Program Advisory Council Meeting
Q4 2023

January 31, 2024

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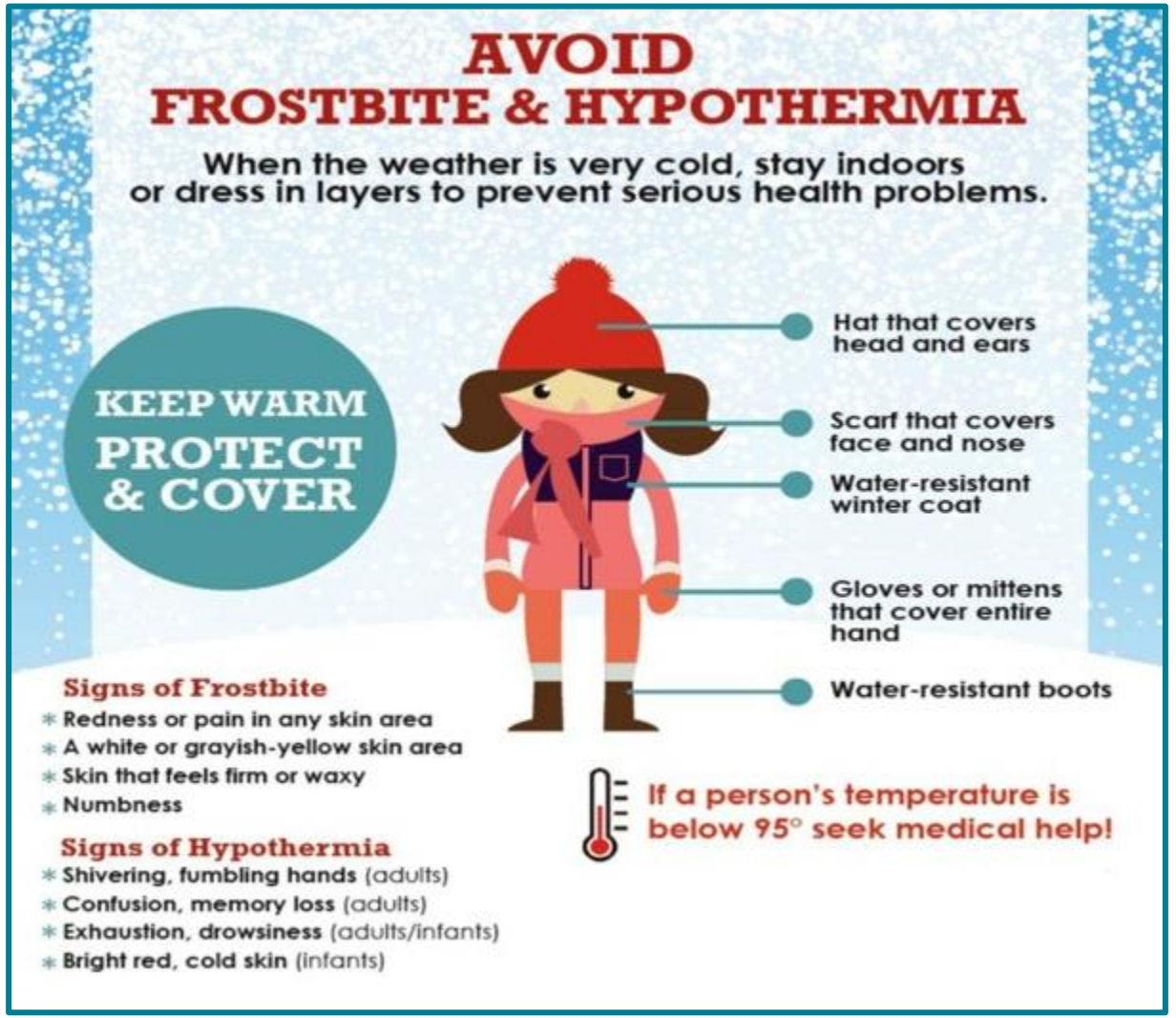
Agenda

Introduction	2 minutes
Safety	2 minutes
PAC Meeting Timeline	1 minute
Market Update	2 minutes
Fun Fact!	2 minutes
EV Fleet Program Updates	8 minutes
EV Fast Charge Program Updates	8 minutes
EV Charge Schools Program Updates	5 minutes
EV Charge Parks Program Updates	5 minutes
VGI Pilots	5 minutes
EPIC Pilots Overview	15 minutes
MSDI: Lessons Learned	15 minutes
Q&A	10 minutes
Conclusion	2 minutes

Safety

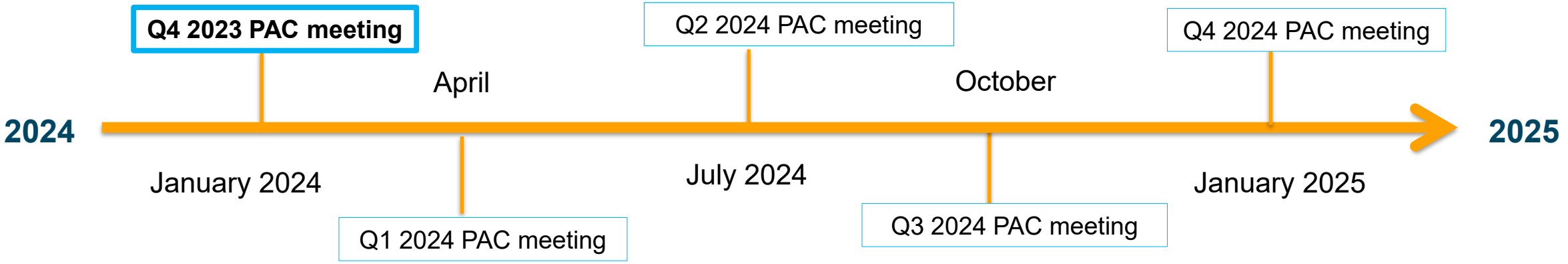
Winter Safety Tips



Clean Energy Transportation Program Advisory Council Meetings

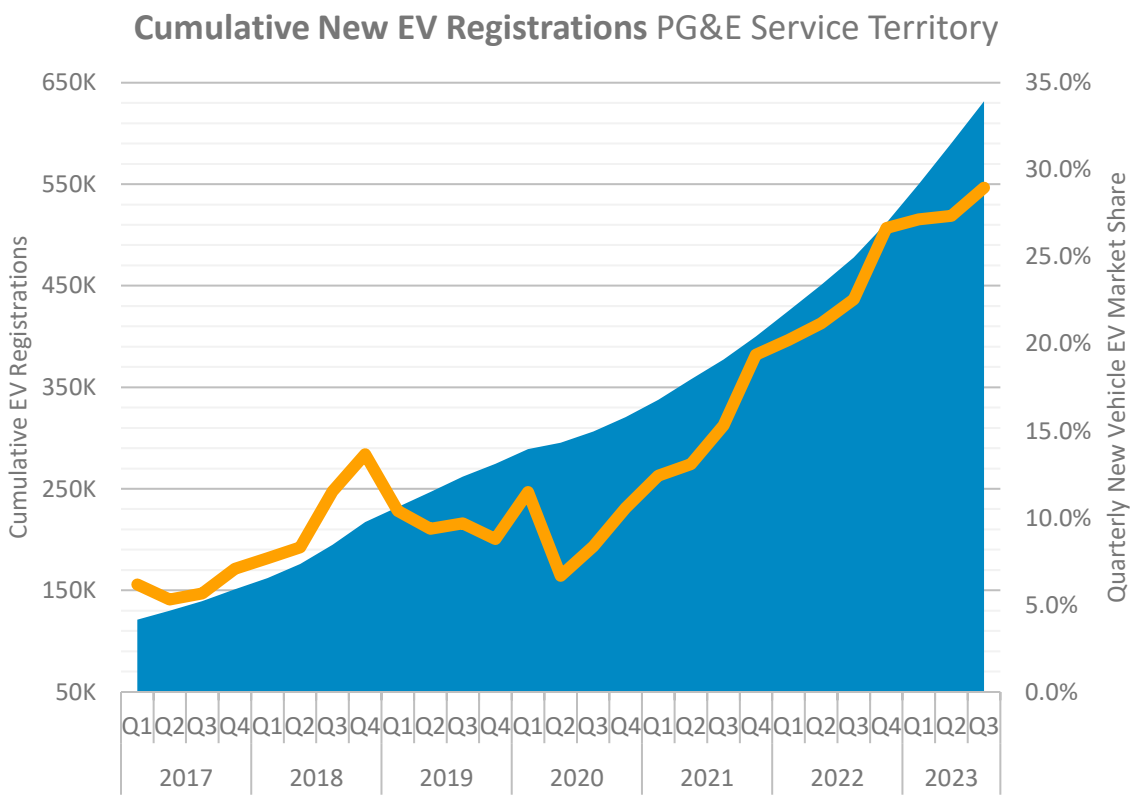
Overview

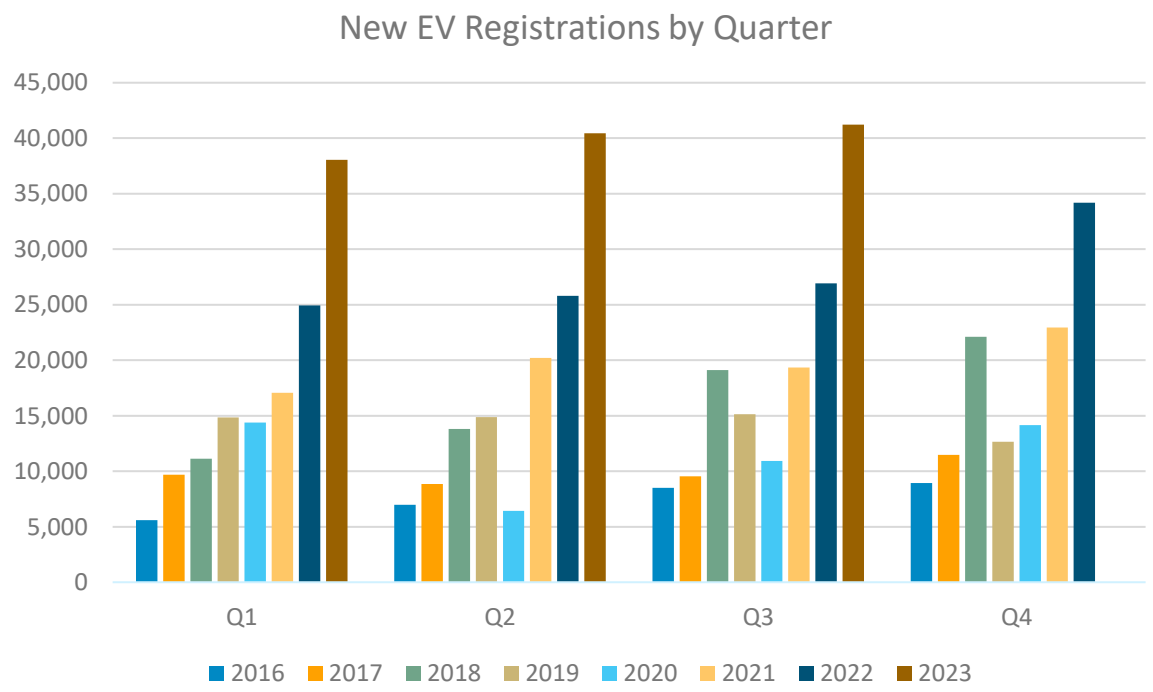
- PG&E has expanded our efforts on transportation electrification (TE) with a number of filings, pilots and programs in progress
- CPUC has directed PG&E to consult a Program Advisory Council in the development of key TE pilots and programs to gain feedback from industry stakeholders
- This platform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



EV Market Update

631,702 EVs registered in PG&E service territory through November 2023





Source: EPRI, Based on external registration data through Nov. 2023

EV Fun Fact

Taos Ski Valley says it has the 'first, fully electric snowcat in North America'

Michelle Lewis | Jan 26 2024 - 1:56 pm PT | 21 Comments

"Taos Ski Valley, the world's first B Corp Certified ski resort and a certified carbon-neutral company, has already deployed electric snowmobiles, utility terrain vehicles, and snowblowers. The resort has set a net zero by 2030 target."

SB 350 Standard Review Projects

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EV Fleet

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EV Fleet Program Update

Status as of 12/31/2023

	Sites	MDHD EVs Committed
Applications	455	-
Viable Contracts[1]	240	4,981
Construction Complete	72	313
Activated	59	849

[1] *Viable contracts are all contracts signed to date excluding cancelled and withdrawn*

Program Budget Overview

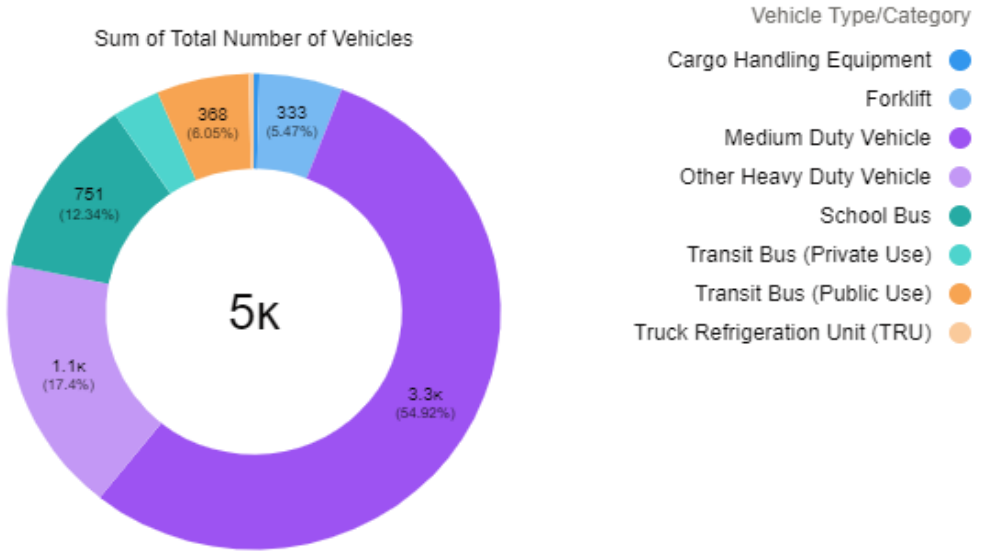
Spend-to-Date	Remaining Funds
$49.5M	$186.8M

Lessons Learned/ Best Practices

- Shifting focus from large projects to small – cost per site is lower but cost per vehicle is higher
- Will enable support for more sites at the expense of number of vehicles supported

How to engage with smaller fleets (deploying 10 or fewer MDHD EVs)?

Viable Contracts: Vehicle Type

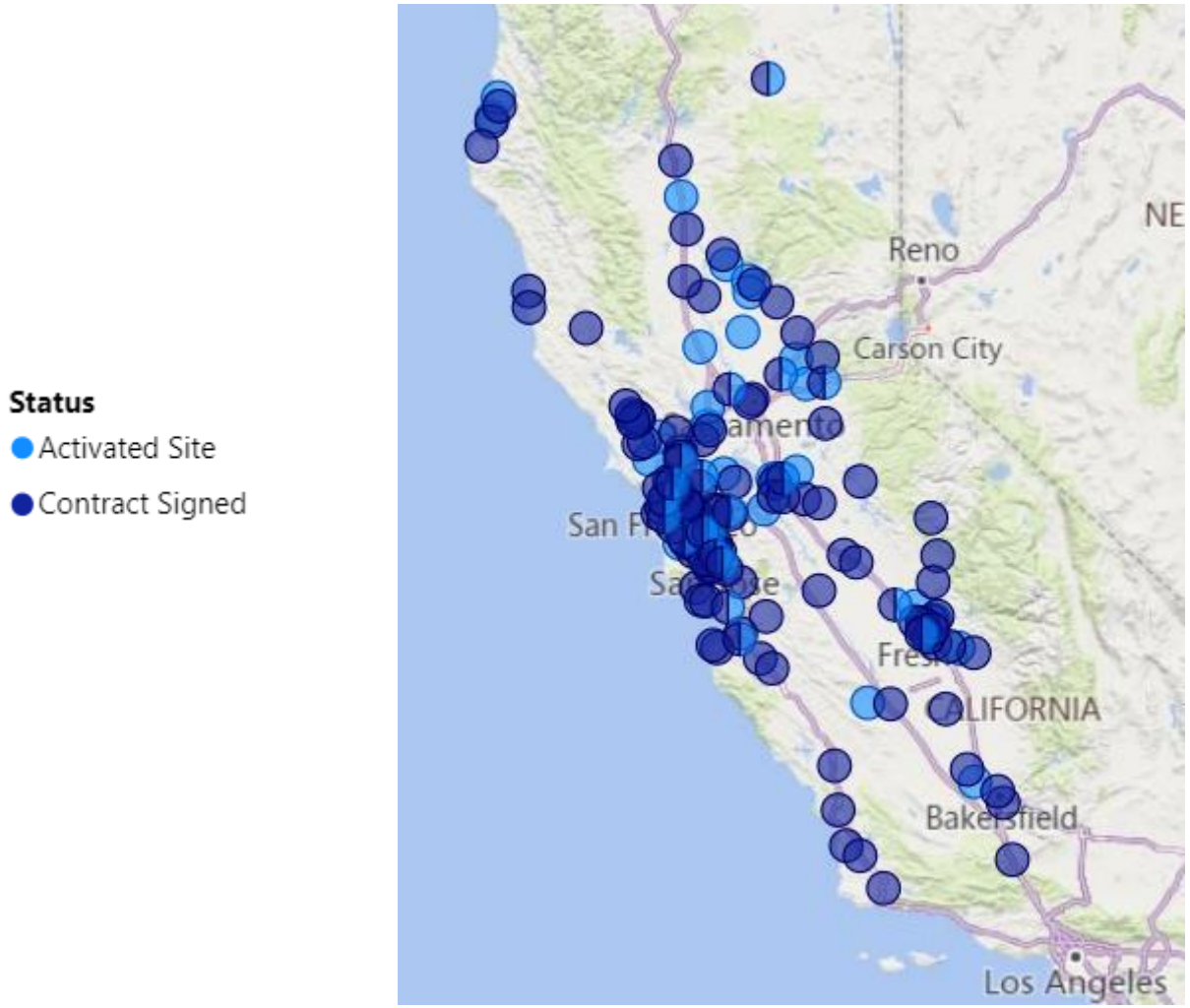


Program Highlights

- 106 of the 240 signed contracts **(44%) are in DACs**
- Program is seeing a **good mix of vehicle types**; medium duty vehicles are now dominant type due to diverse applications, availability, operational compatibility
- Program budget = $236.3m; **Spend-to-date = $49.5M**
- Signed 90 total contracts in 2023, ~2,400 vehicles
- Tier 3 Advice Letter filed with CPUC to modify site goal – proposed range of 375 to 440 sites for program; currently suspended until May 2024

Fleet Construction and Activation

Activated sites and sites in construction by zip code



EV Fast Charge

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EV Fast Charge Program Update

Status as of 12/31/2023

	Sites	Ports
Applications	256	1169
Contracted Sites	35	193
Constructed	21	104
Activated	18	84

Contracted site counts exclude cancelled projects

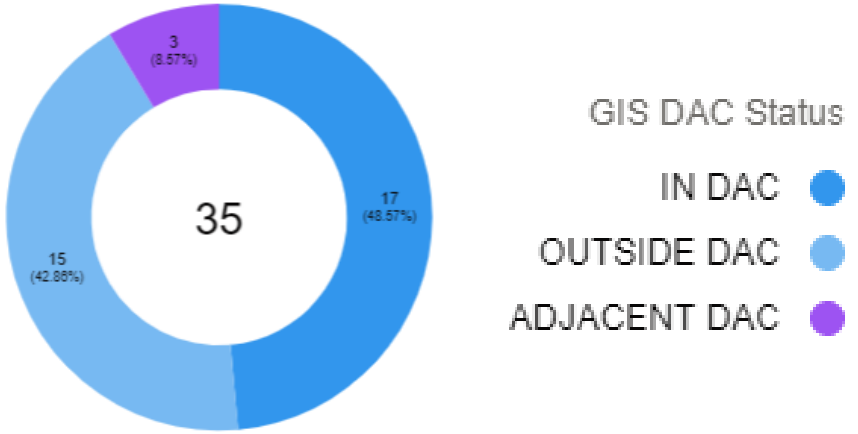
Program Budget Overview

Spend-to-Date	Remaining Funds
$13.9M	$8.5M

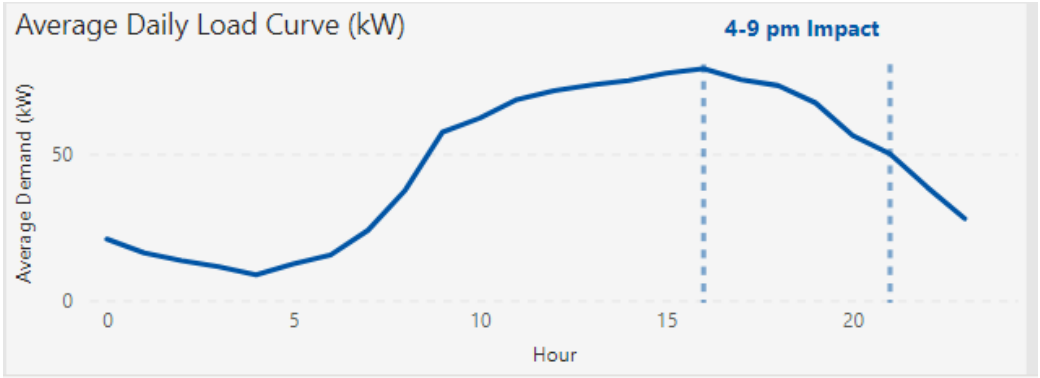
Lessons Learned:

- Utilization varies dramatically between different sites
- Initial trends show highway corridor charging is generally less utilized than urban locations
- Overall load shape *may* be impacted by TOU pricing

DAC Targets: Signed Contracts



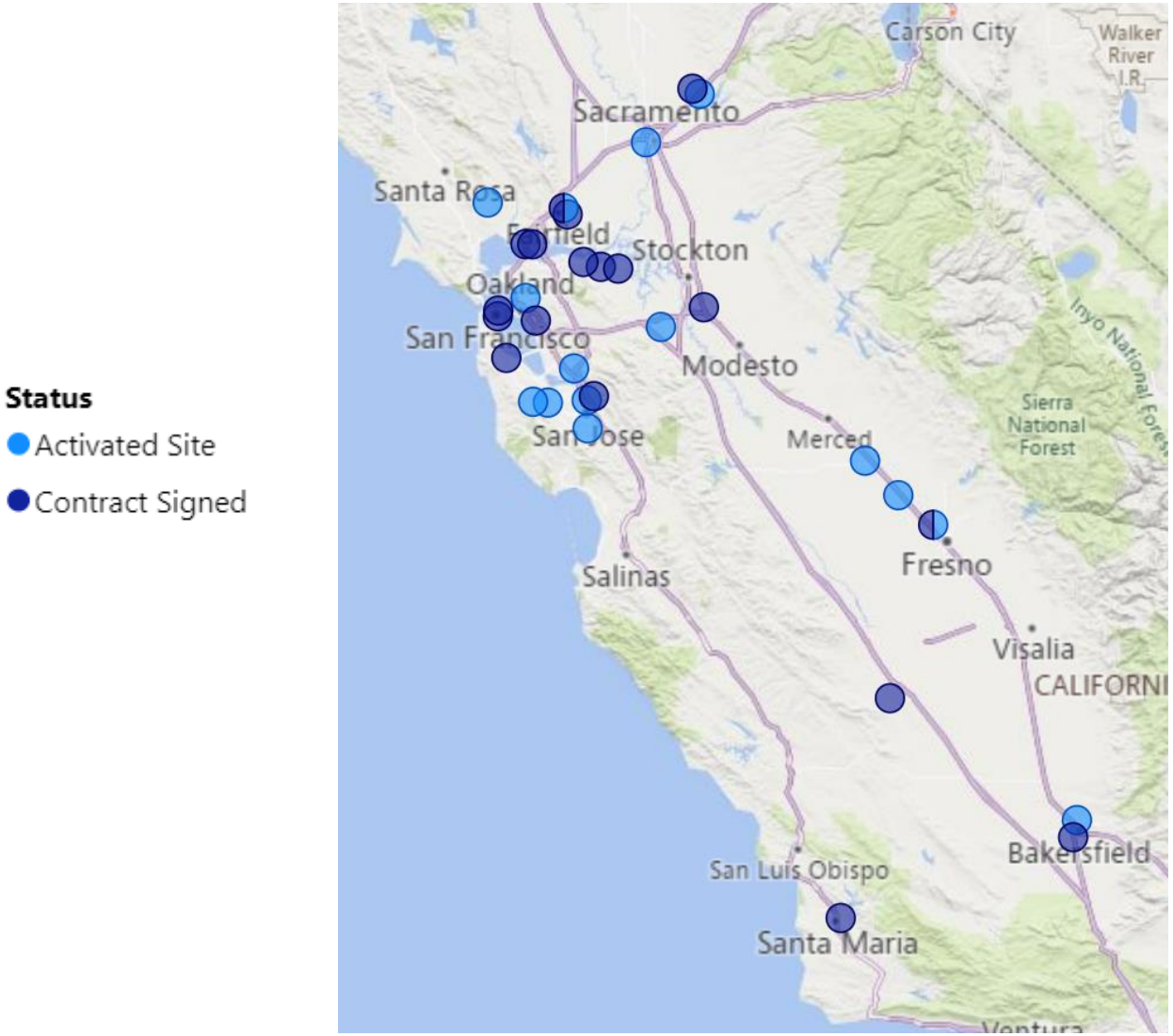
Portfolio-wide Utilization Trends



Source: SRP Evaluation Dashboard

Fast Charge Sites Contracted and Activated

Activated sites and sites contracted by zip code



AB1082 & AB1083 Standard Review Projects

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EV Charge Schools & Parks Update

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EV Charge Schools Program Update

Status as of 12/31/2023

	Sites	Ports*
Applications	71	426
Contracted Sites	13	78
Constructed	11	66
Activated	11	66

**Targeting 6 ports per site; Sites and port counts reflect cumulative totals*

Program Budget Overview

Spend-to-Date	Remaining Funds
$4.03M	$1.73M

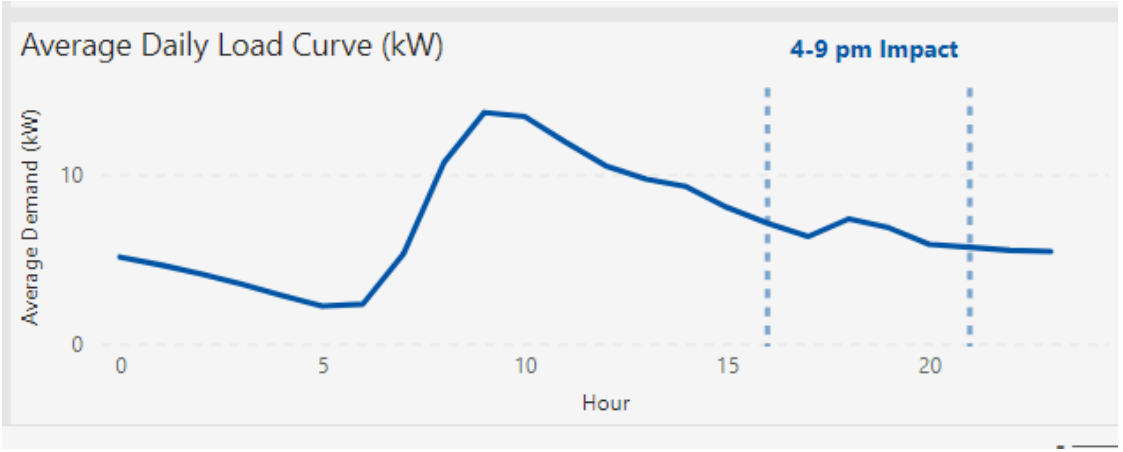
Lessons Learned/Best Practices

- **Program Interest**
  - As EV adoption grows, interest from schools grows.
- **Preliminary Utilization Trends**
  - Average load shape is partially aligned with grid needs.

Program Updates

- No longer actively recruiting new sites
- Currently evaluating 2 additional sites for contract – using existing pipeline and waitlisted sites.
- EV Curriculum available online to every K-12 school in PG&E territory
  www.energizeschools.org/evcurriculum.html
- Exploration of CBO relationships to promote EV adoption

Average Daily Load Curve

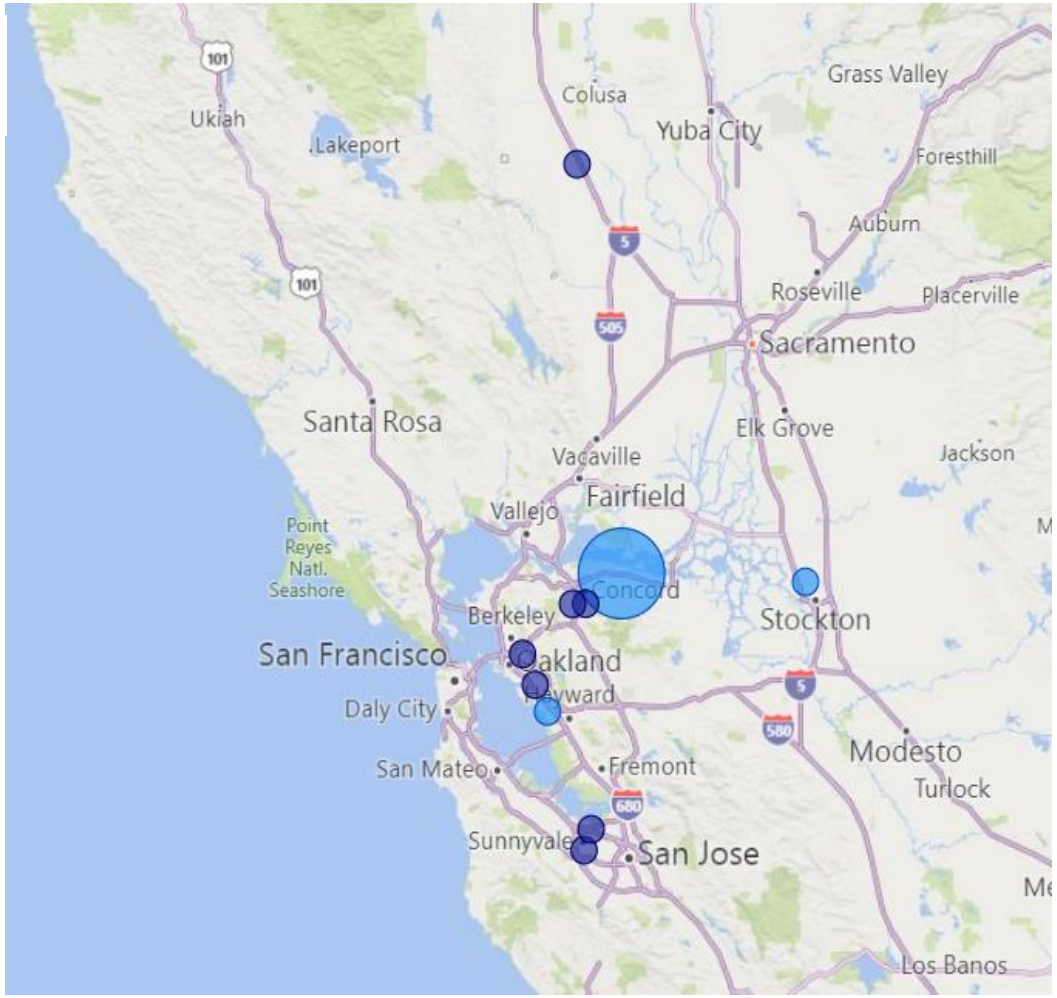


Source: SRP Evaluation Dashboard

EV Charge Schools Contract + Site Update

Sites with signed contracts*

DAC Status
- IN DAC
- OUTSIDE DAC



** 3 DAC sites within same zip code*

	In DAC	Outside DAC	Total
Contracts	6	7	**13**
Ports	36	42	**78**
DAC Percentage	46%	54%	**100%**

- Program totals expected at 15 sites and 90 ports.

EV Charge Parks Program Update

Status as of 1/29/2024

	Sites	Ports*
Applications	0	0
Contracted Sites	0	0
Pre-Construction	0	0
Constructed	0	0
Activated	0	0

Program Budget Overview

Spend-to-Date	Remaining Funds
$477K	$5.06M

Lessons Learned/ Best Practices

- Current progress dependent on engagement from the Parks Department
- Turnover at Parks Department has impacted review timelines
- DAC definition makes it inherently difficult to qualify Parks and Beaches (25%)

Program Update

- State Parks Legal Dept is engaging with PG&E Legal Department on negotiation of Master Services Agreement language
- PG&E team is researching EVSPs that qualify and would serve as "customer of record" for the program
- State Parks requested to replace dedicated State Parks fleet charging and off-grid charging with standard L2 and L2/DCFC visitor parking

Additional Program Updates

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VGI Pilots

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Vehicle-to-Home (V2H) Pre-Pilot Activities

Status as of 12/31/2023

PG&E will use electric vehicles as resources for backup power through V2H technology.

General Motors Field Demo

PG&E-led R&D effort to enable Vehicle-to-Home (V2H) technology using retrofit GM Bolt EVs (Model Year 2020) and bidirectional chargers made by dcbel.

- 2023 Q4 – Project terminated due to challenges with obtaining UL certification for the charger and ramping up production.

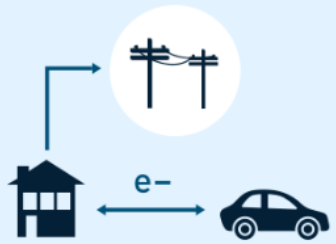
Ford Motor Company Field Demo

PG&E collaboration with Ford to enable first-to-market F-150 Lightning EV and bidirectional charging system, which consists of the Ford Charge Station Pro and the Sunrun Home Integration System.

- 2023 Q3 – 2 Field Demonstration Installations completed in July
- 2023 Q4 – Completed testing the V2H backup power functionality
- System monitoring will continue for 12 months

Vehicle to Everything (V2X) Pilot Programs

Pilot #1: Residential

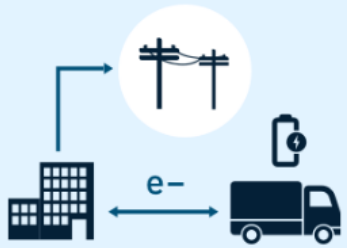


Incentives: Up to $3,000 upfront incentives, up to $2,175 participation incentives

Eligibility: Residential customer with split phase 240v electrical service

Enrollment target: 1,000 customers

Pilot #2: Commercial

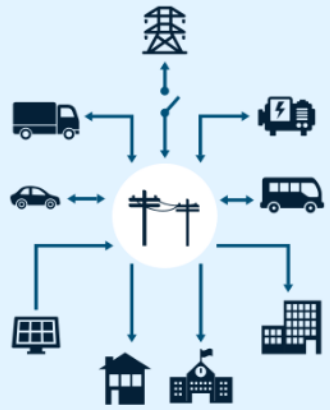


Incentives: Up to $5,000 upfront incentives, up to $3,625 participation incentives

Eligibility: Commercial customer with 3-phase electrical service

Enrollment target: 200 customers

Pilot #3: microgrids



Incentives: Up to $3,750 participation incentives

Eligibility: Residential and commercial customers connected to a multi-customer microgrid subject to Public Safety Power Shutoffs

Enrollment target: 200 customers (eligible customers will be identified and contacted after application to Pilot #1 or #2 is submitted)

V2X Pilot #1 and #2 Enrollment Update

Program details | Understand the technology | **Get started** | FAQs

- Download the application checklist (PDF) to find everything you need to enroll. At this time, customers don't need to include aggregator information in their application.
- Before you buy anything, use this key question guide (PDF) to discuss your facility's readiness for V2X with an electrician.
- Select a vehicle and its compatible charger from the eligible products list below.

  Note: New products continue to be added to the list. Please check back for updates.

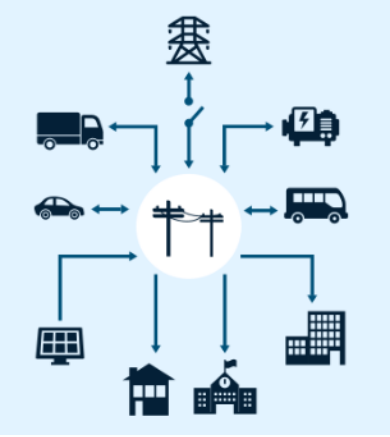
Pilot	Model	Model Name/Number	Eligibility	Percentage Subscribed
Residential	Ford F-150 Lightning 2022 or 2023	Ford 80 Amp Charge Station Pro paired with the Sunrun Home Integration System	Backup Power Only	0%

PG&E will continue to update the V2X Pilot webpage with the most up to date information about pilot eligibility and enrollment including new EV and EV charging equipment that becomes eligible.

V2X Pilot #3 Update

Status as of 12/31/2023

Pilot #3: Vehicle-2-Microgrid



Phase 1 – Testing Cohort / Redwood Coast Airport Microgrid

- Contract with Schatz Energy Research Center and Fermata – finalized
- Project delays due to FAA funds which are necessary to complete the RCAM supporting infrastructure. Funds expected March 2024.
- Interconnection application started
- New completion date estimated Q2 2024 (pending FAA funds)

Phase 2 – Incentive Cohort / Open Enrollment

- Phase 2 launch date updated to Q2 2024
- Request for Customer Eligibility expansion submitted to CPUC

EPIC Pilots Overview

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What is EPIC?

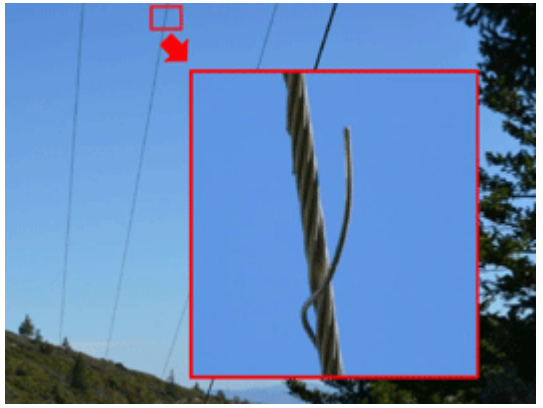
The Electric Program Investment Charge (EPIC) is a California statewide program that enables energy utilities and the California Energy Commission (CEC) to invest in & pursue new/novel emerging energy solutions to benefit electric ratepayers and support California's energy goals

Five guiding principles have been formally established to guide all EPIC work:

Increased Safety • Improved Affordability • Greater Reliability
Environmental Sustainability • Equity

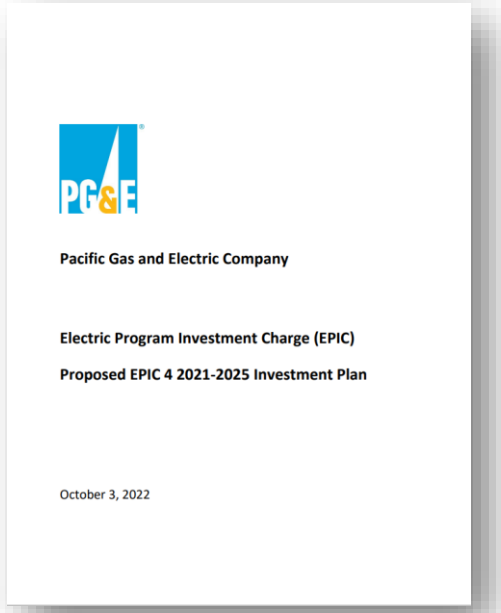
Redwood Coast Airport Microgrid (RCAM)

Vegetation Management Innovations



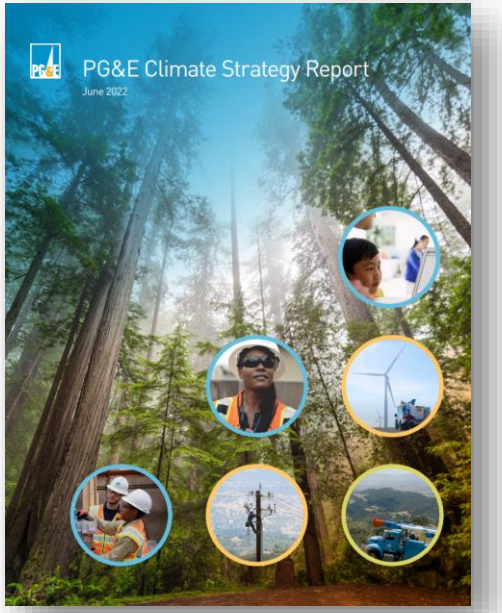
Line Degradation Sensors

EPIC 4 Areas of Focus



Link: PG&E's EPIC 4 Investment Plan

Link: Research & Development Strategy Report



Link: Climate Strategy Report

1. Create a More Nimble Grid to Maintain Reliability as California Transitions to 100% Clean Energy
2. Increase the Value Proposition of Distributed Energy Resources to Customers & the Grid
3. Inform California's Transition to an Equitable, Zero-Carbon Energy System that is Climate-Resilient and Meets Environmental Goals

CET EPIC Project Summary

CET received approval for 5 EPIC projects with the potential of $16M+ in funding over 3 years to accelerate technology development in key areas of customer EV adoption: Vehicle-Grid-Integration (VGI) and residential charging

Project Name	Project Description	Residential Focus Area	TNS Alignment	Budget
AC V2G VPP	Demonstrate AC V2G and the ability to coordinate EV load via VPP to balance customer and grid benefits	VGI	Deploy	$2M
Managed Charging	Enable affordable adoption of L2 SFH charging by mitigating distribution capacity limitations	VGI	Deploy	$1M
EV Propensity Model	Improve quality & granularity of EV propensity modeling	All BEV & PHEV	Build	$3M
MFH & Hard-to-Serve	Identify scalable solutions which address affordability & timeliness of MFH & hard-to-serve residential charging	MFH & SFH w/ no dedicated parking	Invest	$5M
Socket of the Future	Demonstrate next generation meter as cost-effective solution for residential charging by eliminating panel upgrade	All	Serve/Build	$5M

MSDI Lessons Learned

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Multifamily Housing and Small Business EV Charger Program

Program Overview

Audience: Multifamily Housing & Small Businesses

Model: Turnkey install

Incentive: No-cost direct install

Timeline: 2022-2024

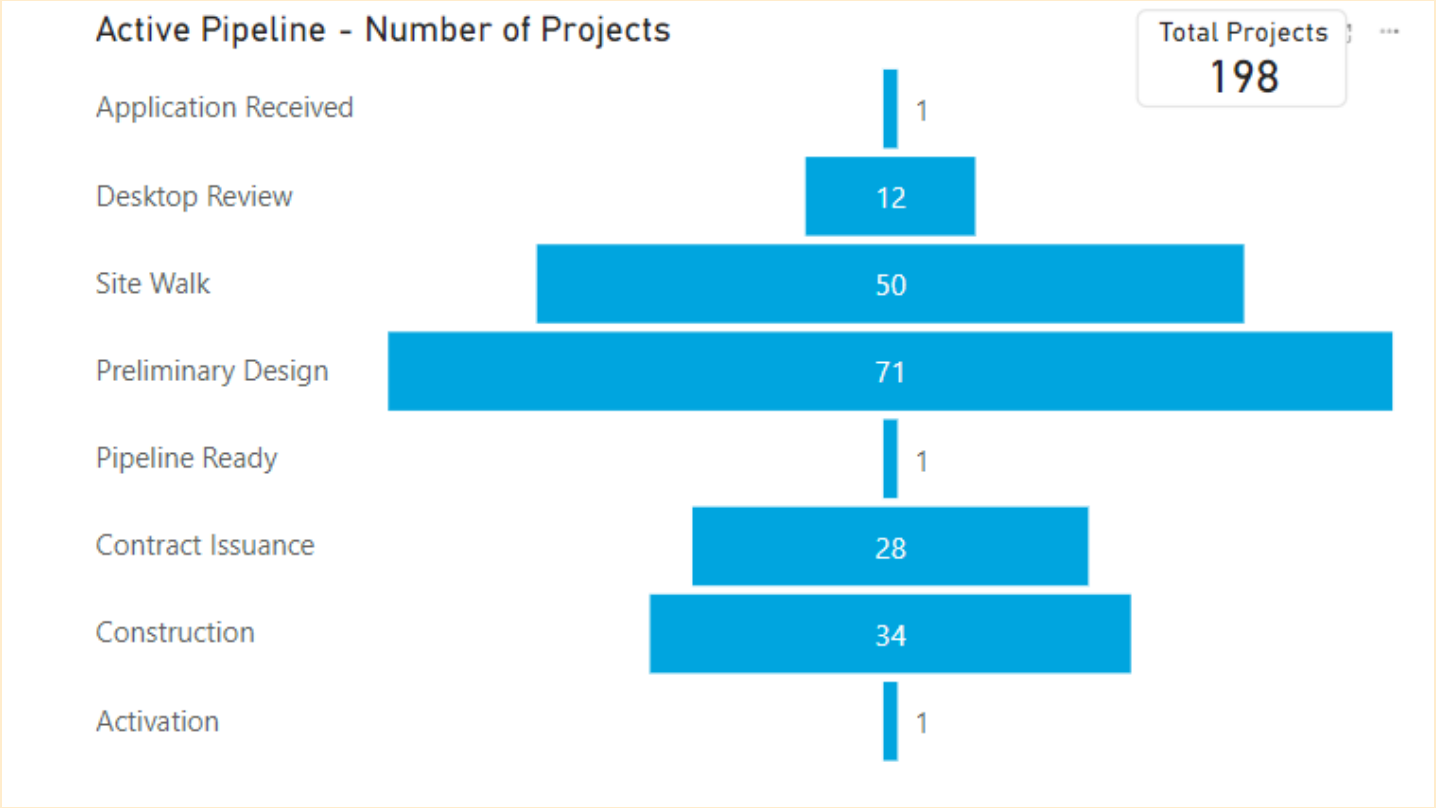
Status: Program Launched

Targeting to serve an estimated total of **450 sites** and install approximately **2,000 ports**

Eligibility

- Multifamily Housing or Small Business
- PG&E Electric Customer
- Excess panel capacity

Project Pipeline



Multifamily Housing and Small Business EV Charger Program

Lessons Learned

ISNetworld Certification Requirements

- Challenge: PG&E requires contractors to meet ISN requirements before they start construction
- Impact: initially, this caused program delays because
  - Smaller contractors had less experience registering with ISN and following ISN procedures
  - Even after registering, contractors are required to follow additional steps throughout the construction process which adds increased time and has led to additional scheduling delays
- Process Improvement: PG&E has partnered with its Program Implementer to schedule additional time with contractors to help them understand the process and identify gaps in their registration applications

Permitting / Authority Having Jurisdiction

- Challenge: projects encounter different permitting and AHJ processes
- Impact: this causes significant scheduling issues and delays to final inspections; individual project delays cause cascading impact to other project timelines
- Process Improvement: PG&E is compiling as many details as possible for each construction project. Information from the permitting process through the final inspection process will be communicated to construction contractors to ensure each step is followed to avoid future AHJ delays

Property Owner Decision Making Process

- Challenge: even after PG&E and its Program Implementer present program benefits, sites hosts still show hesitation when making a final decision; the reasons can be as simple as not wanting to give up a parking space for EV charging, unwillingness to commit to charger operations and maintenance, or figuring out charger placement
- Impact: site hosts take longer than anticipated to make preliminary design decisions
- Process Improvement: to minimize delays, the Program Implementer has updated its processes to provide site hosts with clearer deadlines and changing the way it conducts site host engagement efforts

Q & A

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