Program Advisory Council Meeting
Q3 2024

October 23, 2024

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Agenda

Introduction | Safety	1 minutes
Meeting Timeline | Market Update	2 minutes
EV Myth Debunking | Fun Fact!	2 minutes
EV Fleet Program Updates	5 minutes
EV Fast Charge Program Updates	5 minutes
EV Charge Schools Program Updates	5 minutes
EV Charge Parks Program Updates	5 minutes
Zum Update	15 minutes
VGI Pilots	15 minutes
Empower EV Update	20 minutes
Beta Testing Introduction	8 minutes
Survey Questions	1 minute

Safety

TIPS FOR SAFE FALL DRIVING

Every year thousands of people are injured and hundreds of people are killed due to daylight savings time changes and the change of seasons.

Autumn means we need to be more careful as drivers.

1 WEATHER

Sudden changes in temperature, rain, snow and fog all make for hazardous driving. Be aware of the weather - know before you go.

2 SUNRISE & SUNSET

Daylight Savings Time means the sun on the morning drive might be right in your eyes. The sun goes down early now, so it gets dark a lot sooner! HEADLIGHTS!

3 CHILDREN & ANIMALS

Children are back to school and animals are busy preparing for winter. Look out for them. Slow down, keep an eye out, and be nice.

4 LEAVES

Leaves on the ground can be slippery and dangerous. Careful when driving on leaf-covered roads, whether it's raining or not. Clear leaves off your car before driving, just like snow.

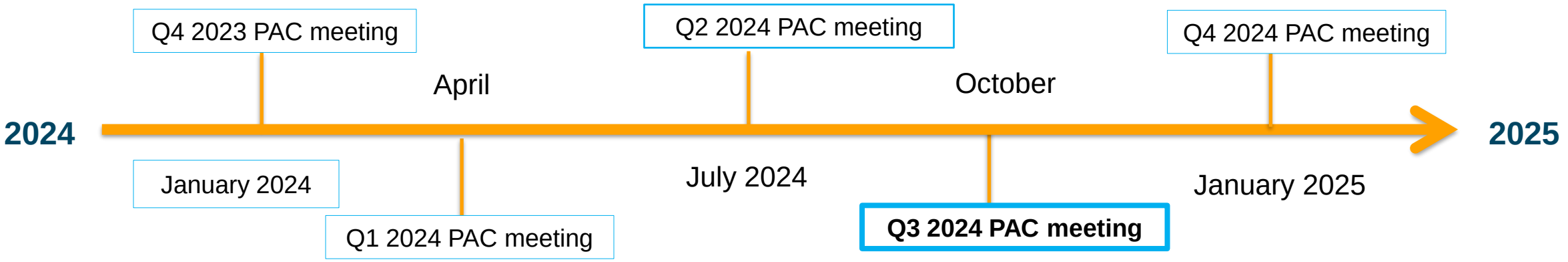
Stay safe

YOU ARE GOOD TO GO!

Clean Energy Transportation Program Advisory Council Meetings

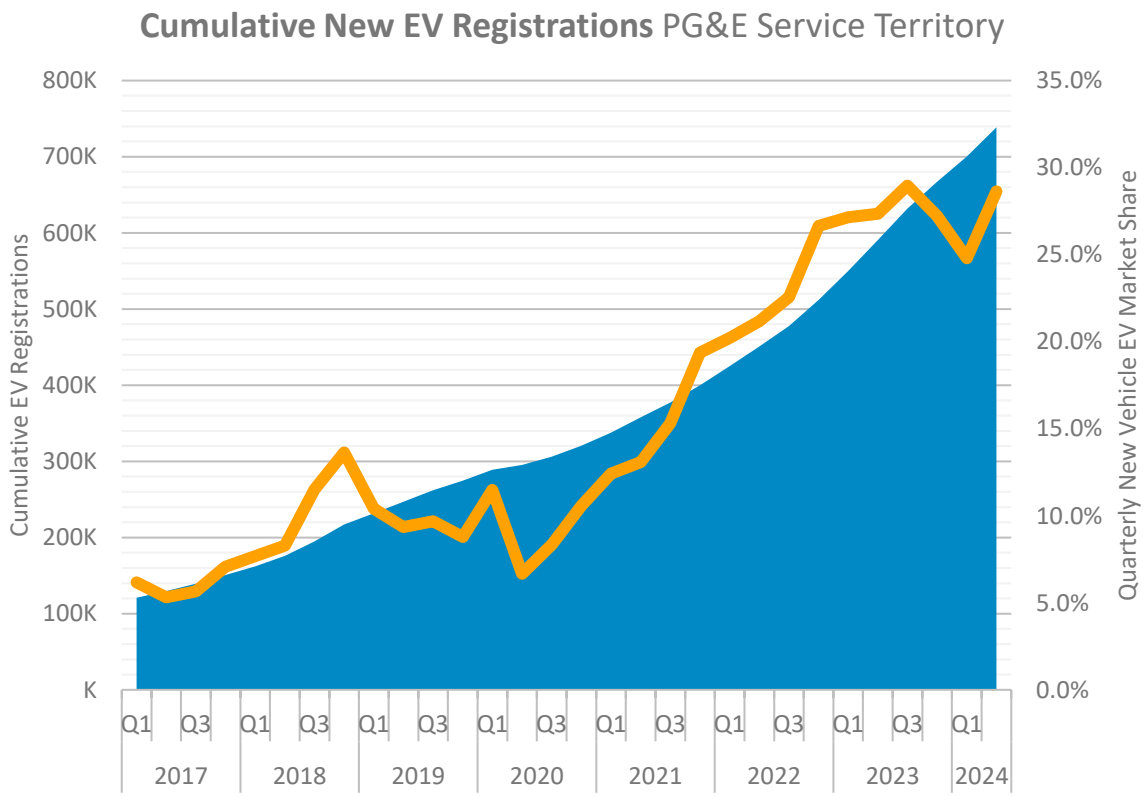
Overview

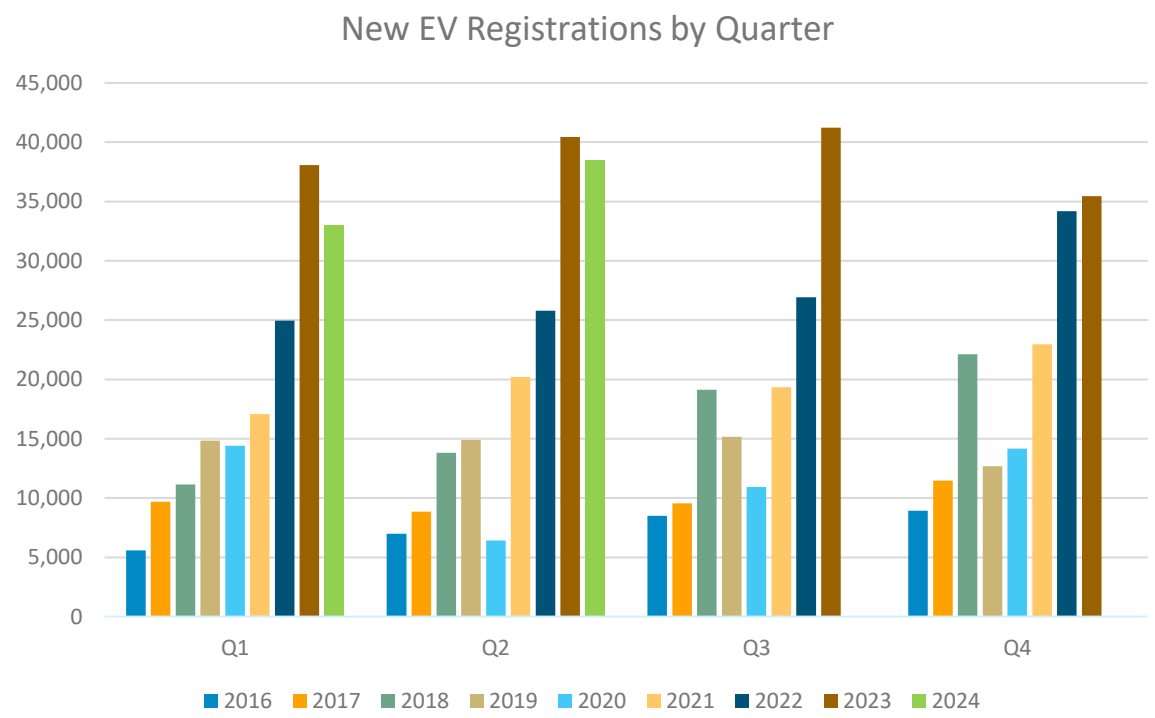
- PG&E has expanded our efforts on transportation electrification (TE) with several filings, pilots and programs in progress
- CPUC has directed PG&E to consult a Program Advisory Council (PAC) in the development of key TE pilots and programs to gain feedback from industry stakeholders
- This platform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



EV Market Update

752,389 EVs registered in PG&E service territory through July 2024



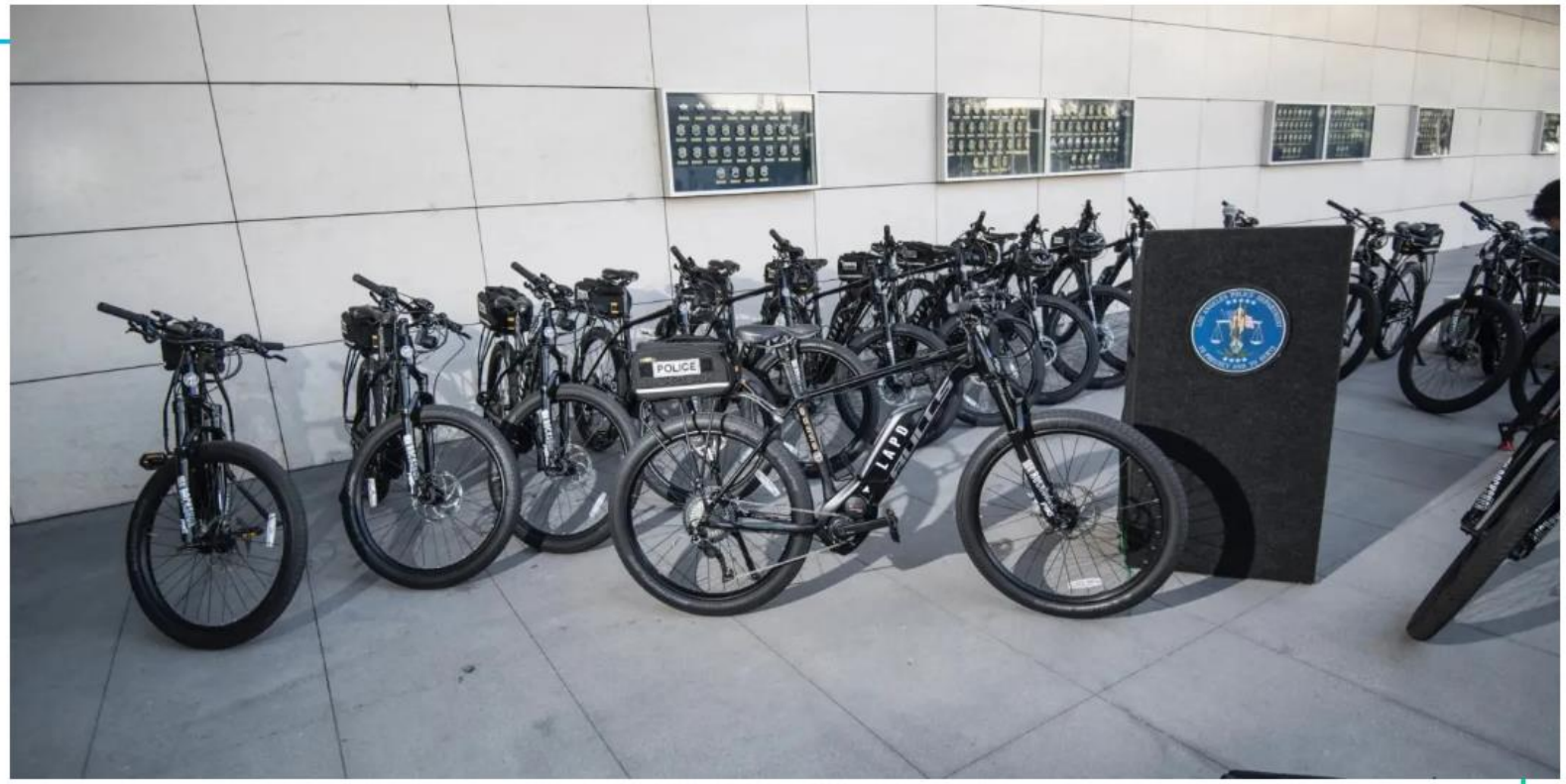


Source: EPRI, Based on external registration data through Jul. 2024

EV Fun Fact

More cops on electric bicycles are pulling cars over in traffic stops

Micah Toll | 11 hours ago | 7 Comments



Source: Electrek

SB 350 Standard Review Projects

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EV Fleet

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EV Fleet Program Update

Status as of 9/30/2024

	Sites	MDHD EVs Committed
Applications	601	-
Viable Contracts[1]	290	5,958
Construction Complete	100	1,914
Activated	81	1,592

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

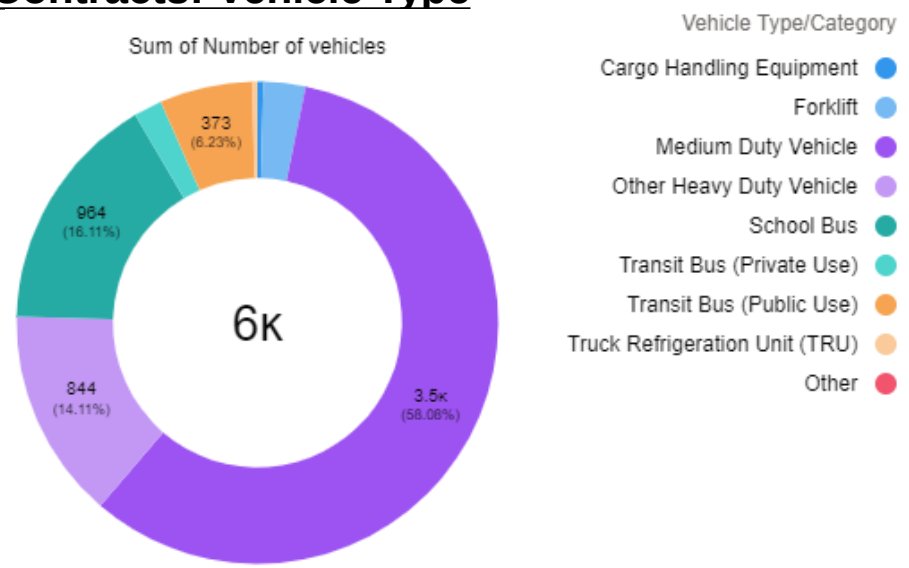
Program Budget Overview

Spend-to-Date	Remaining Funds
$63.9M	$172.4M

Lessons Learned/Best Practices

- Adjusted site and vehicle cost thresholds to maximize budget and support smaller fleets, which typically have a higher cost per vehicle.
- Early indication from three customers that will not meet vehicle commitment. However, program is on track to exceed vehicle target.
- Customers are requesting to expand EV Fleet projects, working with Service Planning on supporting this expansion.

Viable Contracts: Vehicle Type

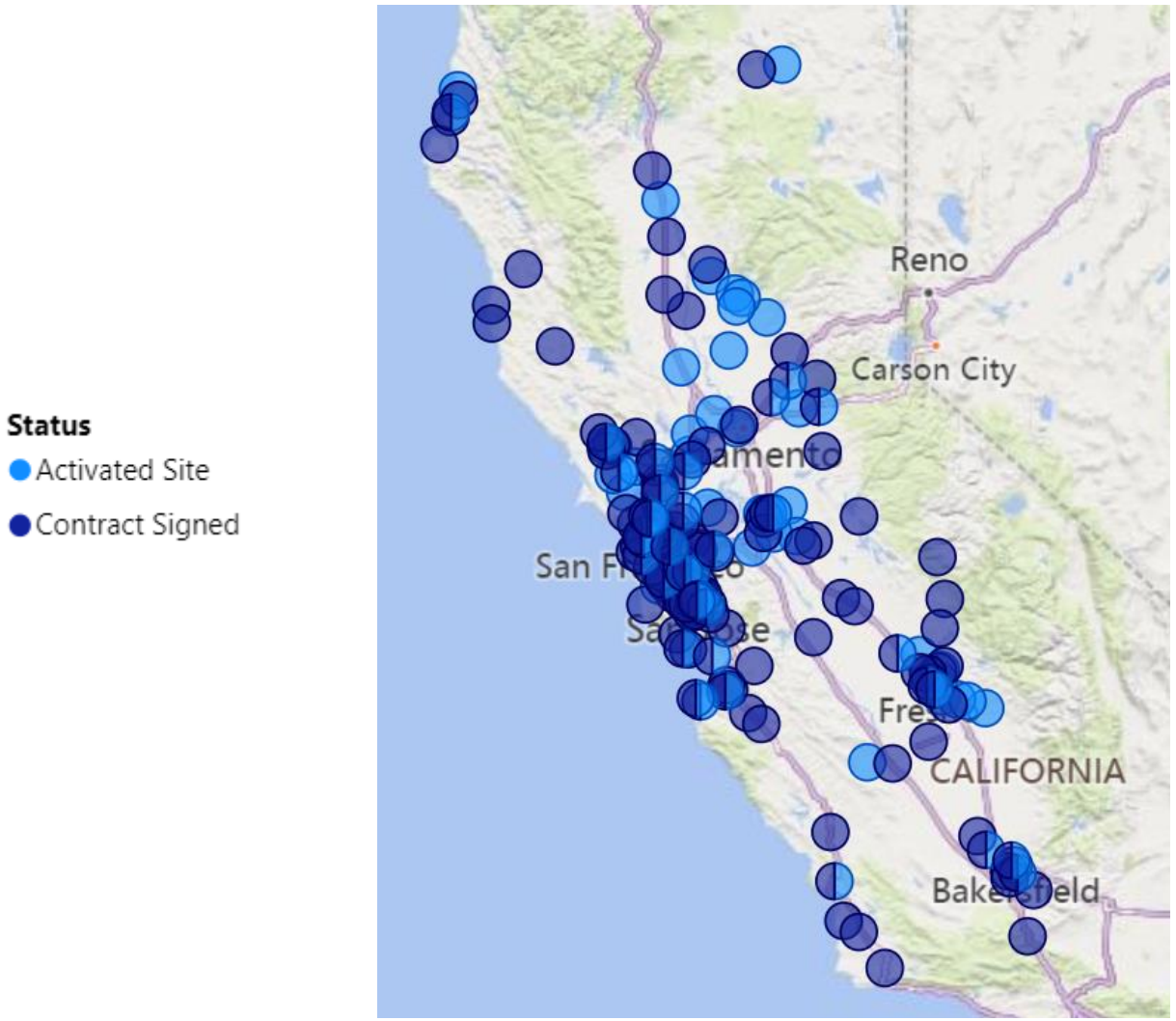


Program Highlights

- Tier 3 Advice Letter filed with CPUC to modify site goal – Resolution E-5347 approved minimum site goal of 375 sites
- Program has reached 92% of its vehicle target (6,500 vehicles), on track to meet updated site goal of 375 sites
- 130 of the 290 signed contracts **(45%) are in DACs**
- Program is seeing a **diverse mix of vehicle types**; medium duty vehicles are dominant due to various applications, availability, operational compatibility; school buses, heavy duty vehicles, and transit buses are also successfully enrolling in the program

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 9/30/2024

	Sites	Ports
Applications	272	1,225
Contracted Sites	39	209
Constructed	30	154
Activated	24	116

Contracted site counts exclude cancelled projects

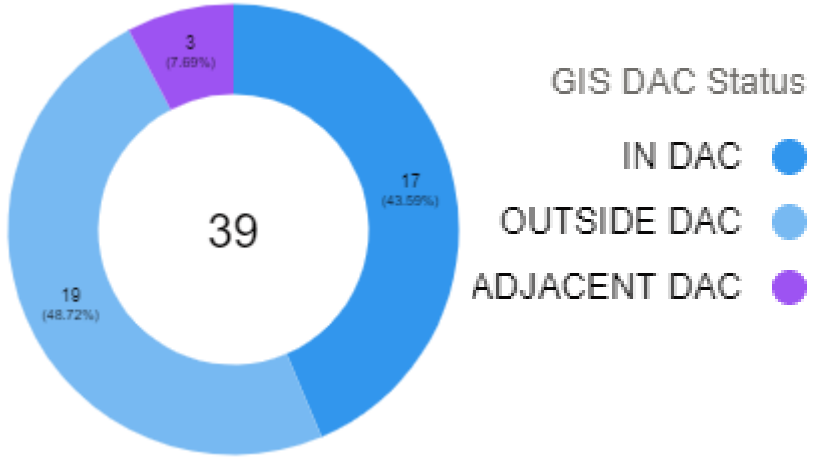
Program Budget Overview

Spend-to-Date	Remaining Funds
$18.1M	$4.3M

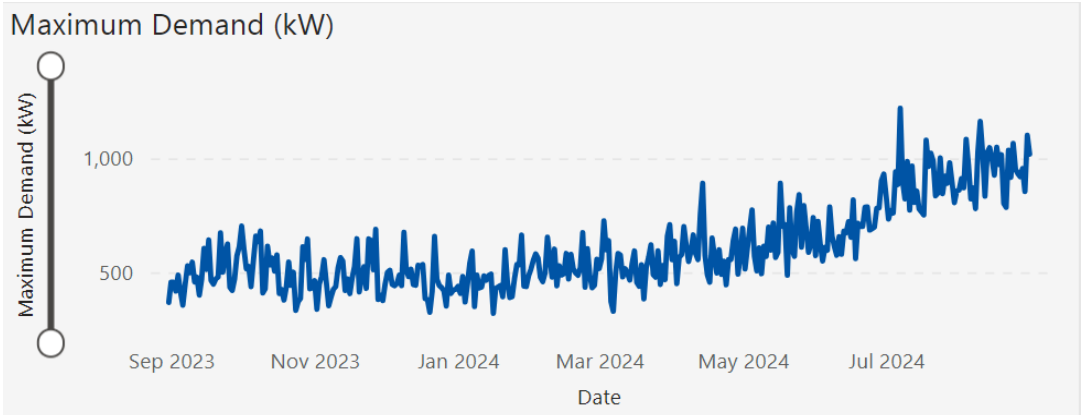
Lessons Learned:

- Instability in the EVSE/EVSP industry has impacted the Fast Charge program.

DAC Targets: Signed Contracts



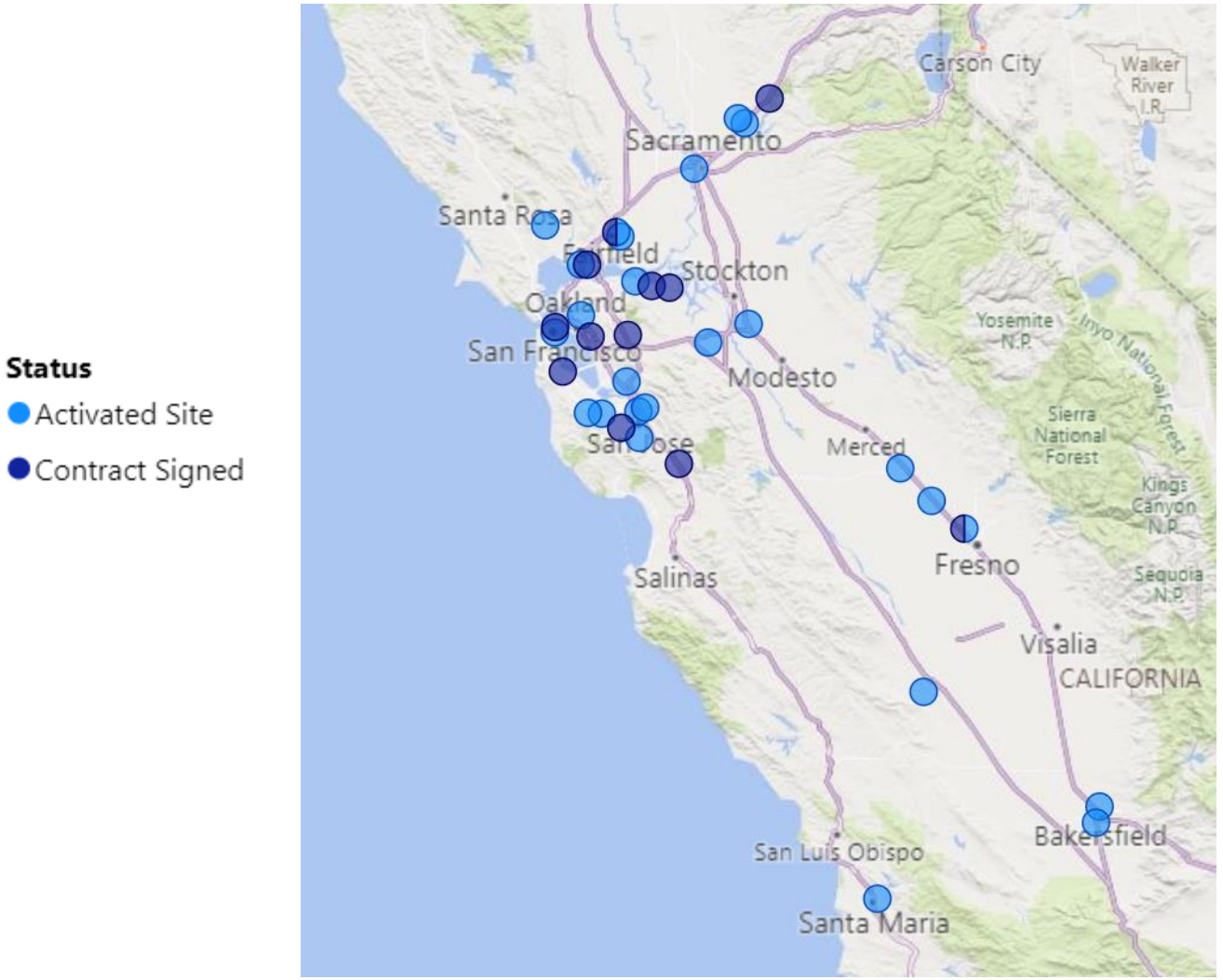
Portfolio-wide Utilization Trends



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 9/30/2024

	Sites	Ports*
Applications	78	468
Contracted Sites	15	90
Constructed	11	66
Activated	11	66

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

Program Updates

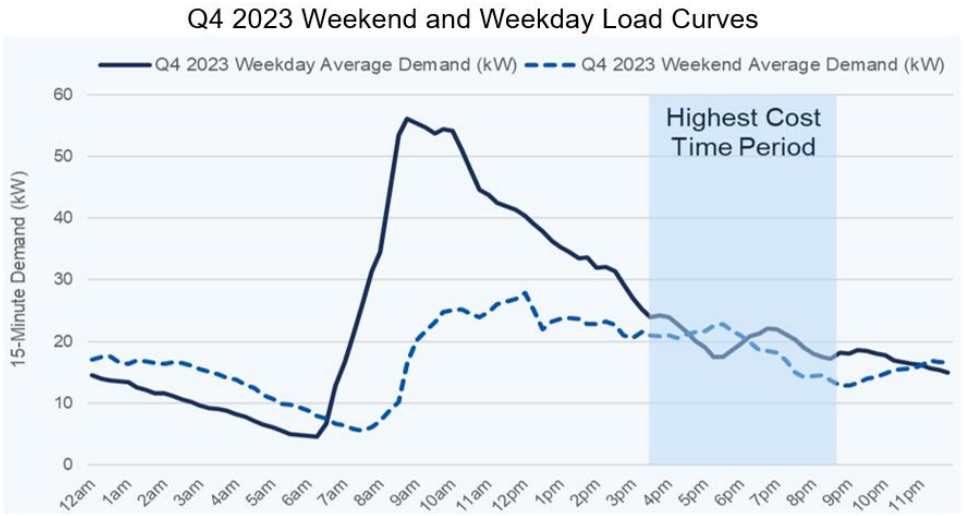
- No longer recruiting new sites
- Final site anticipated complete in Q3 2025
- EV Curriculum available online to every K-12 school in PG&E territory

https://www.energizeschools.org/evcurriculumportal.html

Program Budget Overview

Spend-to-Date	Remaining Funds
$4.48M	$1.28M

Average Daily Load Curves



Source: SRP Evaluation 2024 Evaluation Report

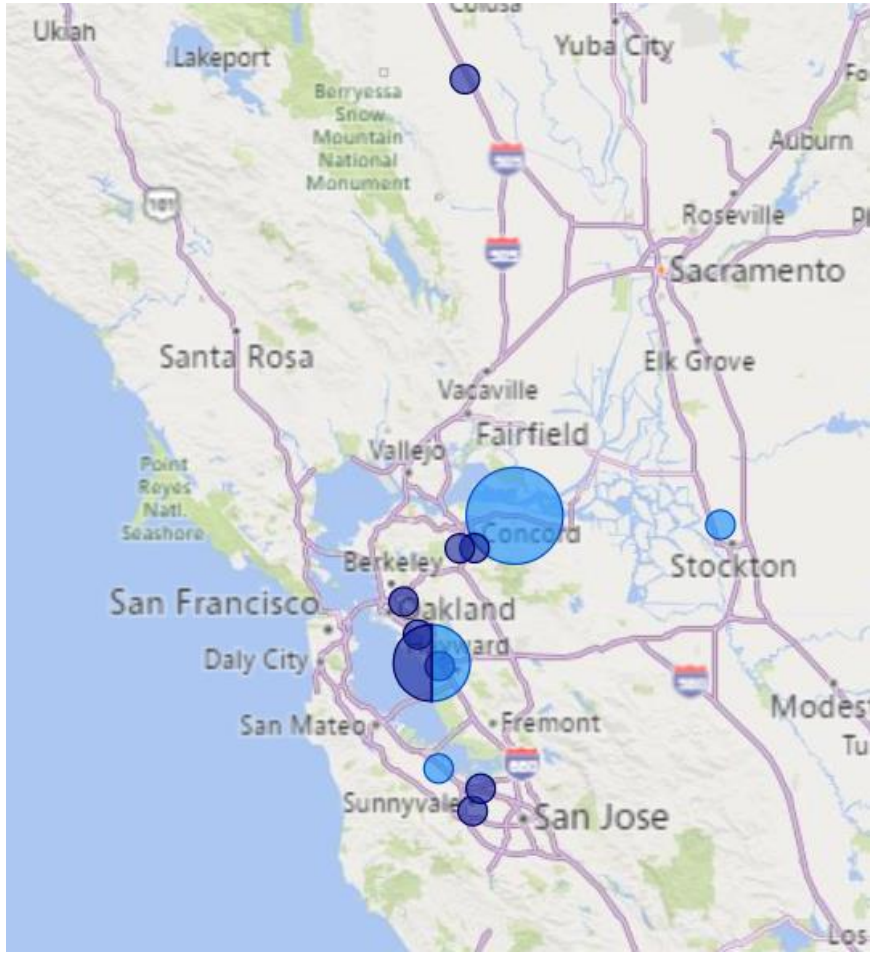
Lessons Learned/Best Practices

- Timing of construction with summer break is very important to most schools, hence program completion in Q3 2025.
- Preliminary trends indicate different schools have very different levels of utilization, despite all having the same number and types of chargers installed.

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	9	**15**
Ports	36	54	**90**
DAC Percentage	40%	60%	**100%**

EV Charge Parks Program Update

Status as of 9/30/2024

	Sites	Ports
"Applications"	130	N/A
Contracted Sites	0	0
Constructed	0	0
Activated	0	0

Program Budget Overview

Spend-to-Date	Remaining Funds
$547K	$4.9M

Lessons Learned / Best Practices

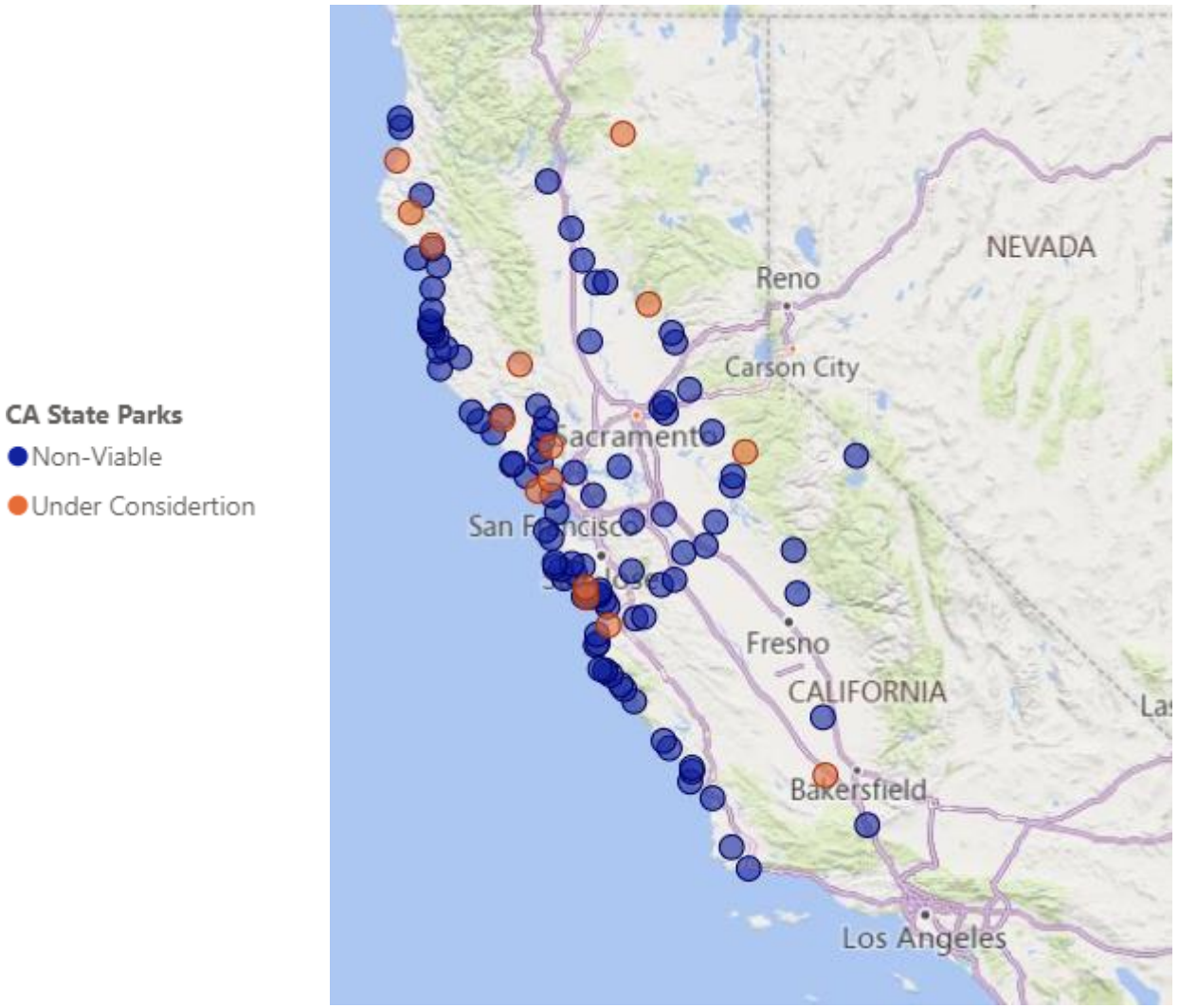
- Approach to charger quantities is to “right size” based on available power, visitor dwell times, and parking lot size.
- DAC target continues to be a challenge due to low percentage of state parks located in DACs and barriers to construction at specific parks.

Program Update

- PG&E in process of selecting EVSP for parks that would provide networking services and serve as "customer of record" for all Parks sites.
- PG&E evaluated all 130 parks in PG&E service territory and narrowed down to 19 potentially viable sites to look at in depth.
- Selection on track scheduled to be complete by end of November.

EV Charge Parks Sites Evaluated

State Parks in PG&E Service Territory



Additional Program Updates

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Empower EV Updates

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Empower EV Program

Program Overview

- **Audience:** Income-eligible residential customers in single-family households
- **Incentive**: $500 no-cost level 2 charger, $2,000 for service upgrades
- **Timeline:** 2023 - 2024
- **Status:** Program Launched

$4.13 M Program budget

2,000 Estimated customers served with chargers

800 Estimated customers served with service panel upgrades

Eligibility

- Residential Customers
- Current or potential EV owners
- 400% or below Federal Poverty Level (FPL)
- Home-owners or renters

Administrative Details

- Program Launch: June 29, 2023
- **Program Application Closing: December 31, 2024**
- Program to work through remaining applications until: March 31, 2025
- Third-Party Implementer: GRID Alternatives
- Program Website: **pge.com/empower-ev**
- Phone: 855-283-4638
- Email: evs@gridalternatives.org

Empower EV Program Update

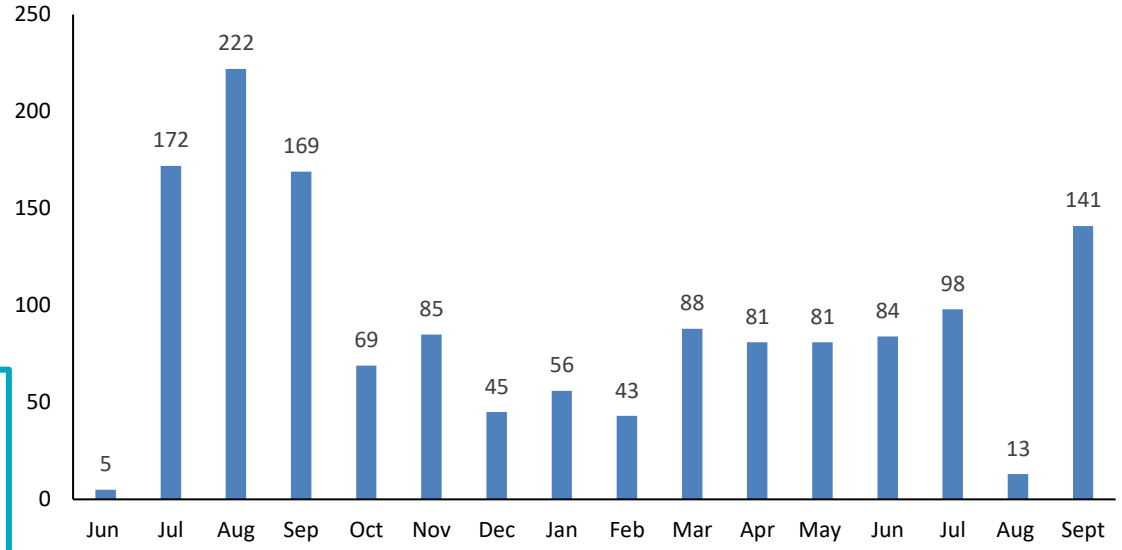
Status as of 9/30/2024

	Total
Applications Submitted	4,449
Applications Approved	1,721
L2 Rebates Redeemed	1,452
Panel Upgrades	5

Enel X Update:

- Empower EV informed of Enel X pausing e-mobility operations in Aug
- Program identified new EVSE provider, Emporia, after Enel X announced shutting down, ensuring customers receive charging stations and PG&E obtains charger data
- Enel X continues to offer software services to customers through 3rd party while company identifies long-term solution
- Program still attempting to contact 3rd party liquidator to confirm PG&E will continue to receive data on Juicebox chargers for final evaluation report

Charger Rebates:



Zum Update

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Zum Status Update – EV Fleet Program

Project overview:

- Fleet size: 74 school buses
- EVSE: 74 bi-directional chargers
- Timeline: application received March 2022, project is fully operational as of August 13, 2024

- Zum stacked several grants to support the project
  - Over **$14M (50% of project cost)** funded from state and federal grants and utility incentives

- PG&E's **EV Fleet** program supported the project by:
  - Funding and constructing to-the-meter (TTM – from distribution grid to meter) infrastructure
  - Behind-the-meter (BTM – from meter to charger) infrastructure incentives
  - EVSE rebates

EV Fleet Incentives and Rebates	
BTM infrastructure incentives – school bus	$4,000 per vehicle, up to 25 vehicles
EVSE rebates – up to 50 kW	50% cost of charger, up to $15,000
EVSE rebates – 50.1-149.9 kW	50% cost of charger, up to $25,000

Photo provided courtesy of Zum, all rights reserved

Zum Status Update – Commercial V2X Pilot

PG&E's **Commercial V2X Pilot** has supported and will support the project with:

- V2X hardware rebates
- Interconnection rebate
- Outage backup event

Zum will also be compensated for their participation in ELRP events and receive compensation for their performance on the Hourly Flex Pricing (HFP) rate.

- 74 Bi-directional Tellus Chargers Installed
  - 64 rated at 30 kWh
  - 10 rated at 60 kWh
- 74 BYD-RIDE Type A School Buses
- Max Charging Rate of 2.1 MW
- Max Discharge Rate of 2.5 MW
- Participated in 2024 Emergency Load Response Program
- Compensation via HFP, beginning November 1

Media Coverage

WIRED SECURITY POLITICS GEAR THE BIG STORY BUSINESS SCIENCE CULTURE IDEAS MERCH

MATT SIMON SCIENCE MAY 15, 2024 10:00 AM

These Electric School Buses Are on Their Way to Save the Grid

Loaded with ever more renewables, the grid will need to store a whole lot of energy. Enter: a new kind of magic school bus—one power back.

COURTESY OF ZUM

ENVIRONMENT

Oakland Unified debuts all-electric fleet of school buses; 1st in the nation

CBS NEWS BAY AREA

By Molly McCree, Juliette Goodrich
Updated on: August 8, 2024 / 7:24 PM PDT / CBS San Francisco

CANARY MEDIA
Clean energy journalism for a cooler tomorrow

Heat pumps Electric vehicles Batteries Hydrogen Electrification Guides and how-tos W

The country's biggest electric school-bus fleet will also feed the grid

San Francisco-based startup Zum wants to turn electric school-bus fleets into grid batteries. This 74-bus depot in Oakland is testing the idea at large scale.

By Jeff St. John
3 September 2024

Electric school buses and bidirectional chargers at the depot operated by startup Zum for the Oakland Unified Scho District (Jeff St. John)

CLEAN ENERGY ELECTRIC VEHICLES TESLA NEWS EXCLUSIVES SERIES PAGES ABO

Photo provided by Zum

Electric School Buses In Oakland With Bidirectional Chargers Will Both Save & Make Money

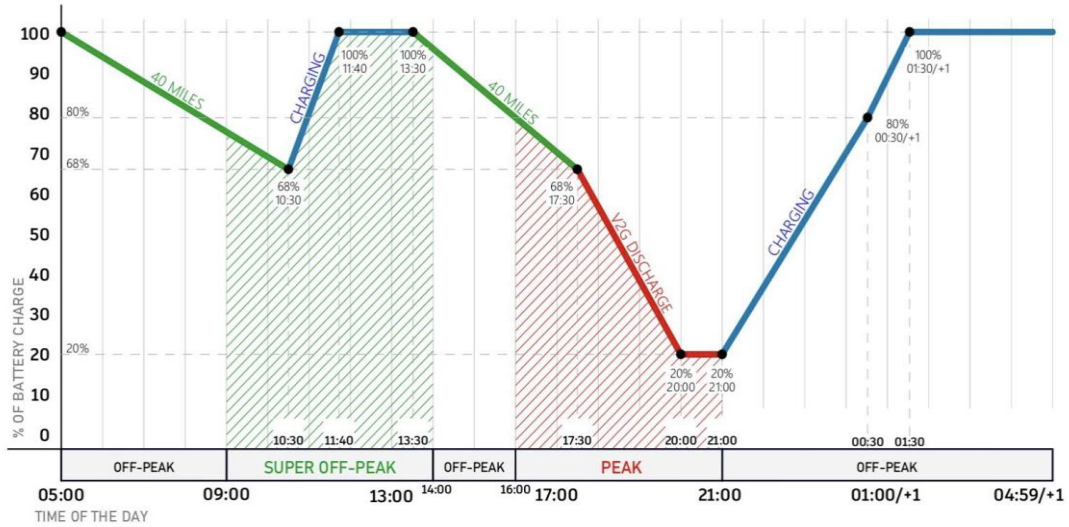
2 months ago Carolyn Fortuna 8 Comments

Charge/Discharge Cycles

Zūm
REIMAGINING STUDENT TRANSPORTATION

DISTANCE RUN OF THE VEHICLE
CHARGING OF THE VEHICLE
V2G DISCHARGE OF THE VEHICLE

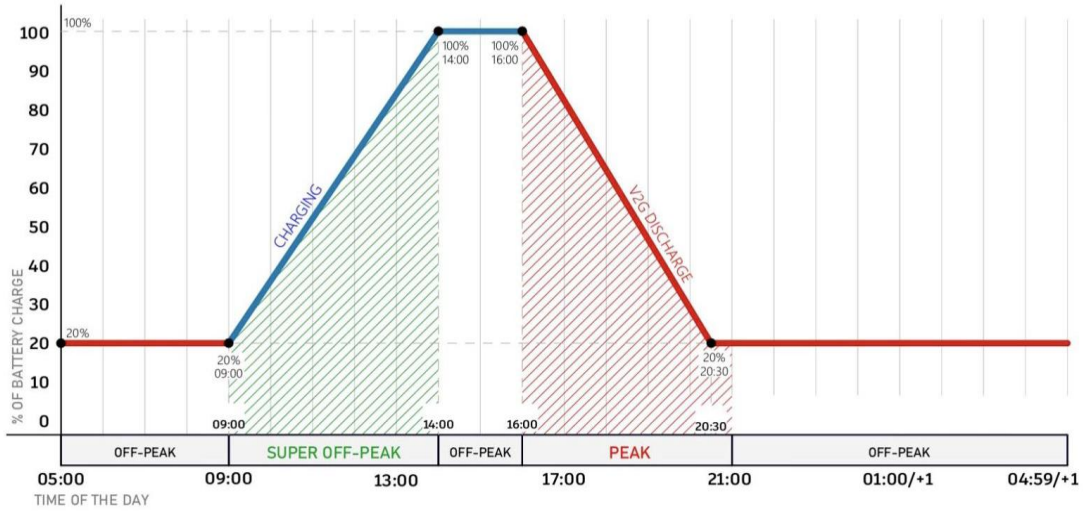
WORKING DAY DUTY CYCLE (Charging / Discharging)



Zūm
REIMAGINING STUDENT TRANSPORTATION

CHARGING OF THE VEHICLE
V2G DISCHARGE OF THE VEHICLE

NON-WORKING DAY DUTY CYCLE (Charging / Discharging)



Images provided Courtesy of Zum, all rights reserved

Export to the Grid

19 MWh exported during first week of deployment under Emergency Load Response (ELRP) Program

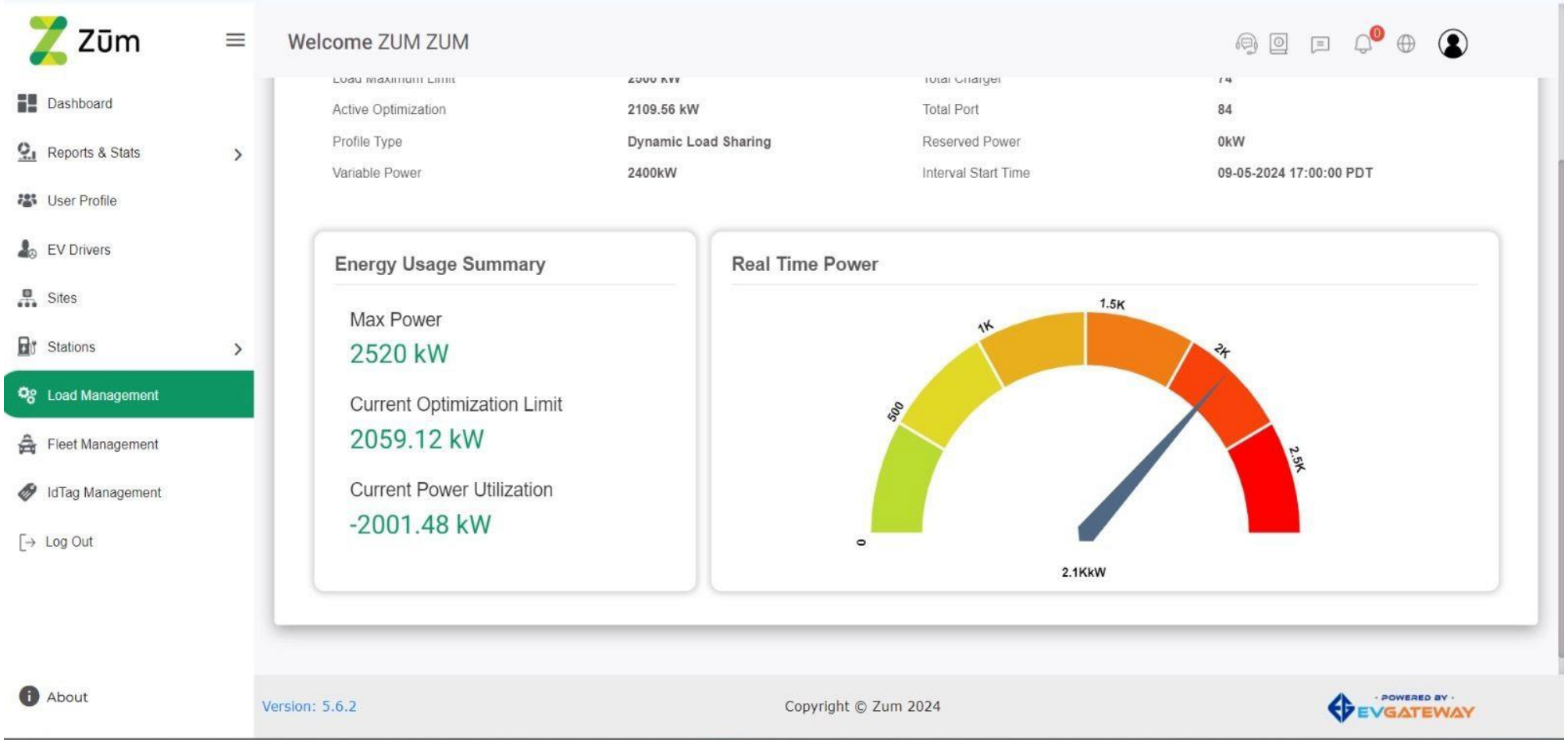


Image provided Courtesy of Zum, all rights reserved

Lessons Learned

- Regular contact at multiple levels made us partners rather than a more typical customer/provider relationship
- Getting involvement early is key when distribution system and site capacity are involved, ideally get utility involved BEFORE locating site
- Design approval and permitting takes time – front-load the effort
- Procurement of equipment can take a long time (e.g. switchgear, EVSE)
- Utility may need to upgrade infrastructure, determine capacity constraints and provide support from various programs
- Seek to complete efforts in parallel to shorten implementation timeline
- Grant writing skills are critical, maximizing incentives is key
- Take a whole-system approach, this isn't just a replacement of diesel buses
- Optimize with route-optimization, charging/discharging optimization, and telematics

VGI Pilots

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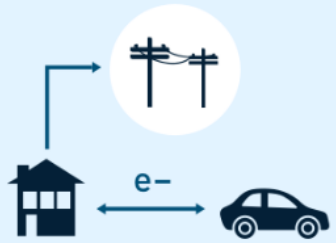
Vehicle to Everything (V2X) Pilot Programs

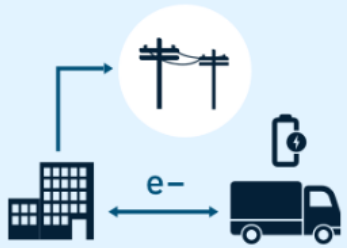
Pilot #1: Residential



Enrollment: We have 2 customers fully enrolled!

Eligible Equipment: Ford F-150 Lightning paired with the Ford 80 Amp Charge Station Pro and Sunrun Home Integration System

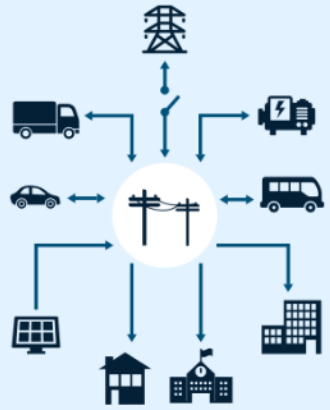
Pilot #2: Commercial



Enrollment: One customer (Zum) with 74 chargers is enrolled and able to export.

Eligible Equipment: Tellus Power bidirectional chargers paired with BYD-RIDE School Buses

Pilot #3: microgrids



Phase 1 - Testing Cohort / Redwood Coast Airport Microgrid:

- Parking lot construction started
- New completion date estimated Q1 2025

Phase 2 – Incentive Cohort

- Open enrollment Q4 2024
- Customer eligibility expansion approved

EV Fleet Advisory Services
Beta Launch

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EV Fleet Advisory Services Program Overview

The EV Fleet Advisory Services program is designed to help medium-and heavy-duty (MHD) fleets accelerate vehicle electrification by providing dedicated support, information, and services. Focus on Schools, Transit Agencies, Small Businesses, and Local Government fleets located in AB 841 Priority Communities.

	Fleet Electrification Planning	Pre-Energization Support*	Post-Energization Support
Our Advisors	Help customers get started and plan for fleet electrification	Help customers select sites and identify solutions to bring power	Support ongoing operations and maintenance and optimizing the benefits of having EVs in your fleets
Example services include:	• Creating a customized fleet plan; • Right-sizing the project • Selecting vehicles and chargers • Calculating total costs of ownership • Behind-the-meter (from meter to parking spot) engineering	• Capacity checks • Guiding (multi-) site selection • Identifying bridge solutions if capacity is constrained *Open to MDH fleets outside of Priority Communities	• Guidance on rates, load management, resilience, and charging operation and maintenance. • Planning for additional EVs

Program Milestones and Beta Launch

Program Milestones

- Customer intake application has been created
- Core Advisor team has been hired
- Beta launch period will take place through Q4 and feedback will be incorporated ahead of broader launch in Q1 2025

Beta Launch

Guided by the principles of design thinking and customer-centric service, the program beta launch will focus on two main objectives:

1. Set up foundational systems and processes
2. Implement and test customer services and products for future iteration

Interested in participating in our Beta launch or have questions? Please email EVFleetAdvisoryServices@pge.com

Survey Questions

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PG&E