



PG&E Supports Expanding Electric Transportation in California

PG&E's goal is to maintain and expand its electric transportation programs and offerings to support electrifying California's roads and support electric vehicle (EV) adoption for all customers

Access to Charging Infrastructure

Develop a charging infrastructure network that makes EV usage viable for all Californians

Total Cost of Ownership

Help make EVs more affordable and accessible for our customers compared to the gasoline-fueled alternative

Education and Buying Experience

Educate Californians on the benefits and cost savings of EVs as compared to conventional vehicles

Innovation, R&D & Vehicle-Grid-Integration

Test and implement innovative technologies that help make EVs more affordable and accessible for our customers

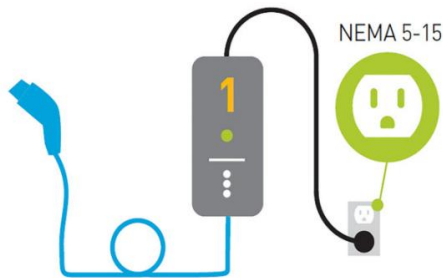


Overview of Charger Types

There are three types of charging stations for electric vehicles (EVs): Level 1, Level 2 and Direct Current (DC).

Level 1 charging station “L1”

Level 1: 110V



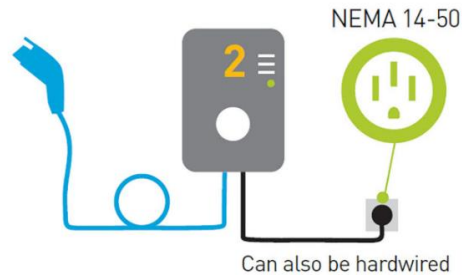
Miles/charge time: 5 miles per hour of charge

Voltage: 110V

Level 2 charging station “L2”

Level 2: 240V

May require service upgrade



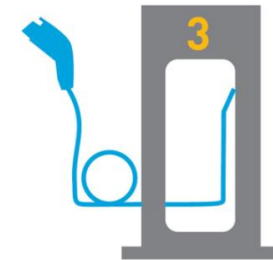
Miles/charge time: 13 to 25 miles per hour of charge

Voltage: 240V

DC fast-charging station “DCFC”

Level 3: 480V

DC Fast Charging/Commercial



Miles/charge time: 10 to 30 minutes for a full charge

Voltage: 480V-500V

Most electric vehicles work with all charger types.

Visit ev.pge.com for more information on charging

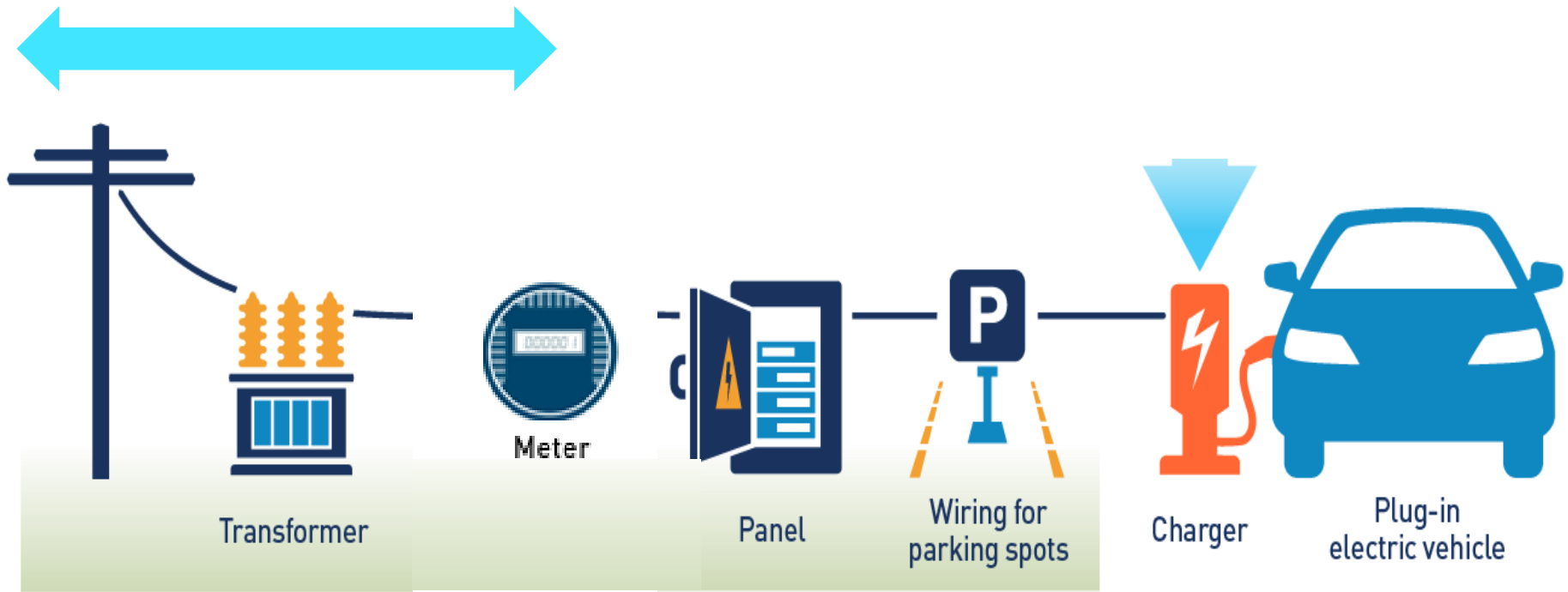
Preparing the Grid of the Future



PG&E ensures grid capacity and reliability to support electrification in the following ways:

- Forecasting system and localized load impacts of electrification
- Actively engaging in asset and service planning analysis to understand performance and identify the need for potential grid enhancements
- TE load forecasts are re-evaluated each year to incorporate recent policy, technology, and market data. These load forecasts inform rate setting, resource adequacy and integration, and procurement.

PG&E installs To the Meter (TTM) infrastructure for EV chargers through its traditional Service Planning work



PG&E provides financial and/or construction assistance for Behind the Meter (BTM) infrastructure through most of its EV Infrastructure Programs

PG&E service planning and design: EV customer roadmap

CUSTOMER ELIGIBILITY

Did you know that PG&E has different EV Programs?

- EV Charging for Medium and Heavy Duty Fleets
- EV Fast Charge Program

Am I an EV site developer?

Am I developing sites across multiple locations?

APPLICATION READINESS

Do I have a specific location identified?

Do I have the information and documents required?
(PG&E Commercial EV Site Requirements List)

ADDITIONAL RESOURCES

Construction Best Practices

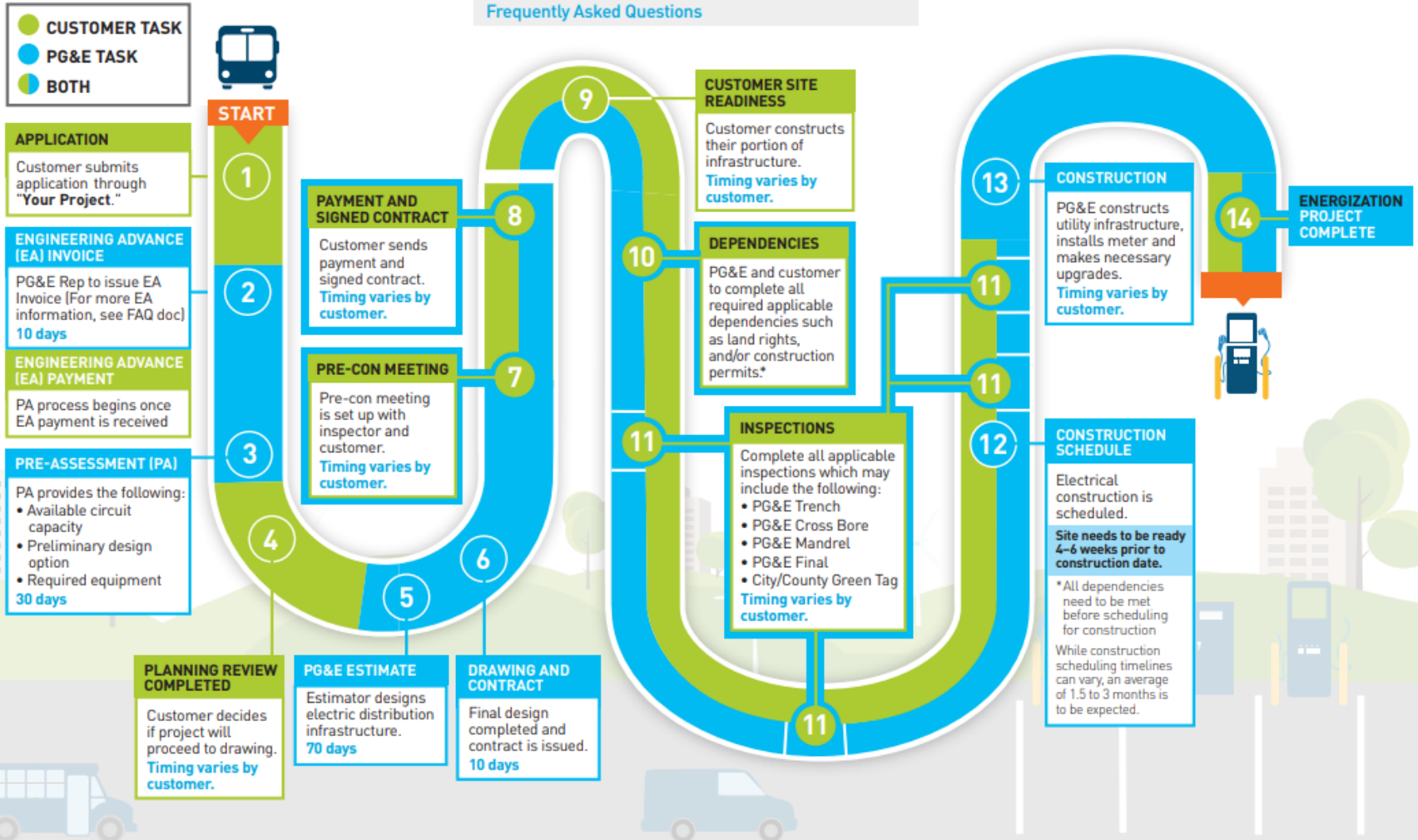
Frequently Asked Questions

KEYS TO SUCCESS

Understand applicable PG&E Standards and Process
(PG&E Greenbook)

Open communication with jurisdictional authorities

Project support from site host or landlord





- \$236M from 2019-2024
- Make-ready infrastructure for non-light-duty EVs (delivery trucks, transit buses, etc.) Customer can elect to own make-ready and receive reimbursement of up to 80% of construction cost



- \$22M from 2020-2025
- Utility-owned make-ready infrastructure for fast charging sites
- Customer owns charger which can range from 50-350 kW

PG&E has ~\$400M in approved EV infrastructure investments supporting California's transition to a carbon neutral future. All programs include additional incentives for and deployment targets in disadvantaged communities.





Approved PG&E EV Infrastructure Programs



- Infrastructure installation program to increase access to EV charging at state parks and beaches and school facilities and educational institutions.
- \$11.3M from 2021-2023

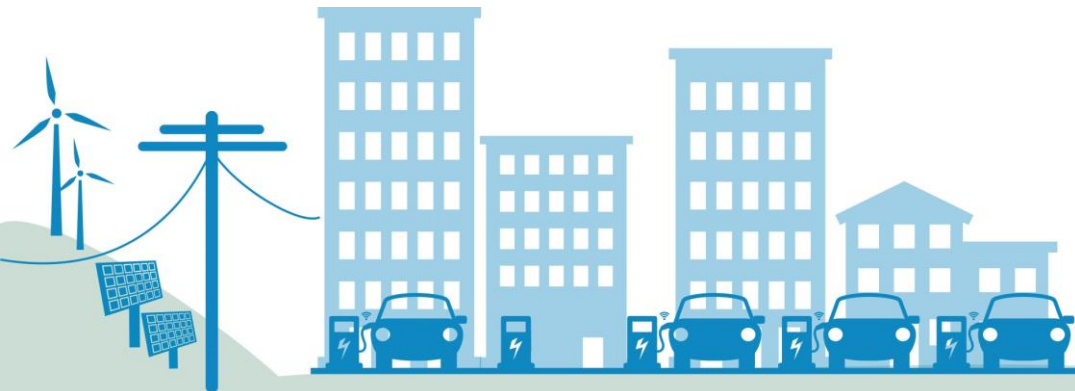
40% School sites
in DACs



25% Parks and
beach sites in
DACs



1. Disadvantaged Community defined as the top 25% most impacted census tracts within PG&E's service territory per the CalEnviroScreen. 2. EV Schools and Parks launched in Jan 2021 with 16 applications in the queue. 3. Federal Poverty Level

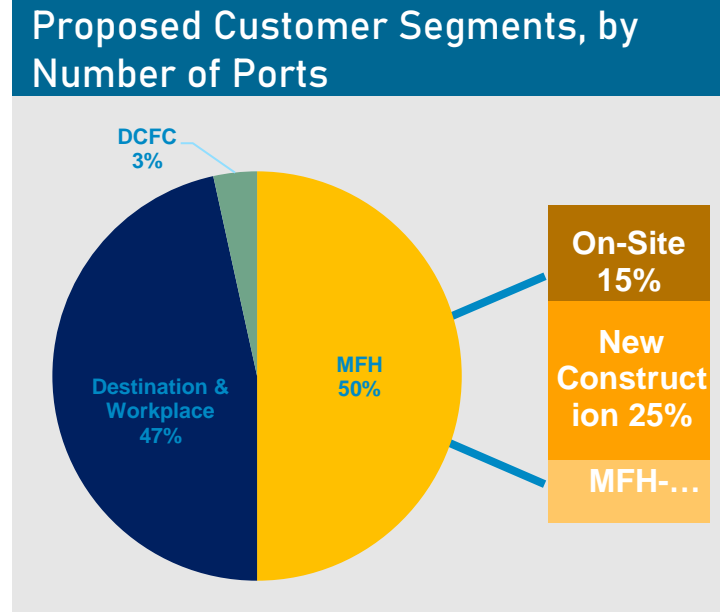




Proposed PG&E EV Infrastructure Programs

EV Charge 2

	EV Charge 2
Investment	\$276M
Infrastructure & chargers owned by PG&E	At most 50%
AB 841 Prioritized Communities	At least 50%
Port targets	4,000 L2 New Construction 10,900 L2 1,100 DCFC
Locations	MFH, Workplace, Public



**Multi-Family Housing
New Construction**

**Multi-Family Housing
Retrofits**

Workplaces

Public Destinations

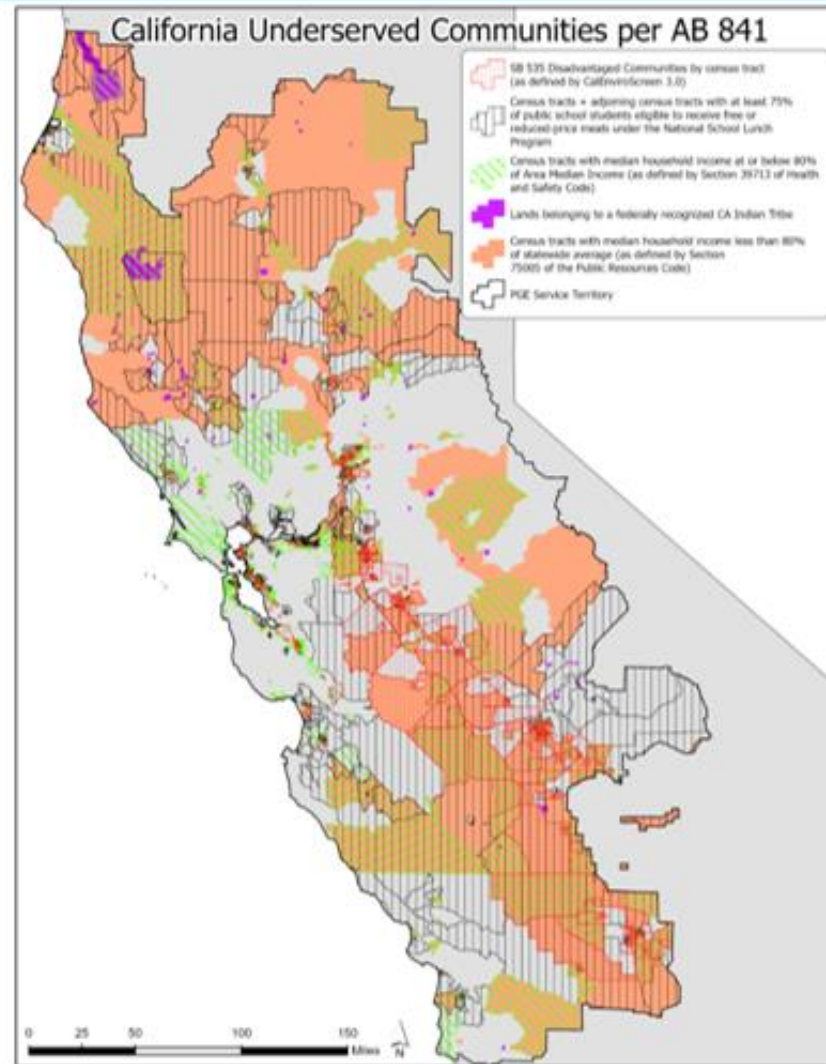
Sites that meet multiple criteria can pick which path to apply under.

Assembly Bill (AB) 841 defined communities to receive priority investments in transportation electrification.

PG&E refers to these communities as “AB 841 Prioritized Communities” or “AB 841 PCs”.

Priority Communities is based on Assembly Bill 841 and includes :

- A community in which at least 75 percent of public school students in the project area are eligible to receive free or reduced-price meals under the National School Lunch Program.
- A community located on lands belonging to a federally recognized California Indian tribe
- Census tracts with median household income less than 80% of statewide median income (less than \$60,188)
- Census tracts with median household incomes at or below 80% of Area Median Income
- Census tracts identified as the most disadvantaged 25% in state according to the CalEnviroScreen





2022 Residential EV Programs



Empower EV

100% income-qualified program. Offering up to \$500 for charger equipment and \$2,000 for panel upgrades.

2023-
2024

Contracting
Q1 '23 launch
target



Pre-Owned EV Rebate Program

Post-purchase rebate for pre-owned EVs. \$1,000 base rebate, **additional \$3,000** for income-qualified customers.

2022-
2024

Program setup
Q4 launch target



MFH + Small Business Direct Install Pilot

Install low-power chargers (Level 1 and Level 2) at multifamily housing and small businesses with capacity on panel.

2023-
2025

Q1 '23 launch
target



Residential Charging Solutions Pilot

Educational resources and financial rebate to support residential EV charging and avoid panel upgrades.

2023-
2025

Q2 '23 launch
target



Resilient Charging Pilot

Software to communicate and/or actively manage EV charging prior to a PSPS event to ensure they are fully charged.

2022

Launched Aug



Research & Innovation Fund Pilot (non-holdback)

Fund small proof-of-concept pilots and research studies, including data/analysis, hardware, or software.

2022+
(rolling)

As needed



Rule 29 covers the cost of utility-side distribution infrastructure for customers installing EV charging

- **WHAT:** AB841¹ orders new tariff “that authorizes each electrical corporation to design and deploy all electrical distribution infrastructure on the utility side of the customer meter for all [non-residential] customers installing a separately metered infrastructure to support charging stations, and provide for cost recovery...”
- **WHY:** Helps CA meet its aggressive ZEV goals by making it simpler and less costly for customers to interconnect EV chargers

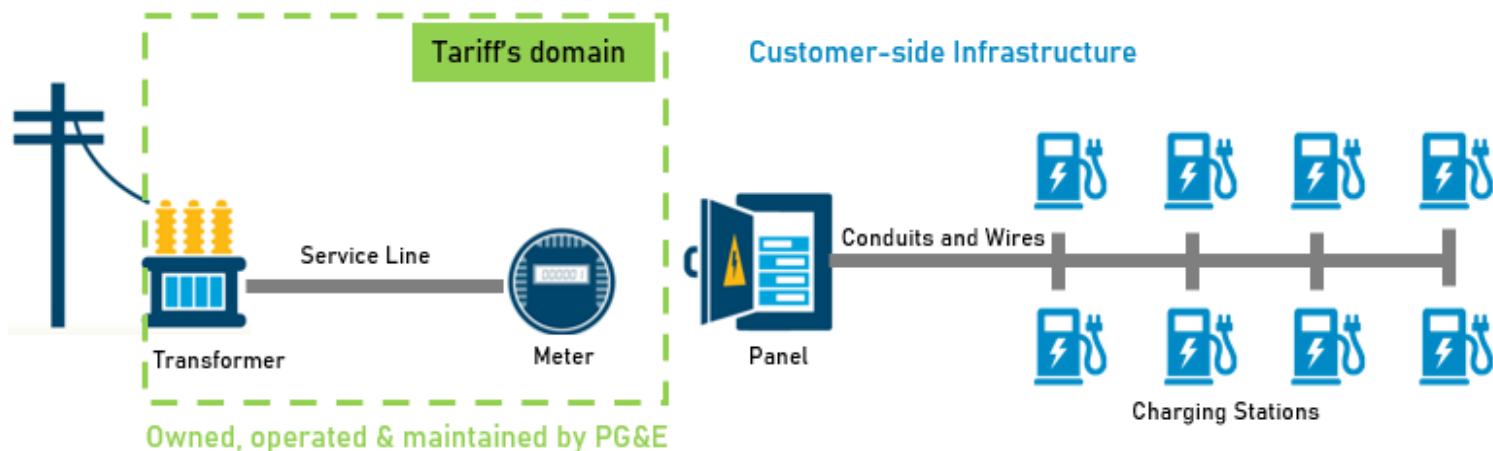


TESLA



Rule 29 EV Infrastructure Rule

The CPUC approved PG&E's Electric Rule 29: EV Infrastructure Rule on October 7, 2021.



- Rule 29 will cover the costs of utility-side electric distribution infrastructure supporting separately metered EV charging (excluding single-family homes). Costs will be recovered through the GRC.
- Rule 29 is expected to help CA meet its aggressive ZEV goals by making it simpler and less costly for customers to interconnect EV chargers.
- PG&E will begin offering service under Rule 29 no later than April 4, 2022.
- Tariff Overview: Rule 29 is an optional alternative to Rule 16 (Service Extensions) for work from the distribution line facilities to the service delivery point. It does not cover distribution line extensions (Rule 15) or upstream capacity upgrades



Vehicle-Grid Integration (VGI) Pilots



Together, Building
a Better California



Vehicle to ...

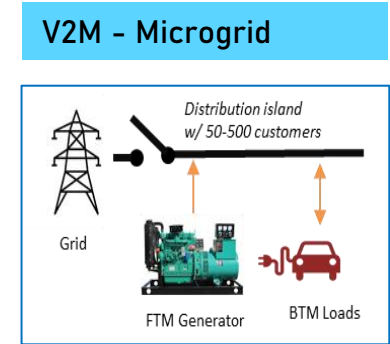
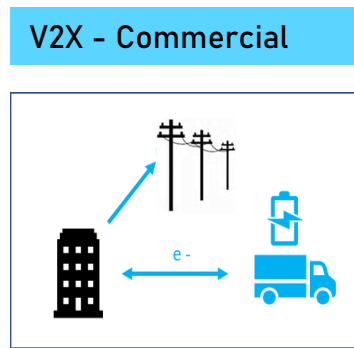
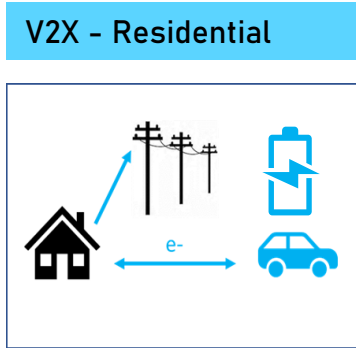
Key Terms

- **VGI** = Vehicle-Grid Integration; encompasses both V1G and V2X
- **V1G** = Typically synergistic with “smart charging”, i.e., charging of an electric vehicle that is shifted in time, location or power
- **V2X** = Vehicle-to-Anything; encompasses, V2H, V2M, V2L, V2G
- **V2H** = Vehicle-to-Home; means energy is discharged to home loads but does not go beyond customer’s primary electricity meter
- **V2M** = Vehicle-to-Microgrid; means a BTM vehicle is providing energy to a community microgrid (disconnected from larger grid)
- **V2L** = Vehicle-to-Load; means a vehicle can discharge to a load that is not connected to the electricity grid, such as a refrigerator or camping stove
- **V2G** = Vehicle-to-Grid; means energy discharged to the home/building can flow beyond the customer’s primary electricity meter onto the utility’s distribution grid



PG&E's V2X Pilots (Final Resolution Issued May 5)

Objective: PG&E's VGI pilots will help determine cost-effective V2X solutions and pathways to scale deployment.
 Timeline: 2022 Q3 – 2025 Q3



	V2X - Residential	V2X - Commercial	V2M - Microgrid
Objectives	Enable residential customers to adopt LD EVs and split-phase bidirectional DC EVSEs, evaluate use of V2X technology for grid services and determine pathways to scale:	Enable commercial customers to adopt LD/MD/HD EVs and 3-phase bidirectional DC EVSEs, evaluate use of V2X technology for grid services and determine pathways to scale:	Enable BTM-sited vehicles to charge/discharge in a PSPS-formed microgrid to support community resiliency.
	Year 1 - V2H Backup power Year 2 - V2G Customer bill management - V2G Real-time energy - V2G Renewable energy integration	Year 1 - V2B Backup power Year 2 - V2G Customer bill management - V2G Real-time energy - V2G Distribution upgrade deferral	
No. of Pilot Participants	1,000	200	Hundreds
Total Budget	\$7.5 million	\$2.7 million	\$1.5 million

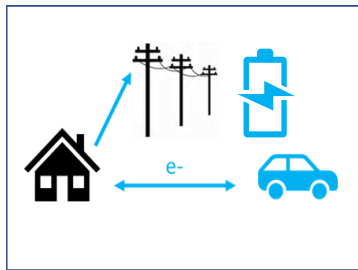


PG&E's V2X Pilots (Continued)

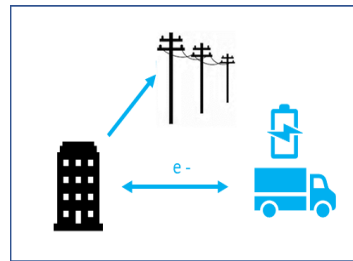
Objective: PG&E's V2X pilots will help determine cost-effective V2X solutions and pathways to scale deployment.

Timeline: 2022 Q3 – 2025 Q3

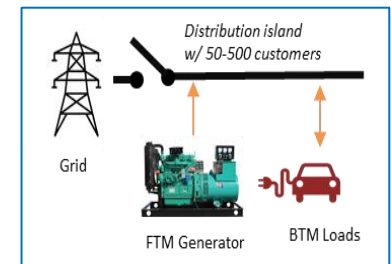
V2X - Residential



V2X - Commercial



V2M - Microgrid



V2X - Residential

Additional Requirements

- Participant must be dual-enrolled in ELRP
- PG&E must offer TOU and dynamic rate options

V2X - Commercial

- Participant must be dual-enrolled in ELRP
- PG&E must offer TOU and dynamic rate options

V2M - Microgrid

Participant does not need to be enrolled already in Pilot 1 or 2 to participate

Notes

- If a customer chooses “dynamic rate”, their compensation for the use cases will be dependent on the rate and not an added performance rebate
- Each EV OEM and EVSE OEM has a 40% rebate cap applied on a per pilot basis
- Rebates will be distributed on a “first-come, first-serve” basis until budget is exhausted



PG&E's V2X Pilots (Rebates)

Pilot	Rebate(s)
Pilot 1 – V2X Residential	<ul style="list-style-type: none">• Up to \$2,500 upfront, up to \$2,175 for performance• If located in DAC per AB 841: Up to \$3,000 upfront, up to \$2,175 for performance
Pilot 2 – V2X Commercial	<ul style="list-style-type: none">• 3-phase bidirectional charger less than 50 kW:<ul style="list-style-type: none">• Up to \$2,500 upfront, up to \$3,625 for performance• If located in DAC per AB 841: Up to \$3,000 upfront, up to \$3,625 for performance• 3-phase bidirectional charger greater than or equal to 50 kW:<ul style="list-style-type: none">• Up to \$4,500 upfront, up to \$3,625 for performance• If located in DAC per AB 841: Up to \$5,000 upfront, up to \$3,625 for performance
Pilot 3 – V2M PSPS Microgrid	<ul style="list-style-type: none">• Up to \$3,750 to \$5,000 for performance• Assumes participant has received upfront rebate from Pilot 1 or 2• Performance rebate stacks with Pilots 1 and 2



Enrollment

Pre-enrollment opens November 14, 2022!

- **Participants must:**
 - Be located in PG&E service territory.
 - Have split-phase 240v service for residential participants or 3-phase 208v service for commercial participants
 - Have an installed bidirectional-capable EV charger that uses the DC approach and appears on the approved EV charger list
 - Have completed the Rule 21 interconnection process with PG&E
 - Be enrolled in the Emergency Load Response Program (ELRP)
 - Have received delivery of an electric vehicle that supports bidirectional charging, and which is included on the approved vehicles list
 - Have an EV charger on the list of chargers that are compatible with the customer's electric vehicle
- **If you intend to meet these requirements, you may pre-enroll.**

Resources and Tools



Fleet Savings Calculator <https://fleets.pge.com/>

EV Savings Calculator <https://ev.pge.com>

EV Vehicle Programs and Resources

[PG&E electric vehicle resources \(pge.com\)](https://www.pge.com/electricity/ev)

**PG&E Distribution Resource Planning Data Access Portal
and Integration Capacity Analysis (ICA) map**

[PG&E Distribution Resource Planning Data Access Portal \(pge.com\)](https://www.pge.com/distribution/resource-planning)



Questions

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Together, Building
a Better California