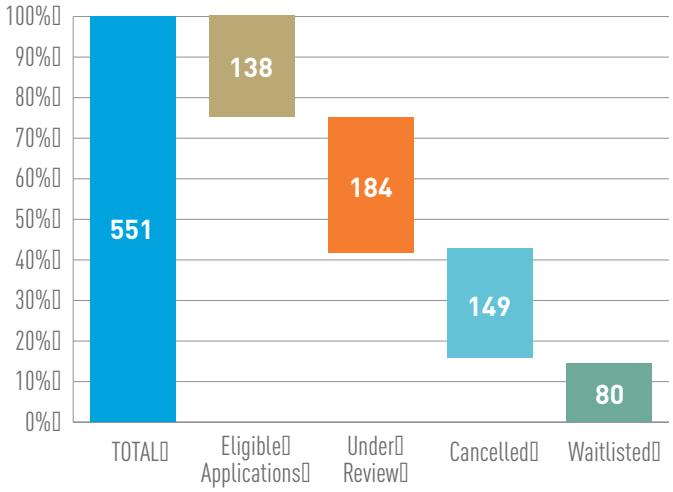
3. As of the end of Q4 2018, 138 applications had been approved and were still in an active stage of the program; i.e., this total excludes applications that were approved but then later waitlisted or cancelled.

2. Customer Interest, Outreach, and Education

2.1 EV Charge Network Applications

Since launch of the EV Charge Network program website and online application in Q3 2017, PG&E received a total of 551 applications through Q4 2018. Table 2.1 shows the total number of applications received and the number of applications in each stage at the end of Q4 2018.

FIGURE 2.1 SUMMARY OF APPLICATION STATUS THROUGH Q4 2018



In Q4 2018, the EVCN program received interest from a range of sites, with most new applications continuing to come from workplaces. However, MUDs did make up some ground driven by portfolio customers (customers submitting multiple sites for infrastructure investment), increasing MUD share of applications to 29% at the end of Q4 up from 24% for end of Q2. There was also a continued preference for the EV Charge Owner option demonstrated by applications submitted in Q4. Table 2.2 shows the breakdown of property type, disadvantaged community status, and program participation across all applications received through Q4.

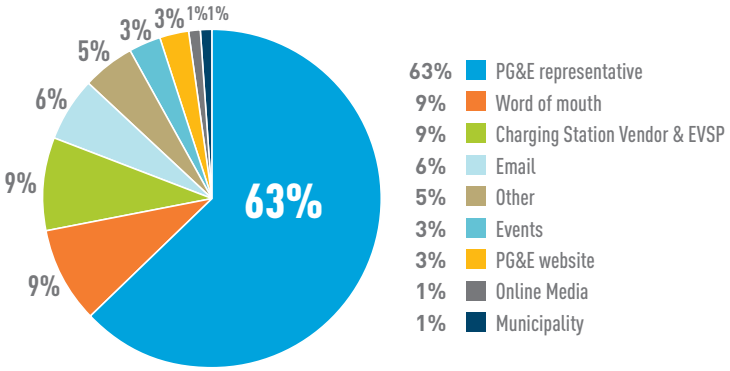
TABLE 2.2 APPLICANT PROFILE THROUGH Q4 2018

	NUMBER OF APPLICATIONS	PERCENT OF APPLICATIONS
PROGRAM PARTICIPATION		
EV Charge Owner	411	75%
EV Charge Sponsor	140	25%
PROPERTY TYPE		
MUD	160	29%
Workplace	391	71%
DISADVANTAGED COMMUNITY STATUS		
Disadvantaged Community (DAC)	158	29%
Other PG&E Territory	393	71%

CROSS SECTION (Applications)	DAC (% of Grand Total)	NOT IN DAC (% of Grand Total)
MUD	37 (7%)	123 (22%)
WORKPLACE	121 (22%)	270 (49%)
Sub Total	158	393

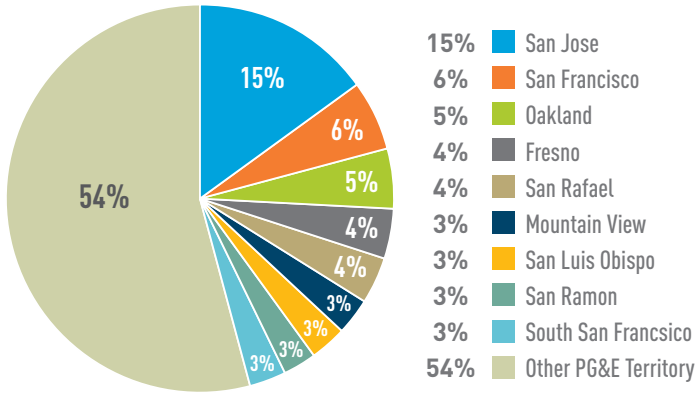
Applicants reported hearing about the EVCN program from various sources. In Q4, PG&E's Sales team continued their outreach and represented the largest source of incoming lead generation, bringing in over 60% of program applications through Q4 2018. Figure 2.3 depicts how applicants reported hearing about the EVCN program on the online application.

FIGURE 2.3 EVCN PROGRAM APPLICANT SOURCE OF PROGRAM KNOWLEDGE THROUGH Q4 2018



Beginning in Q4 2018, PG&E expanded the targeted geography approach to include multiple other bay area cities including: Berkeley, San Ramon, Pleasanton, Milpitas, South San Francisco, Burlingame, and Menlo Park. Also, the geographic focus expanded outside to other strategically valuable locations including Vacaville, Bakersfield, and Santa Cruz.

FIGURE 2.4 EVCN PROGRAM APPLICANT PROFILE BY GEOGRAPHIC AREA THROUGH Q4 2018



Approximately 27% of submitted applications in 2018 were cancelled through the end of Q4 for various reasons. The two primary causes for cancellation are the customer withdrawing interest or the project was determined to be cost prohibitive for the program budget and goals:

- **Customer Withdrawal:** During 2018, PG&E observed several reasons for the customer withdrawing including unable to meet the port number requirements or a change in priorities/customer becoming unresponsive.
- **Cost Prohibitive:** During 2018, sites that were cancelled due to cost faced a variety of challenges including trench length, transformer size and location as well as other environmental factors.

Q4 2018 Program Milestones

- **Processing the Surge of Applications.** During the quarter, PG&E continued to process the significant growth in applications submitted. Approximately 300 applications totaling 4,000 ports were submitted in the second half of 2018.
- **Expanded Customer Outreach.** PG&E expanded its targeted outreach to include a broader set of geographies and customer sizes. It is clear this outreach, including efforts from our Marketing, Business Energy Solutions (BES), and Public Affairs teams, produced a sizable increase in the number of submitted applications.
- **Construction Activity Ramp Up.** This quarter, the cumulative number of ports installed increased from 208 to 594. Continued growth in construction activity is expected through 2019.
- **Enabled "New Construction" Customers.** PG&E developed a process to serve "New Construction" customers (those who already have planned construction on-site and wish to add EV chargers) within the EVCN program.
- **Increased "Portfolio Customer" Submissions.** In the second half of 2018, almost half of all applications and ports submitted came from "portfolio customers" (those who have five or more sites interested in EVCN). This speaks to the effectiveness of PG&E customer acquisition teams and the depth of their customer relationships when discussing the program.

Q4 2018 Challenges and Lessons Learned

- **EVSP Data Integration.** There continued to be challenges encountered by some EV charging station service providers in transmitting utilization data for newly activated sites in a format consistent with PG&E's program requirements. This requires coordination with PG&E to troubleshoot, develop a solution, and confirm via additional testing efforts. Similarly, PG&E deployed process improvements to better ensure recently activated sites were recorded as such in our internal systems in a timely manner to start receiving the utilization data.
- **Time and Consistency Challenges with Permitting.** The construction team is seeing an average of at least 6 weeks for a permit to be issued and in one case as long as 21 weeks. Also, the construction team received inconsistent requirements from the various jurisdictions creating redesign and additional cost. Agencies specifically varied on ADA requirements and expectation of bringing existing facilities up to code. Strategies that PG&E has implemented to mitigate these issues included conducting training with the Division of State Architects and developing a comprehensive design template capturing all the feedback from various agencies as well as other lessons learned.
- **Experiences with Several Unexpected Design Changes.** The construction team uncovered unforeseen field conditions, changes initiated by customers, and ADA changes from permitting jurisdictions as mentioned above. Design changes cause delays and additional cost for the program. PG&E focused on implementing improvements during site eligibility to address some of these lessons learned including looking at a revised site walk approach that will be instituted in January 2019.

2.2 Sales and Marketing

In Q3 2018, a new strategy was developed for outreach that was intended to be more efficient in acquiring target customers. As part of that strategy, PG&E expanded outreach to a total of 16 cities: Berkeley, Vacaville, San Francisco, Oakland, South San Francisco, Stockton, Burlingame, San Ramon, Pleasanton, Menlo Park, Milpitas, Mountain View, Santa Cruz, Fresno, San Jose, and Bakersfield. Note that, while site hosts from any city are welcome to apply, a targeted approach ensures that marketing spend is used most effectively and costs are reduced by having crews travel short distances between consecutive projects.

This strategy was put into effect in Q4, with PG&E's Business Enterprise Solutions (BES) representatives talking to customers in these 16 cities about the EVCN program. Partially as a result of this, average monthly applications significantly increased in Q4.

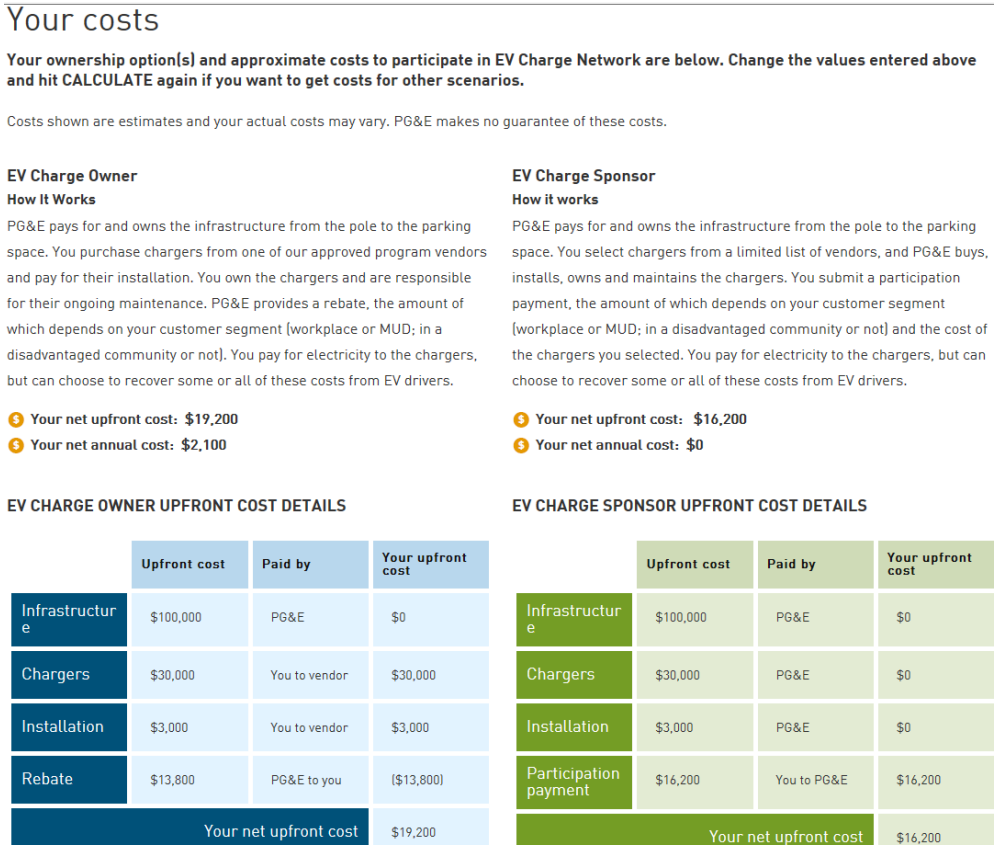
Next steps include evaluating the list of target cities as the market becomes saturated with customers who have already been informed about the EVCN program. PG&E estimates that by spring 2019, a new set of target cities will be required to continue program outreach. PG&E is currently working to identify those cities based on factors such as anticipated demand for EV charging, make-up of the commercial customer base, and local permitting processes.

In addition, PG&E continues to work with our partners to leverage outreach beyond PG&E. Partners, especially on a local level, are key stakeholders that serve as advocates for promotion. Sample partners include local non-profits/ working groups, community choice aggregators, local governments, and trade associations. They can be very helpful in providing venues for PG&E to discuss EVCN with their constituents, providing feedback on pain points that can be addressed as we continue customer conversations, offering additional funding sources that further bring down costs for customers, and, in some cases, become customers themselves

2.3 Online Tools & Resources

As of the end of Q4 2018, the EV Charge Network program website has the following tools and resources to assist customers in their decision-making process.

- The website hosts an integrated cost calculator tool that helps customers understand the incentives and ownership options they are eligible for, and projects one-time and annual program costs for each ownership option based on inputs that the customer selects. Customers can use PG&E's established ranges for each cost, or can enter costs provided in vendor quotes. Customers can edit their cost inputs to understand their obligations under different scenarios.



Your costs

Your ownership option(s) and approximate costs to participate in EV Charge Network are below. Change the values entered above and hit CALCULATE again if you want to get costs for other scenarios.

Costs shown are estimates and your actual costs may vary. PG&E makes no guarantee of these costs.

EV Charge Owner

How It Works

PG&E pays for and owns the infrastructure from the pole to the parking space. You purchase chargers from one of our approved program vendors and pay for their installation. You own the chargers and are responsible for their ongoing maintenance. PG&E provides a rebate, the amount of which depends on your customer segment (workplace or MUD; in a disadvantaged community or not). You pay for electricity to the chargers, but can choose to recover some or all of these costs from EV drivers.

Your net upfront cost: $19,200
Your net annual cost: $2,100

EV Charge Sponsor

How it works

PG&E pays for and owns the infrastructure from the pole to the parking space. You select chargers from a limited list of vendors, and PG&E buys, installs, owns and maintains the chargers. You submit a participation payment, the amount of which depends on your customer segment (workplace or MUD; in a disadvantaged community or not) and the cost of the chargers you selected. You pay for electricity to the chargers, but can choose to recover some or all of these costs from EV drivers.

Your net upfront cost: $16,200
Your net annual cost: $0

EV CHARGE OWNER UPFRONT COST DETAILS

	Upfront cost	Paid by	Your upfront cost
Infrastructure	$100,000	PG&E	$0
Chargers	$30,000	You to vendor	$30,000
Installation	$3,000	You to vendor	$3,000
Rebate	$13,800	PG&E to you	($13,800)
Your net upfront cost			$19,200

EV CHARGE SPONSOR UPFRONT COST DETAILS

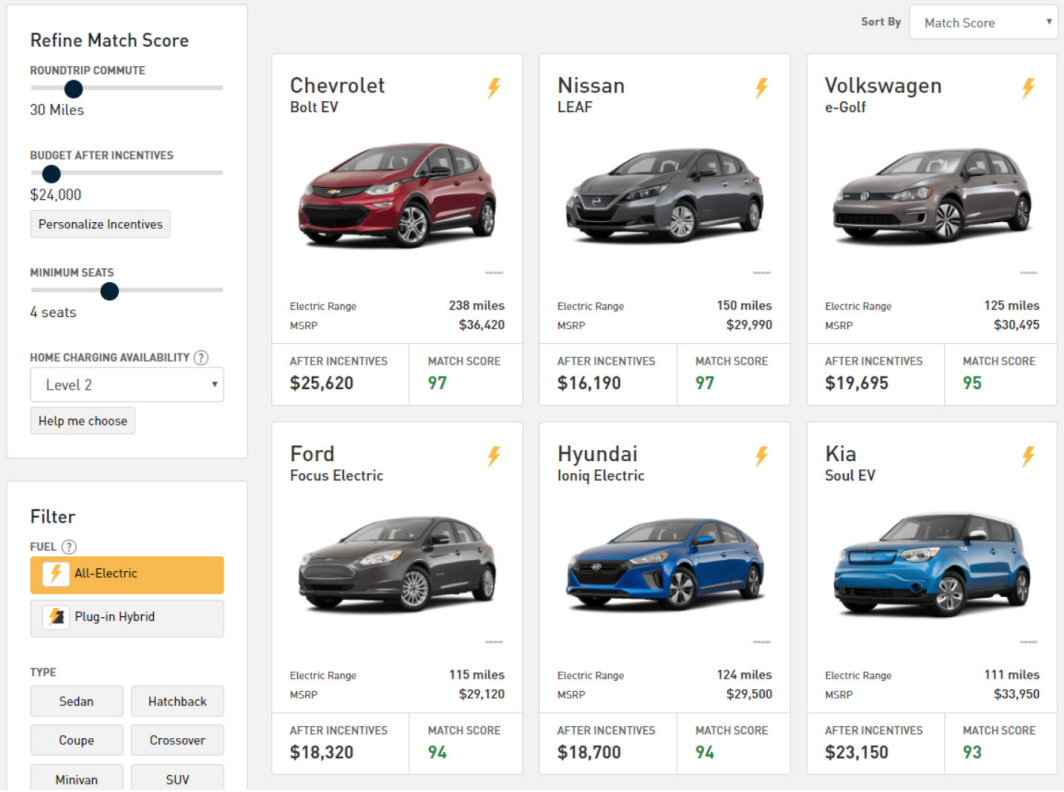
	Upfront cost	Paid by	Your upfront cost
Infrastructure	$100,000	PG&E	$0
Chargers	$30,000	PG&E	$0
Installation	$3,000	PG&E	$0
Participation payment	$16,200	You to PG&E	$16,200
Your net upfront cost			$16,200

- A Rate Adder Tool helps customers implement their pricing for drivers if they select the Pass-Through pricing option. In this option, drivers receive the A-6 or A-10 time-of-use (TOU) rate for the time during which they choose to plug in. The tool allows customers to calculate a "rate adder", which will distribute the non-energy charge components of the customer's rate (e.g. demand charge, customer charge) among the estimated electricity consumed from the chargers as a dollar per kilowatt-hour amount. This adder can be added directly to the customer's TOU energy rates implemented at the chargers, to be passed through to drivers. This will allow customers to more accurately recover the total amount of their electricity bill from drivers.

A-6 RATE PLAN, 10 CHARGERS

Average usage for each charger	Suggested add-on price per kWh
Low (2 hours per day)	$0.005
Medium (6 hours per day)	$0.002
High (10 hours per day)	$0.001

- PG&E also completed user research, design, and development for the "EV Savings Calculator", also known as the Total Cost of Ownership (TCO) Tool. The goal of the TCO Tool is to reduce EV ownership cost research time by providing residential customers with a tool that is quick, easy to use, and provides an accurate cost breakdown of owning an EV. The tool will capture total cost of ownership, available EV incentives, and a match score to help users find the right EV for them. PG&E launched the tool at the end of 2018 and enhancements will be deployed in early 2019. The tool is available at ev.pge.com.



2.4 Customer Experience and Satisfaction

PG&E is developing a customer satisfaction survey to be distributed to program participants after project completion. PG&E will report on this feedback when data is available.

3. Electric Vehicle Supply Equipment Procurement

3.1 Procurement Process

PG&E conducts a Request for Qualification (RFQ) and Request for Proposal (RFP) process to determine eligible EVSE packages that will be available to customers through the EV Charge Network program. The RFQ qualifies EV charging station vendors for the EV Charge Owner option and occurs on a quarterly basis. Vendors will continue to have the option to qualify EVSE packages every 3 months with quarterly RFQs. PG&E leveraged the RFP to qualify EV charging station vendors for the EV Charge Sponsor option, for which PG&E will own the charging equipment.

EVSE packages are inclusive of EVSE hardware, software, and network services. As in past quarters, the quarterly RFQ will identify additional vendors that offer EVSE packages that meet PG&E's minimum hardware, software, and network requirements. PG&E does not limit the list of vendors; all vendor EVSE packages that meet the minimum requirements will be approved.

3.2 RFQ – EV Charge Owner Options

PG&E completed the Q4 RFQ for EVSE solutions which resulted in three vendors applying for qualification. Additionally, 1 final pending provider from the Q2 RFQ was approved and added to the list. The approved EVSE packages, including hardware, software, and network services are presented on PG&E's website to inform customers of vendor options, along with vendor contact information for further inquiry. Appendix C details the criteria all approved EVSE approved packages must meet.

The following are currently approved program vendors:

- ABM
- Andromeda Power LLC
- BTC Power (Broadband Telcom Power, Inc.)
- ChargePoint
- Electric MotorWerks, Inc.
- EV Connect
- EVBox
- EVoCharge LLC
- EVSE LLC
- Greenlots
- Kitu Systems
- Liberty Plug-ins
- National Car Charging
- PowerFlex Systems
- SemaConnect, Inc.
- Shell New Energies
- Tellus Power Inc.
- Verdek
- Video Voice Communications

3.3 RFP – EV Charge Sponsor Options

Vendors approved through the first RFQ in 2017 were eligible for the RFP. The RFP is designed to select vendor(s) for the EV Charge Sponsor portion of the program. Under this option, program participants may request PG&E to install, own, and maintain up to 35% of the EV charging ports deployed. The RFP process evaluates competitive price proposals for vendor EVSE packages to be offered under the EV Charge Sponsor option of the program. Vendors for the RFP must meet PG&E's minimum requirements for the RFQ process and will be evaluated on criteria including, but not limited to, price, quality of bid, supplier diversity, environmental commitment, and financial stability. PG&E has selected its first vendor, EVBox, through the RFP process and continues to evaluate remaining finalists.

3.4 Procurement Next Steps

The Q4 RFQ opened 10/30/18 and closed 11/30/18; no additional vendors completed the process of submitting documentation for review in this cycle. As part of the RFP process, PG&E continues to evaluate remaining finalist vendors for the EV Charge Sponsor option after making its first selection of EVBox.

4. Charger Utilization and Load Management

4.1 Charger Utilization

At the end of 2018, a total of 33 sites were fully activated for driver use. The final construction and activation in Q3 and Q4 brought the total MUD sites to 17 representing over 50% of activated sites. Table 4.1 shows the summary of all active sites through Q4 2018.

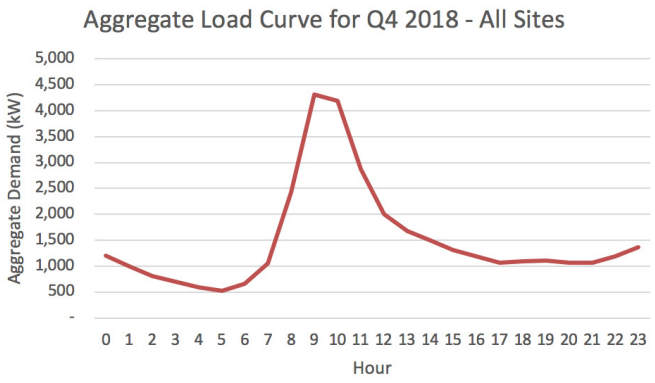
TABLE 4.1 SUMMARY OF ACTIVATED SITES THROUGH Q4 2018

	NUMBER OF SITES	NUMBER OF PORTS	PERCENT OF PORTS
PROGRAM PARTICIPATION			
EV Charge Owner	21	301	62%
EV Charge Sponsor	12	184	38%
PROPERTY TYPE			
MUD	17	253	52%
Workplace	16	232	48%
DISADVANTAGED COMMUNITY STATUS			
Disadvantaged Community (DAC)	6	88	18%
Other PG&E Territory	27	397	82%

CROSS SECTION (Sites/Ports)	DAC (% of Grand Total)	NOT IN DAC (% of Grand Total)
MUD	0/0 (0%)	17/253 (52%)
Workplace	6/88 (18%)	10/144 (30%)
SUB TOTAL	6/88	27/397

PG&E continues to work with EV Service Providers (EVSPs) on collecting driver utilization data from its activated sites and will provide more detailed analyses (e.g., utilization by location and price, load profiles, etc.) once the sample size of the data increases. From the data collected thus far, however, PG&E can share load profiles for 30 activated sites. The aggregate load curves for all active sites (30 sites; 14 workplaces and 16 MUDs) in the EV Charge Network program are shown below on Figure 4.1. Separate aggregate load curves for workplaces and MUDs respectively were redacted pursuant to 15/15 rule. These shapes were developed based on cumulative PG&E meter data for all sites from October 1 through December 31, 2018. The data shown does not represent any particular day, but rather cumulative hourly data for all sites in the entire quarter. However, this provides a shape that is representative of charging patterns on a daily basis. The workplace load curve shows peak usage occurring at 9 am, with most usage occurring between 8 am and 3 pm. The MUD load curve shows peak usage at 11 pm, with the majority of charging occurring in the evening and during the night.

FIGURE 4.1 AGGREGATED LOAD CURVE FOR Q4 2018 CHARGER UTILIZATION



4.2 Load Management Plan

Program participants who select the custom pricing option are required to participate in a load management plan to maintain the intent of a time-of use (TOU) rate in shifting energy consumption to times of low demand, and away from times of peak demand. PG&E will leverage its demand response (DR) pilots to call events to ask program participants to both increase and decrease EV charging load at certain times. In Q4 2018, PG&E coordinated with EVSPs to identify sites enrolled in custom pricing and is working towards ensuring such sites are enrolled into PG&E's relevant DR pilot program.

4.3 Load Management Data

As data is made available, PG&E intends to provide data on Load Management Plan enrollment, events, and load impacts.

5. Program Operations

5.1 Summary of Approved Sites

Once an application is received, PG&E reviews the site for eligibility, evaluating site feasibility based on criteria including available electrical capacity, number of chargers to be installed, environmental risks, and estimated project costs on a per-port basis. If a site passes this eligibility review and a conceptual design of charger layout is approved by the program participant, it is approved for EVCN participation and is moved into design and pre-construction phases.

As of the end of Q4 2018, PG&E had received 551 applications, 138 of which were actively approved as eligible for EVCN program participation. The program is targeting 20% of sites to be at multi-unit dwellings (MUD) and 15% in disadvantaged communities. Table 5.1 depicts the breakdown of property type, disadvantaged community status, and program participation for applications approved through Q4.

TABLE 5.1 PROGRAM PARTICIPANT PROFILE – APPROVED SITES THROUGH Q4 2018

	NUMBER OF SITES	NUMBER OF PORTS	PERCENT OF PORTS
PROGRAM PARTICIPATION			
EV CHARGE OWNER	103	1896	73%
EV CHARGE SPONSOR	35	704	27%
PROPERTY TYPE			
MUD	34	676	34%
Workplace	104	1924	74%
DISADVANTAGED COMMUNITY STATUS			
Disadvantaged Community (DAC)	37	764	27%
Other PG&E Territory	101	1,836	71%

CROSS SECTION (Sites/Ports)	DAC (% of Grand Total)	NOT IN DAC (% of Grand Total)
MUD	3/200 (8%)	31/476 (18%)
Workplace	34/564 (22%)	70/1360 (41%)
SUB TOTAL	37/764	101/1836

5.2 Construction

Once a project is approved for participation in the EV Charge Network program, PG&E assigns a Project Manager to connect with the customer and guide the site from design to activation. This includes coordinating with one of PG&E's competitively selected Engineer, Procure and Construct (EPC) vendors to complete the design, permitting, and construction for EV charging sites. At the end of Q4 2018, PG&E had a pipeline of 138 approved sites which represented 2600 ports[4] and provides a pipeline of construction through December 2019.

4. This excludes approved sites considered "at risk" of being waitlisted or cancelled.

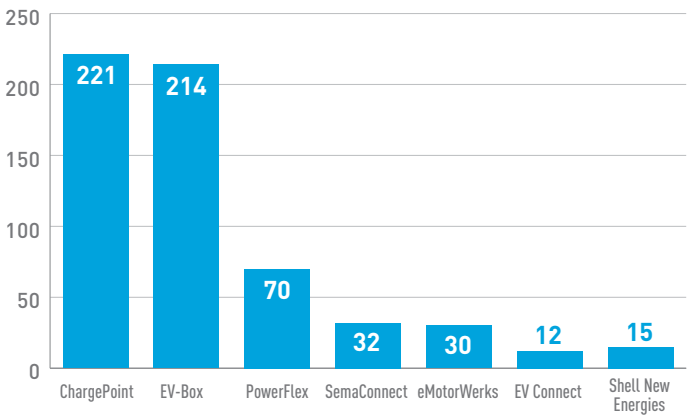
5.3 Operational Metrics

Through the end of Q4 2018, PG&E had completed installation of 39 sites for the EVCN program. The following metrics reflect construction and installation of approved sites through December 31, 2018.

TABLE 5.2 SUMMARY OF NUMBER OF PORTS AND INSTALLATION

Number of total ports approved	2600
Number of ports installed	594
Average number of ports approved per site	19
Average number of ports installed per site	15
Average time for each installation step	Insufficient data to report in Q4 2018
Average total installation time	

FIGURE 5.1
NUMBER OF PORTS INSTALLED BY EVSE PRIMARY VENDOR



5.4 Program Costs

In Q4 2018, PG&E spent roughly $ 7.8 million for a total program spend of roughly $27.8 million out of the $130 million authorized budget. Figure 5.4 details Q4 program spend for each of the categories, Administration and Program Implementation; Marketing, Education, and Outreach; IT Projects; Engineering and Construction, and Procurement. Table 5.4 provides a summary of anticipated 2018 spend, 2018 program costs year to date, and percent of allocated 2018 budget spent.

FIGURE 5.4 EVCN Q4 PROGRAM SPEND

Design and installation costs are included within Engineering & Construction in Q3 and Q4. In Q1 and Q2 those costs were included within Administration & Program Implementation

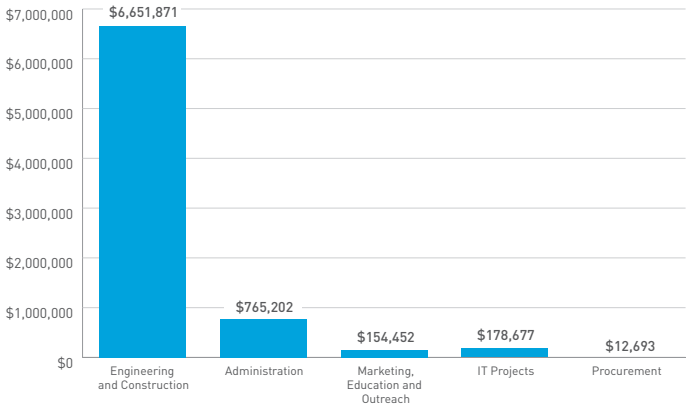


TABLE 5.4 SUMMARY OF 2018 PROGRAM SPEND

	2018 Year to Date Forecast	2018 Year to Date Spend	% of Year to Date Forecast
Total Program Cost through Q4	$28,044,895	$21,000,429	75%
Total Completed Construction Cost (including To-the-Meter, Behind-the-Meter, & Rebate)	$8,316,000	$9,870,882	119%
Average Cost per Port (including To-the-Meter, Behind-the-Meter, & Rebate)	$14,000	$16,618	119%
Charger Cost per Port	$985	$918	93%
Total Rebate Reserved	$2,920,648	$337,525	12%

6. Supplier Diversity

PG&E is committed to diversity in the workplace and with the companies with which we do business. Our Supplier Diversity program provides vital opportunities for businesses owned by women, minorities, service-disabled veterans and lesbian, gay, bisexual and transgender (LGBT) individuals. Supplier diversity will be scored as part of the RFQ and RFP process for the EV Charge Program and will be incorporated in any contracts for services as part of this program.

7. Program Advisory Council Feedback

The fourth PAC meeting of 2018 was held on December 12, 2018 and included a diverse group of stakeholders. Over 30 organizations attended, including representatives from the EV charging station industry, non-profits, government entities and community choice aggregators. PG&E captured stakeholder comments during the meeting and also collected feedback by email submission after the meeting. PG&E has provided responses to the questions and comments in Appendix A.

8. Conclusion

At the end of Q4 2018 PG&E had completed construction of 39 sites (33 of which were fully activated for driver use) representing a total of 594 ports installed (485 fully activated). The program had a total of 138 approved applications, securing 2,600 ports that are working through design and will be supporting a construction pipeline through December 2019. The composition of the program's applicant and approved site pool represent a healthy pipeline in supporting the Commission's targets for disadvantaged communities (DAC), Multi-Unit Dwellings, and program ownership options. As PG&E collects more data on driver utilization and the results of its outreach strategies, this information will be shared in future reports. PG&E will continue to identify opportunities for process improvement while ensuring a positive customer experience.

PG&E values the feedback and input stakeholders have provided through the Program Advisory Council meetings, and looks forward to continued collaboration with participants.

9. Appendix A

9.1 Summary of Program Advisory Council Comments and PG&E Response

The following PAC members provided comments during the meeting regarding the EV Charge Network program:

PAC MEMBER NAME	PAC MEMBER ORGANIZATION
Junaid Faruq	Tesla
Andrew Krulewitz	Flux EV
Laura Berland-Shane	Greenlots
Newonda Nichols	ChargePoint
Brett Wiley	Marin Clean Energy
Sven Thesen	Silicon Valley clean energy
Philip Kreycik	Cadmus
Don Bray	Silicon Valley clean energy
Phil Villagomez	Shell
Basil Wong	Port of Oakland
Noel Crisostomo	California Energy Commission
Henry Ahern	Shell

9.2 Direct Program Advisory Comments

The table below describes the comments received from PAC members and PG&E's response.

QUESTION	PG&E RESPONSE
What was year 1 target for installed ports?	PG&E was targeting to install 1,400 ports in 2018.
How many installations are in disadvantaged communities?	So far, 12% of installations are in disadvantaged communities.
How many PG&E reps are conducting outreach?	PG&E's account team is based on customer size, PG&E has been providing the sales team with a list of customers based on their customer size/segment to conduct outreach and educate on EVCN.

QUESTION	PG&E RESPONSE
How did PG&E establish target cities?	The first four target cities had a high concentration of MUDs, some DAC communities, areas where PG&E started dialogue on permitting. The second set of cities mostly focused on permitting and those jurisdictions PG&E had existing knowledge and relationships with permitting agencies.
Does PG&E have any resources that helps public identify transformers and infrastructure? When we refer to other utilities, is this gas, etc.?	PG&E encourages customers to contact their PG&E representative to talk through infrastructure locations and available capacity. Yes, when referring to a check for other utilities, this is a look underground to see what other utilities are present to potentially interfere with conduit installation for EVCN projects.
To what degree has PG&E already scanned second focus cities for MUD/DAC and assistance from local agencies?	PG&E has not done this detailed analysis yet. The next step is to identify site characteristics that are ideal for program participation.
Can you speak to experience working with Community Choice Agencies?	PG&E has engaged CCAs regarding EVCN implementation and customer outreach. We can help provide success stories in CCA territories.
Does PG&E take into consideration the potential utilization of chargers in deployment and site selection?	When proposing a larger package to customer, PG&E's application management team looks at site layout and does not offer something that is unattainable for PG&E. The site needs to be cost effective for PG&E and realistic for the customer. PG&E will be continuing to look at utilization to avoid stranded assets.
Have you had sites that had a hard time giving up a parking space to meet ADA requirements and as a result, passed on the EVSE installation?	Yes, some sites have to give up parking spaces for ADA, but no sites have dropped out because of this requirement. PG&E can generally work with the city on ADA requirements, particularly with leased spaces.
Has PG&E thought about putting a cap on the number of ports/sites a single customer can receive or apply for?	PG&E has applied that concept to other programs. It is something we will explore in later 2019, but has not been an issue to date as we a have been able to have a mix of representation across segments.

QUESTION	PG&E RESPONSE
What defines a viable port?	Viable ports are those attributed to a project for which the customer has signed agreement committing to a preliminary design and scope of work.
Does viable mean that the customer has selected a charger?	Not all sites have purchased their charger at this point, but they are beginning to think about this and engage vendors.
What is liability after certain stage is the customer backs out?	PG&E has language in the customer agreement that binds the customer to a degree of project scope, and they risk cost claw backs if there is a significant scope change after the fact.
When customer is comparing hardware, is PG&E rep providing the customer with vendor information?	PG&E cannot influence this decision. We have developed a number of resources to help make an informed decision. We direct customers to reach out to vendors specifically to work directly with vendors.
What happens if the customer who signs up for EVCN is leasing the site and defaults on the lease, will PG&E be holding the property owner liable?	The site host will be responsible for a prorated cost based on timing when they back out prior to 10 year commitment.
Does PG&E have data on the number of ports per site?	We can provide this data at the next PAC.
Certain customers have been ineligible for program participation because "Not cost effective", why?	PG&E has established a cost threshold that the estimated project cost must meet ($15k/port). If the estimate is above this threshold, PG&E will propose a design that is within threshold, but if customer does not want this design, they are not eligible.
Does RFQ data show vendors that have model updates?	Yes.

9.3 Additional comments submitted by PAC stakeholder, provided verbatim

Organization: **Public Advocates Office**
Organization representative: **Fidel A. Leon Diaz**
Organization representative title: **Utilities Engineer**

In slide 12 of the presentation, the graph "Number of ports by cost per port" was displayed. While this graph is helpful and should continue to be presented in the future, additional graphs would make the information contained in this graph more useful. A graph that displays the relationship between number of ports per site and cost per port will help better understand the benefits due to increased number of ports per site. Additionally, a timeline that displays the progression of the average cost per port and when specific cost reducing actions have been implemented will help better understand the effectiveness of the cost reducing actions.

In slides 15 and 16 of the presentation, the graphs "stage of submitted application by county" and "stage of submitted applications by commercial segment" were displayed. An additional graph displaying the commercial segment of submitted applications by county would help better understand the interest level of each segment on a county level.

Regarding PG&E's request for guidance on how to reduce permitting time, more information is needed to provide more concrete guidance (such as the discussions PG&E has already had with cities, and what stages of permitting are causing the most delays). However, one suggestion is to work with cities to develop a streamlined EV charger-specific permitting process with a form that details all of the necessary information to receive a permit. PG&E could then guide customers through the permitting process, and potentially achieve significant reductions in permitting time.

Organization: **Port of Oakland**
Organization representative: **Basil Wong**
Organization representative title: **Manager of Utility Administration**

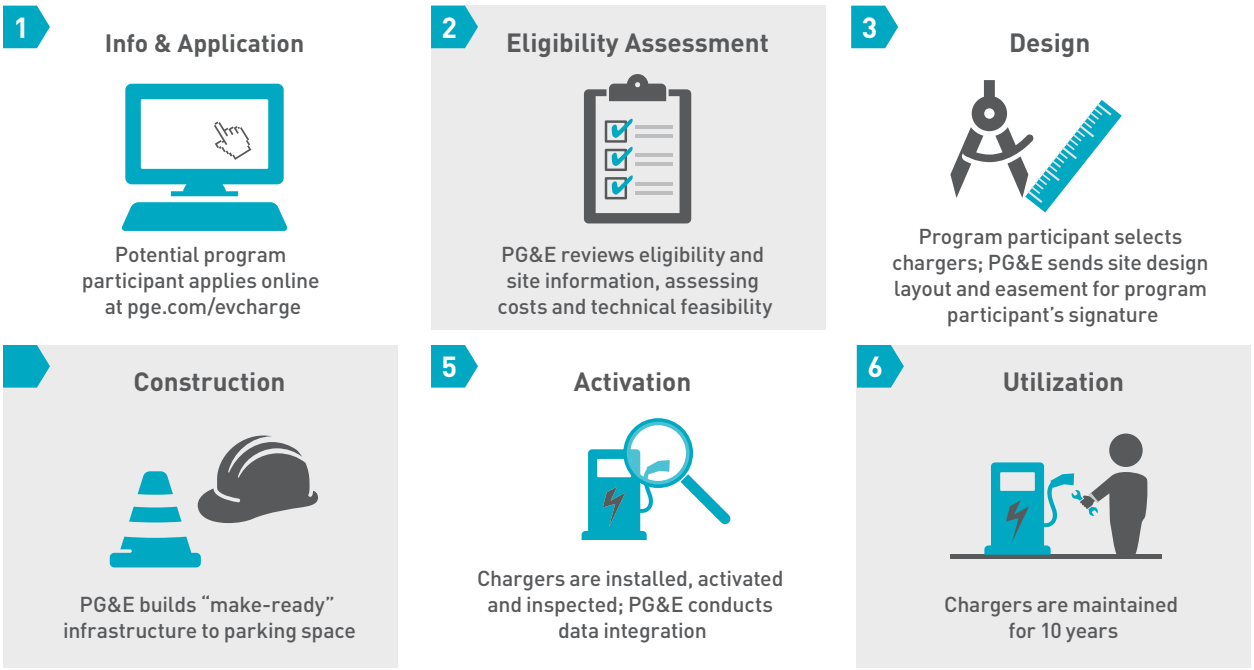
The liability, of a PG&E customer/participant who leases land and chooses to participate in the EV Charge Network program, should be limited to the PG&E customer/participant and should not bind the property owner or its future tenants in the event of a default by the PG&E customer/participant.

PG&E should consider allocating a portion of the program funds towards sites which without PG&E's program would not be cost-effective to construct new charging stations. This will provide greater access to EV Charging for hard to reach communities.

10. Appendix B

PG&E has established a six step process that guides customers through the EV Charge Network program.

1. **Info & Application:** Potential program participants apply online at www.pge.com/evcharge.
2. **Eligibility Assessment:** PG&E reviews eligibility and site information, assessing costs and technical feasibility.
3. **Design:** If the site is approved, the program participant selects their chargers, and PG&E sends the site design layout and easement for signature. If the program participant is an EV Charge Owner, they submit their proof of purchase for the chargers; if an EV Charge Sponsor, they submit their participation payment.
4. **Construction:** PG&E builds the "make-ready" infrastructure to the parking spaces.
5. **Activation:** Once construction is complete, chargers are installed, activated and inspected, and PG&E conducts data integration. If the program participant is an EV Charge Owner, PG&E issues the rebate
6. **Utilization:** The chargers are maintained for the life of the program (10 years) — by the program participant, in the case of EV Charge Owner; by PG&E, in the case of EV Charge Sponsor.



11. Appendix C

PG&E conducts a thorough review of all vendor applicants based on pre-determined criteria. All EVSE packages approved through the RFQ meet the following minimum requirements:

Hardware Requirements:

- Include a commercial-grade Level 2 EVSE.
- Must be able to supply an output current of at least 30 amps per port minimum at 208/240 volts.
- Include a charge connector compliant in SAE J1772.
- Compliant with NEC article 625.
- Rated for outdoor usage, NEMA 3R or better and an operating temperature range of: -22°F to 122°F.
- Shall be network ready—able to communicate with an EVSE management service and use Open Charge Point Protocol (OCPP 1.5 or later).
- ADA Compliant.

Software & Network Requirements:

- Software to control, operate, communicate, diagnose, and capture data.
- The vendor shall provide network services capable of tracking usage, collecting data, billing customers and managing electrical loads.
- The EVSE software shall be certified to receive an OpenADR 2.0b signal.

Vendor Requirements:

- The EVSE Package(s) must be inclusive of all hardware, software, and network services.
- Vendor is an authorized distributer or reseller of specified EVSE hardware and software and authorized to provide the required services.
- Vendor is regularly and continuously engaged in the business and have EVSE installed and operational in the United States for at least three years immediately preceding the bid due date.
- Vendor shall be able to service the entire PG&E Service Territory.