

TRIG Infrastructure Meeting #7 Planning and Implementing an Infrastructure Project

May 12, 2025

2025 Infrastructure TRIG Panel

Co-Chairs:

Lisa McGhee, Tom's Truck Center

Leslie Goodbody, CARB

Kate Reid, CEC

Panelists:

Angela Clapp, Port of Oakland

Aravind Kailas, Volvo Group NA

Arturo Hernandez, A&C Transportation

Blaine Wagner, Clark Pacific

Carlos Cardenas, CVM Fleet Services

Chris Shimoda, California Trucking Association

Chuck Loy, Sysco Corporation

Clair Keleher, Bay Area AQMD

Collin MacGregor, Range Energy

Cristina Marquez, IBEW Local 596

Panelists:

Damon Wyckoff, Calaveras County Water District

Dirk Piersma, Gemperle Farms

Emmanuel Carrillo, Talon Logistics, Inc.

Erick Karlen, Pacific Gas & Electric

Eugene Litvinov, Hyundai Motor NA

Glen Kedzie, Truck Renting & Leasing Association

Glenn Choe, Toyota Motor NA

Isaac Ritter, J.B. Hunt Transport Services

Jamie Hall, EV Realty

Jessie Denver, GoBiz

Jimmy Andreoli II, Baker Commodities

Jose Rodriguez, Chevron Hydrogen Business Development Panelists:

Lindsay Shigetomi, Environmental Defense Fund

Mark Koppang, Raley's

Matt Miyasato, FirstElement Fuel

Pricilla Quiroz, CA Municipal Utilities Assoc.

Ralph Adams, BorgWarner

Richard Battersby, City of Oakland

Richard Parenteau, No Carbon Fuel,

Ruth Alfson, Matrix Consulting Group

Sam Wilson, Union of Concerned Scientists

Sam Vercellotti, Terawatt Infrastructure

Scott Moon, Los Angeles Department of Water and Power

Steven Fenaroli, California Farm Bureau



Agenda

- Introduction
 - NEW website: https://ww2.arb.ca.gov/ZEInfrastructure
- Planning and Preparing for electrification Ziga Ivanic, CLEAResult Energetics
- Streamlined Infrastructure Permitting Jessie Denver, GoBiz
- Utility Program Support Services and Funding updates
 - PG&E Tim O'Neill
 - SCE Ramiro Lepe
 - SDG&E Danielle Weizman
 - LADWP Scott Moon
- EnergIIZE program updates Ian Cadger, CALSTART
- Focused discussion
- Next steps





CR COMPANY INTRODUCTION

SPEAKER

CLEAResult Our People Power Our Success 2.500 +200+ 100+ 200 +Best-in-class experts across the customer journey Technology Experts Marketing Program Experts Managers **Energy Efficiency** 0 750 +170+ **Energy Transition**

Energy Advisors

Local Field Members

Engineers

We change the way people use energy.™

Energetics

Energy Sustainability

CLEAResult division specializing in innovative sustainable energy solutions. Clients include U.S. Department of Energy (since 1979), other federal agencies, six national laboratories, states, municipalities, utilities, universities, vehicle OEMs, and private companies.

Ziga Ivanic, PE, PMP

- Sr. Transportation Program Director
- San Diego, CA Office
- BS and MS in Mechanical Engineering
- 20 years of experience in transportation:
 - fuels and advanced powertrains
 - technology demonstration and evaluation
 - fleet transition planning
 - utility pilot and program evaluations

Key Projects

- SB350 PRP & SRP 3rd Party Evaluations of CA IOU Transportation Electrification Programs
- Department of Energy, Vehicle Technology
 Office, Electrification and Grid & Infrastructure
 Program Technical Support
- New York State Clean Transportation Prizes and Clean Mobility Program Administration
- Numerous fleet transition plans

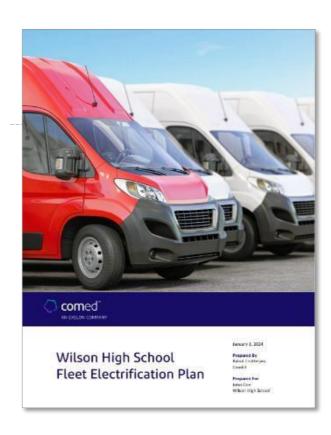




Fleet Transition Planning

What does it entail?

- Quantitative and qualitative fleet data analysis to determine the most feasible and sustainable options (EV, H₂, etc.)
- Vehicle and fueling /
 charging plan development
 to support fleet
 sustainability goals and
 objectives







Fleet Transition Planning Considerations

- Understanding the goals and objectives
 - Sustainability and regulatory drivers
- Identifying and involving stakeholders in the process
 - Fleet and facility managers, procurement and finance departments

Approach

- Internal
 - Using existing staff
 - Online & dealer resources
 - Utility TE advisory services
- Outsourced
 - Hiring an expert consultant



Fleet Transition Planning Approach Summary

Overarching

Project Management

Component A

Fleet
 Assessment
 and
 Transition
 Planning

Component B

Electrical
 Upgrades and
 Fleet
 Charging
 Infrastructure

Component C

Vehicle Fleet and Charging Infrastructure Costs

Component D (Post-main project)

Implementation
 Support,
 Progress
 Analysis, and
 Plan Updates

Fleet Transition Planning Process

- Evaluate the vehicle (light-, medium-, and heavy-duty) fleet and non-road equipment inventory, determining current demographics, fuel usage, GHG emissions, and fueling
- Develop an electric vehicle- (EV) focused vehicle transition plan that meets the operational needs and goals for all vehicle/equipment classes and types
- Evaluate electrical capacity at relevant facilities and develop a phased 3. charging/fueling infrastructure plan with planning level designs/costs
- Provide guidance on staff training, vehicle management/maintenance, and charging/fueling infrastructure
- Potential post-roadmap plan development support to evaluate transition 5. progress, results, and update plans as-needed

A: Fleet Assessment

Goal: Develop understanding of current fleet vehicle, operations, procedures; develop sustainable fleet transition plan

- Baseline
 - Request for information: vehicle/equipment inventory, understand fleet's EV experience,
 - Review fleet sustainability plans and targets
 - Determine usage of each vehicle/equipment unit
- Determine potential vehicle/equipment options that fit the fleet's inventory
- Determine if fleet right-sizing/right-typing is needed
- Develop fleet transition plan annual ideal; smoothed budget option
- Staff training, maintenance and management best practices summarize

A: Fleet Assessment

Example Fleet Electrification Plan Scenarios to Ensure Regulatory Compliance to Compare Timing and Costs

Fleet Replacement Count by Classification (Smoothed/ACF Compliant Plan)

	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
ACF	2	4	10	4	4	2	3	4	4	5	4	2	3	3	5
HD Crane			1							1					
HD Dump Truck		2	3										1		
HD Vac Truck			1												
HD Well Rig														1	
MD Truck 3/4	1					1				1		2	1		
MD Truck C3		2	3	2	1		1	2	2	2				2	3
MD Truck C4			2		1	1		1	1		3				2
MD Truck C5				2	2		2	1	1	1					
MD Truck C6	1										1		1		
Non-ACF	3	3	0	5	6	6	3	1	1	3	3	4	8	3	2
LD Cargo Van		2			1	1	1							2	
LD Pickup Truck	1	1		5	3	5	2	1	1	2	1	4	8	1	
SUV	1				1						1				1
SUV Compact	1				1					1	1				1



B: Electrical Upgrades and Fleet Charging Infrastructure

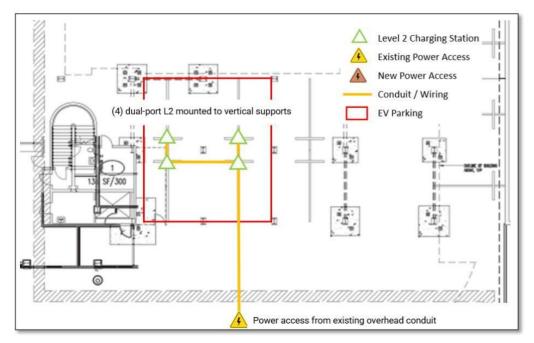
Goal: Develop understanding of electrical capacity at fleet facilities, determine EV charging requirements, evaluate time-based charging options, develop phased charging infrastructure implementation plan

- Baseline
 - Request for information: electrical service/distribution, parking, operational information for facilities where vehicles park (includes potential new locations)
 - Site visit evaluations determine available electrical capacity (power and timing)
- Determine vehicles/equipment energy requirements; aggregate by facility/parking area
- Determine charging station requirements to meet energy and dwell time requirements
- Determine ideal locations for charging stations
- Evaluate tariff impact on charging cost and timing
- Use vehicle plan to develop phased charging infrastructure implementation
- plan Summarize staff training, maintenance and management best practices



B: Electrical Upgrades and Fleet Charging Infrastructure

Planning Level Site Plans based on Vehicle Travel Data and Information Gathered at Site Visit













C: Vehicle Fleet and Charging Infrastructure Costs

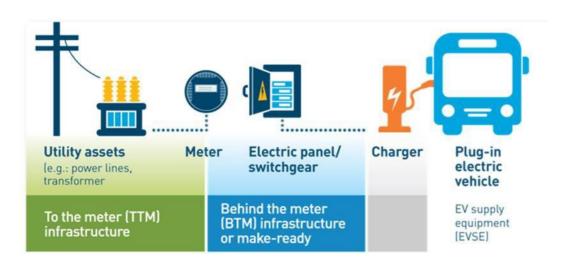
Goal: Extend Component A (vehicles) and Component B (charging infrastructure) to develop estimated costs, identify potential external funding the fleet could pursue to reduce capital costs

- ▼ Extend fleet transition plan to include acquisition costs Annual ideal; smoothed budget option
 - Online/consultant tools, fleet references/price lists, & external information
 - Estimate operations cost differences (energy and maintenance)
- Extend charging infrastructure implementation plan to include costs (capital, installation) online/consultant tools, fleet references/price lists, & external information
- Funding sources Identify potential sources (federal, state, utility) and impacts (vehicles, charging infrastructure, installation, etc.)



C: Vehicle Fleet and Charging Infrastructure Costs

Customer / Utility Cost Responsibility



Site-Specific EVSE Installation Cost Estimate

Police Garage EVSE Installation	IV	laterial	Labor	Total			
Vehicle Charging Equipment	\$	23,035	\$ 11,420	\$	34,454		
Level 2 dual-port charger	\$	12,000	\$ 5,467	\$	17,467		
Charge Management System Subscription	\$	1,000	\$ -	\$	1,000		
Electrical Components	\$	535	\$ 689	\$	1,224		
Peripheral Equipment and Sitework	\$	9,500	\$ 5,264	\$	14,764		
Electrical Distribution	\$	-	\$ -	\$	-		
Transformer, including earthwork	\$	-	\$ -	\$	-		
Electrical Components	\$	-	\$ -	\$	-		
Site Control and Remediation	\$	2,050	\$ 2,754	\$	4,804		
Access control and Safety	\$	2,050	\$ 2,754	\$	4,804		
Disturbed Surface Repair	\$	-	\$ -	\$	-		
Electrical Utilities	\$	10,160	\$ 4,597	\$	14,757		
Trenching/Wiring	\$	9,120	\$ 2,992	\$	12,112		
Material Disposal	\$	1,040	\$ 1,606	\$	2,646		
Total	\$	35,245	\$ 18,771	\$	54,016		
Cost per charging port	\$	4,406	\$ 2,346	\$	6,752		



© D: Implementation Support, Progress Analysis, and Plan **Updates**

- Post plan support is needed to refine implementation plan (vehicle & charging) annually based on feedback
- Implementation progress metric tracking and analysis
- Pilot demonstrations for harder to electrify/newer options – medium/heavy-duty
- vehicles
- Evaluation of emerging technologies for charging and resilience
- Support procurement of EVs and charging infrastructure (tech specs & evaluation)
 - Research, analysis, down-selection, pilot demonstrations of non-EV options for hard to electrify vehicles

Questions for consideration?

- Is fleet property owned or leased (impacts permits and easements)?
- Does fleet want to take on planning and construction management for BTM charging infrastructure?
- What is the fleet's risk tolerance regarding newer EV OEMs?
- Is the fleet interested in grant funding for innovative, earlier stage, technologies (V2G, etc.)? Adds grant management requirements and complexity.
- Is the fleet interested in accelerating replacement (esp. LD) to accelerate GHG reductions/lead by example?
- ✓ Is the fleet considering delaying medium- and heavy-duty until vehicle availability/pricing improves? Potential for pilots now.
- What is the fleet's priority for equipment?





Determining Existing Available Capacity

Electrical panel capacity



Available Amperage = Main Panel Breaker – sum of Load Breakers Available Power Capacity = Available Amperage * Panel Voltage (208/480)

Transformer rating (SCE & SDGE)



Contact an electrician for more accurate information and your utility for service upgrade information (see Utility TEAS slides)



Charging Location Considerations

Cost impacts

- Utilize existing power capacity
- Close to power source
 - Reduces trenching (\$\$\$)
- Building conduit vs underground
- Utilize softscape when possible
 - Trenching through dirt instead of pavement



Convenience

- Ingress/egress
- Proximity of EV charging port to EVSE (EVSE cord length)
- EVSE cord retractors for cord management
- Charging session activation options (i.e., RFID, code, card)
- Minimize loss of parking







Charging Installation Examples



Charging installation at the site depot, showing chargers and multiple shuttle vans charging



Charging installation showing chargers, above-ground conduit run, and a bus charging





Charging installation at the site depot showing L2 chargers, above-ground conduit run, and switchgear



Charging installation at the site showing transformer (left), one three-port DCFC (center), switchgear (right), and several yard tractors (rear).

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Charging Installation Examples



Site Layout Showing Nine of 12 **Power Electronics Dispensers** (small units) and Power Cabinets for 60 kW Rotational Charging (white boxes at image center)



Existing ChargePoint CPE-250 Chargers, Delta Electronic Wallbox (center), BTC Power DCFC (left), and Endera/Lightning eMotors Electric MD Transit Buses

Figure 115. Final Deployment of Transformer and Switchgear Pad and Island



Switchgear, Nuvve Chargers, and Blue Bird RE Electric Buses

Figure 187. Pantograph Charging System Installed to Serve a Transit Bus Site





Charger Electrical Stub-outs (capped in orange) **Showing Future Buildout Locations**



Source: Standard Review Projects 3rd Party Evaluation Report EY2023



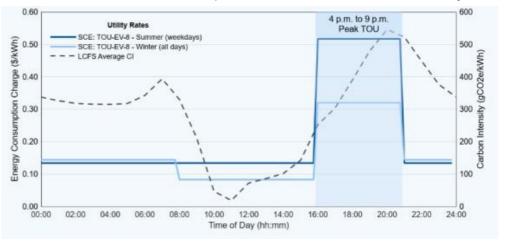


Load Management

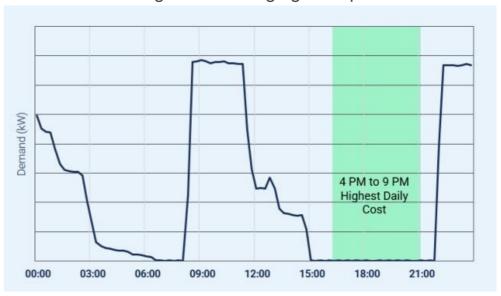
Introduction

- WHY
 - Minimizing charging costs by avoiding charging during highest cost time period
 - Receiving utility service upgrade with temporarily constrained capacity
- HOW
 - Delaying charging until after highest cost time period
 - Reducing charging demand

EV TOU rate example and LCFS Carbon Intensity



Managed fleet charging example







Load Management

Basic Requirements

- Requires networked EVSE
 - OCPP compliance
- Passive Network Service Provider (NSP) options
 - Set lockout time period
 - Set start and stop times
 - Utility tariff alignment
 - Power level management
 - Reduced power level

Options

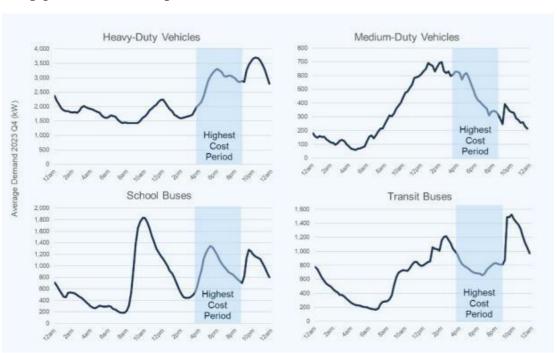
- NSP managed charging
 - Additional monthly fee
 - Active load management and optimization behind the scenes
 - Example NSPs: BP Pulse, The Mobility House, Nuvve, Synop
- EV charging schedule
 - Option on very few commercial EVs
- Could be utility required where a full load request can not yet be accommodated
 - PG&E Flex Connect Program



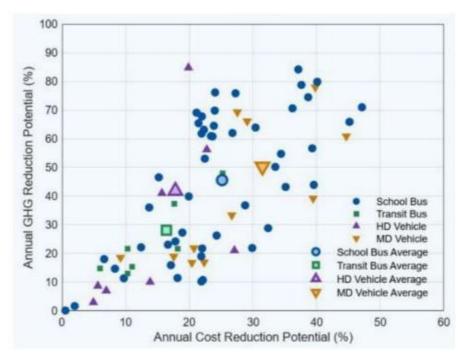


Load Management

Typical Daily Load Profiles



Cost and GHG Reduction Potential



Source: Standard Review Projects 3rd Party Evaluation Report EY2023



Flex Connect



PG&E's Flexible Service Connection Concept

Flexible Service Connection is a bridge solution that aims to allow customers with controllable loads to connect to the system without waiting for a service upgrade



Customer Value

Quicker connections

Avoid Long Wait Times

More Available Energy

Improved Utility Partnership

c A 📑

Distribution Value Improved customer experience

Unlock Available Capacity
Higher Grid Utilization

Operational Flexibility



Energy System Value

Support industry goals

Timely Energization

Cost Effectiveness

Manage Grid Constraints





Flex Connect



Real World Example of Potential Benefits

0	71%	71%	71%	20%	20%	20%	20%	20%	20%	20%	71%	71%	0	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	10
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16	71%	71%	71%	20%	20%	20%	20%	20%	20%	20%	71%	71%	16	100%	100%	100%	100%	100%	100%	89%	94%	83%	100%	10
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STATUS QUO: Planning Limits for 3.8MW EV Charging Station

FLEX CONNECT: Can Support Full Request ~90% of the time on Average

Key Takeaway - If a customer can reduce consumption for 3 months during 3-11PM we can serve their full load request







Electric Vehicle Supply Equipment (EVSE)

Power Levels

- ✓ Level 2 Alternating Current (AC): 6 - 19.2 kW
 - 208 or 240 V
 - 32, 40, 50, 70 or 80 A
- Direct Current Fast Charger (DCFC): 20 - 1,500 kW
 - 480 V 3-phase
 - Common configurations: 25,
 50, 62.5, 100, 120, 150, 175,
 180, 200, 240, 300, 350, 400
 - Multiples of 20, 25, 30, 40, 50
 kW power modules

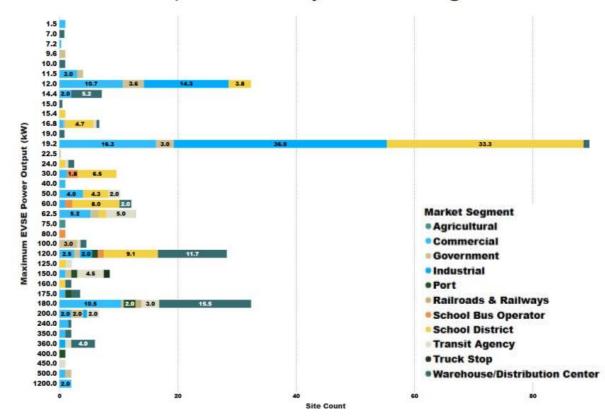


Level 2 EVSE



DCFC EVSE

EVSE Power Output Levels by Market Segment



Source: SCE Q1 2025 Program Advisory Committee Presentation, CRT Program, 3/14/20



EVSE Connectors

Level 1 & 2

SAE J1772 Standard (J1772)

AC Level 1 Charging

Approximately 5 miles of range per 1 hour of charging'

J1772 connector

*Assumes 1.9 kW charging power

AC Level 2 Charging

Approximately 25 miles of range per 1 hour of charging†



J1772 connector



J3400 (NACS) connector

+ A Level 2 can range from 2.9 to 19.2kW power output

DCFC

- SAE J1772 Combined Charging Standard (CCS)
 - L1/2 J1772 + DCFC
- SAE J3400 North American Charging Standard (NACS aka Tesla)
- CHAdeMO (Japanese)



The Combined Charging System (CCS), also known as the SAE J1772 combo, charge port on a vehicle can be used to accept charge with Level 1, Level 2, or DC fast charging equipment.

DC Fast Charging

Approximately 100 to 200+ miles of 30 minutes of charging[‡]







CCS connector

CHAdeMO connector

J3400 (NACS) connector

‡ A DC charging unit can provide up to 500 kW. Charging power varies by vehicle and battery state of charge.





EVSE

Resource

Electric Power and Research Institute (EPRI) Vetted Product List

- Comprehensive and consolidated resource for industry stakeholders, to include utilities and state agencies, to vet products and equipment for the deployment of EV charging systems
- ☑ Equipment is evaluated against criteria developed by industry consensus, utility input, and review of government agency requirements for the EVSE industry



- EPRI Vetted Product List (Updated 3/19/25)
- ComEd EPRI Vetted Product List
- Georgia Power EPRI Vetted Product List
- Joint Utilities of NY EPRI Vetted Product List
- Massachusetts EPRI Vetted Product List
- NYSERDA EPRI Vetted Product List
- Oregon DOT EPRI Vetted Product List
- PacifiCorp EPRI Vetted Product List (.pdf file download / xls file download)
- Pacific Gas & Electric EPRI Vetted Product List
- Portland General Electric EPRI Vetted Product List
- Salt River Project EPRI Vetted Product List
- San Diego Gas and Electric EPRI Vetted Product List
- Southern California Edison EPRI Vetted Product List

https://www.epri.com/vpl



Range of EVSE Options







EVSE below 50 kW

Level 2 AC





Low Power DCFC (20-30 kW)







Renova Smart AC Charging Units

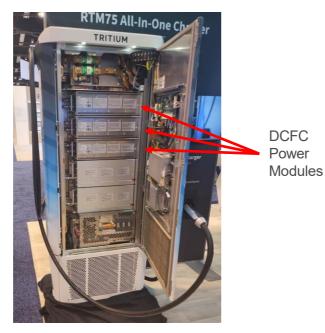


DCFC EVSE Options (>50 kW)

Integrated

- Stand alone
 - Power modules included
 - Larger footprint can take up parking





Modular

- Separate power cabinet/dispenser
 - Smaller footprint for dispenser
 - Remote power cabinets with modules





Source: ACT EXPO, Anaheim, CA, 5/1/2025











Plethora of DCFC Options



CLEAResult*

Source: ACT EXPO, Anaheim, CA, 5/1/2025













Which One is Right for You?



CLEAResult®











Source: ACT EXPO Anaheim CA 5/1/2025



Example EVSE Pricing (low end)









Innovative Charging Examples











Quick Deployment Option













High Power EVSE Options

















Utility Transportation Electrification Advisory Services (TEAS)

Fleet
Electrification
Planning

Pre-Energization Support

Post-Energization Support

Overview

- Free educational resources
 - Online materials and total cost of ownership tools
- Customer engagement:
 - Test drives, marketing events, and webinars
 - Community Based Organizations
- Tailored resources for personalized consultation
 - Dedicated TEAS advisors and SMEs

Services

- Capacity analysis
- Site and load planning
- External funding information
- Grant assistance
- EVSE and EV selection
- Rate optimization
- Load management planning
- Emerging technology consulting





The GO-Biz Team

GO-Biz serves as the State of California's leader for job growth, economic development, and business assistance efforts.















Energy



(IBank)



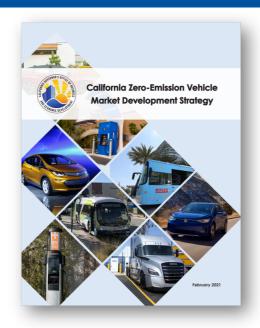


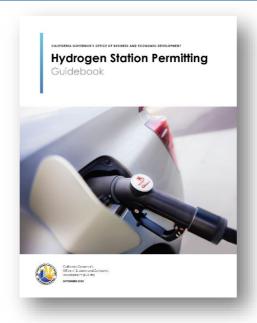
CA Film Commission

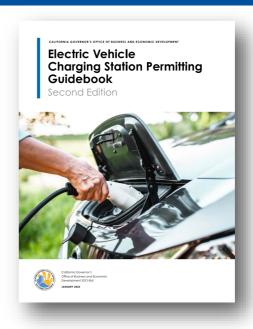




ZEV Market Development







- State agency alignment and coordination
- Existing and proposed regulatory navigation assistance
- Industry collaboration and collective problem-solving
- ZEV-related business support
- Fueling infrastructure permitting compliance and assistance



ZEV Infrastructure: Permit Streamlining Laws

AB 1236 & AB 970

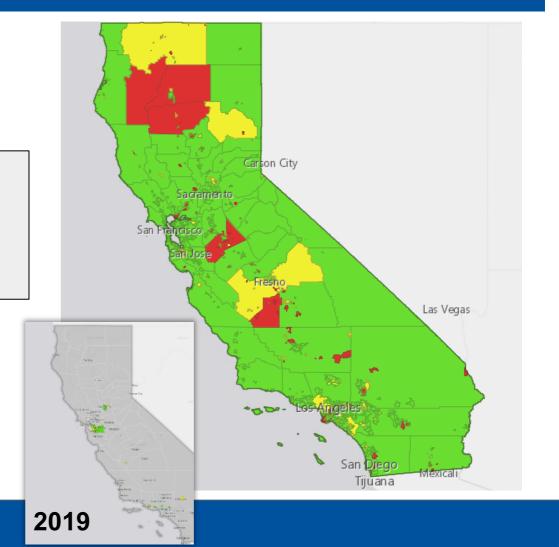
 Administrative approval for EV charging stations and timelines for issuing permits

540 total AHJs

- 344 AHJs streamlined
- 88 currently in progress
- 108 not streamlined

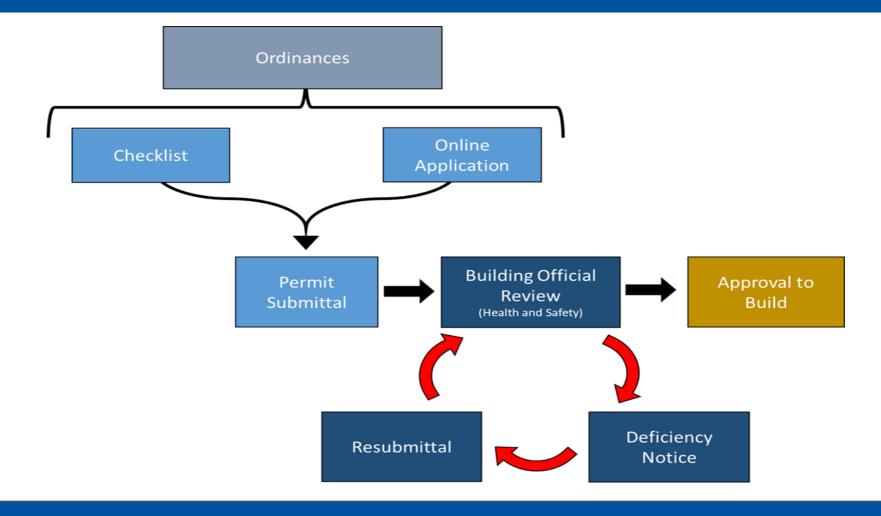
SB 1291 & SB 1418 (2024)

Hydrogen stations; end of slide deck





AB 1236 (2015)





AB 970 (2021)

- For ≤ 25 chargers = 5 days application incomplete/complete; 20 days approval to build
- For > 25 chargers = 10 days application incomplete/complete; 40 days approval to build
- Parking = non-issue
- If EVSE replace parking spaces, city/county is must reduce number of required spaces.
- Applies to all cities and counties



GO-Biz Oversight

- Track compliance with laws
- Provide market resources: Guidebook, TA, FAQs
- Track barriers
- Facilitate solutions btwn developers and AHJs
- NEW Proactive AHJoutreach
- NEW Attorney General's Office Legal Alert



Common Issues / Barriers

Zoning and permit streamlining incompatibilities: State's expectation that AHJs enable charging and fueling infrastructure in all zones

Offsite improvements and development: Can make the project more complex and extend overall project permit processes

Aesthetics and screening: Typically falls outside of the health and safety and should not be considered for permit approval

Accessory Use Cases: Restrooms, concession/food, etc.

Undergrounding Utility Ordinances

Encroachment permits: Opportunity for better process/timing alignment between AHJs/Caltrans/utilities



Facilitating Solutions: Attorney General's Legal Alert

5 Common Compliance Issues

- 1. Local Zoning Overreach: Applying local zoning regulations despite preemption under streamlining laws
- 2. **Discretionary Review Conflicts**: Requiring CUP or other processes despite mandated streamlining for *all types* of EV charging projects.
- 3. Expanded Impact Considerations: Assessing factors beyond health and safety, contrary to laws limiting AHJreview to only health and safety.
- 4. Permit Delays: Failing to meet mandated timelines for application review and approval.
- 5. Ordinance Noncompliance: Not adopting, publishing, or properly implementing expedited permitting reqs.

<u>Legal Alert OAG-2025-01: Electric Vehicle Charging Station Permit Streamlining Requirements</u>



Facilitating Solutions: Proactive Outreach to AHJs

Today: GO-Biz meetings w/AH sonce developer has brought an issue to us. GO-Biz escalation of issue (where appropriate)

New: GO-Biz proactive outreach to AHJs where funding has been awarded

- GO-Biz request to meet with AHJIeadership
- Review projects coming to their community
- Discuss streamlining laws; identify potential issues and opportunities
- Feedback loop to developers and/or direct introduction



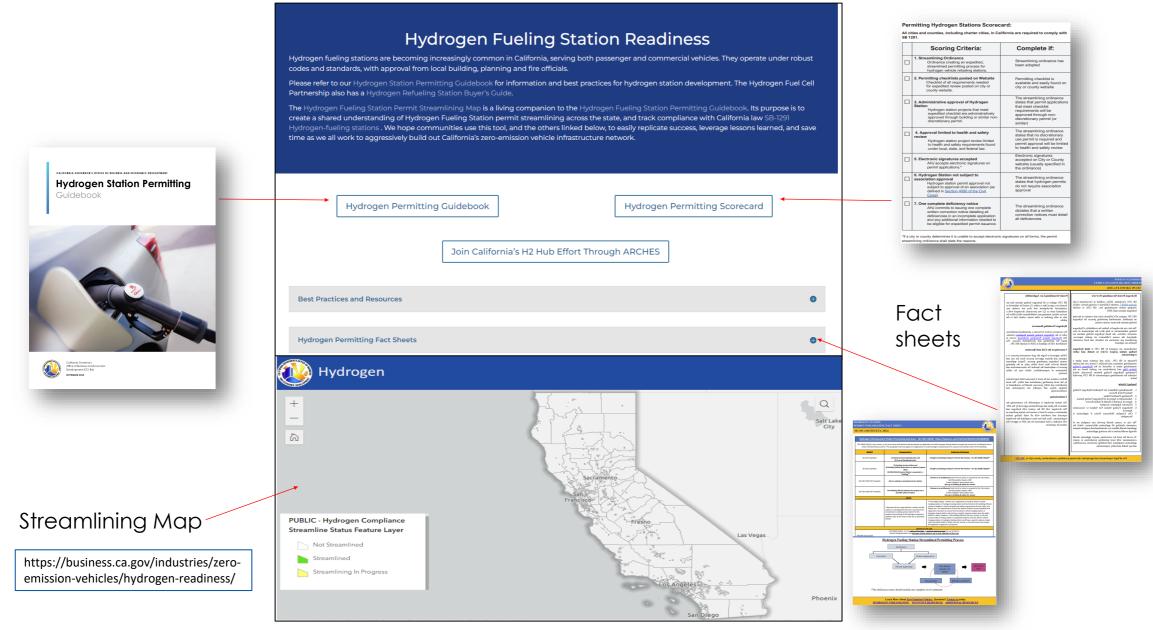
Hydrogen: Streamlined Permitting SB 1291 (2022; superseded by SB 1418, 2024)

Hydrogen Infrastructure Project Processing Summary - SB 1291 (2022) https://legiscan.com/CA/text/SB1291/id/2606976

SEC 65850.7(b)(2) A city, county, or city and county shall administratively approve an application to install hydrogen-fueling stations through the issuance of a building permit or similar nondiscretionary permit. This paragraph shall only apply to an application to install hydrogen-fueling stations on a parcel that satisfies either of the following:

		The state of the s
<u>IMPACT</u>	<u>Proposed site is</u>	Actions by City/County
SB-1291 Expedites	(1) Zoned Commercial/Industrial and (2) Free of Residential units:	Straight to Building & Safety for Permit Plan Review - Per SEC 65850.7(b)(3)**
SB-1291 Expedites	(1) Existing service station and (2) Building Official determines no adverse impacts likely (3) NEW BUILD Service Station is assumed to = "Existing"*	Straight to Building & Safety for Permit Plan Review - Per SEC 65850.7(b)(3)**
SB-1291 DOES NOT Expedite	Not an existing or proposed service station	Review as an entitlement (Use Permit or other as required by the City codes), Identify possible impacts, AND Create mitigation with project team, then go to Building & Safety for review!
SB-1291 DOES NOT Expedite	The Building Official indicates the project has a possible adverse impact.	Review as an entitlement (Use Permit or other as required by the City codes), Identify possible impacts, AND Create mitigation with project team, then go to Building & Safety for review!
<u>NOTES</u>		
	* Because the site is approved for a station and the station is in development the site is assumed to be considered an existing service station for the purpose of processing of the Hydrogen equipment additions (due to the intent of the law as described below).	** SEC 65850.7(b)(3): Review of an application to install an electric vehicle charging station or hydrogen-fueling station shall be limited to the building official's review of whether it meets all health and safety requirements of local, state, and federal law. The requirements of local law shall be limited to those standards and regulations necessary to ensure that the electric vehicle charging station or hydrogen-fueling station will not have a specific, adverse impact upon the public health or safety. However, if the building official of the city, county, or city and county makes a finding, based on substantial evidence, that the electric vehicle charging station or hydrogen-fueling station could have a specific, adverse impact upon the public health or safety, the city, county, or city and county may require the applicant to apply for a use permit.
INTENT OF THE LAW		
	vehicle charging stations and <u>hydrogen</u>	e to promote and encourage the use of electric n-fueling stations and to limit obstacles eir use.





Hydrogen Readiness - California Governor's Office of Business and Economic Development

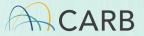


Thank You!

Jessie Denver
Lead Advisor
ZEV Market Development Office
jessie.denver@gobiz.ca.gov
business.ca.gov/zev

Utility and Other Funding Programs

- Funding program presentations from June 5, 2024, TRIG meeting: Zero-Emission Infrastructure | California Air Resources Board
 - Funding presentations:
 https://ww2.arb.ca.gov/sites/default/files/2024-06/240605triginfra_otherpres_ADA.pdf
- Pacific Gas & Electric (PG&E)
- Southern California Edison (SCE)
- San Diego Gas & Electric (SDG&E)
- Los Angeles Department of Water and Power (LADWP)
- California Energy Commission's EnerglIZE Program





EV Fleet Program 5/12/25 CARB / TRIG Webinar



What is the EV Fleet Program?

EV Fleet is a ratepayer-sponsored program that is designed to accelerate EV adoption for medium duty, heavy duty (MDHD EVs) and off-road vehicles

GOAL:

Support the deployment of

>6,500 MDHD EVs







BUDGET:

\$236 million



TIMEFRAME:

Enrolling sites through 2026 or until funding is fully subscribed



What vehicles are eligible?



Medium duty

Class 2–6

(>6,000 lbs GVWR)

School buses, cargo vans, box trucks, cutaways, work trucks, etc.



Heavy duty

Class 7–8

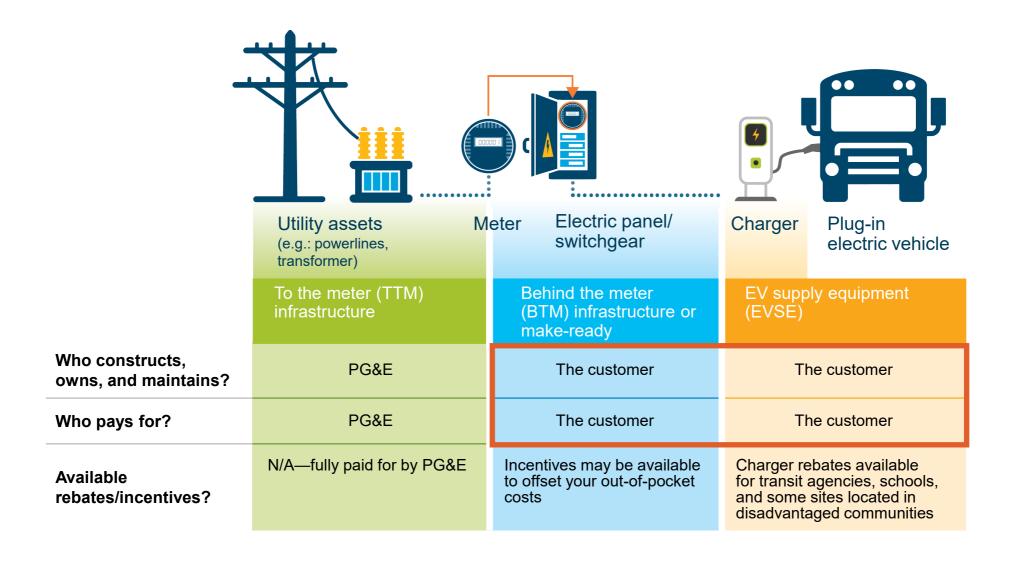
Heavy duty trucks, transit buses, drayage, etc.



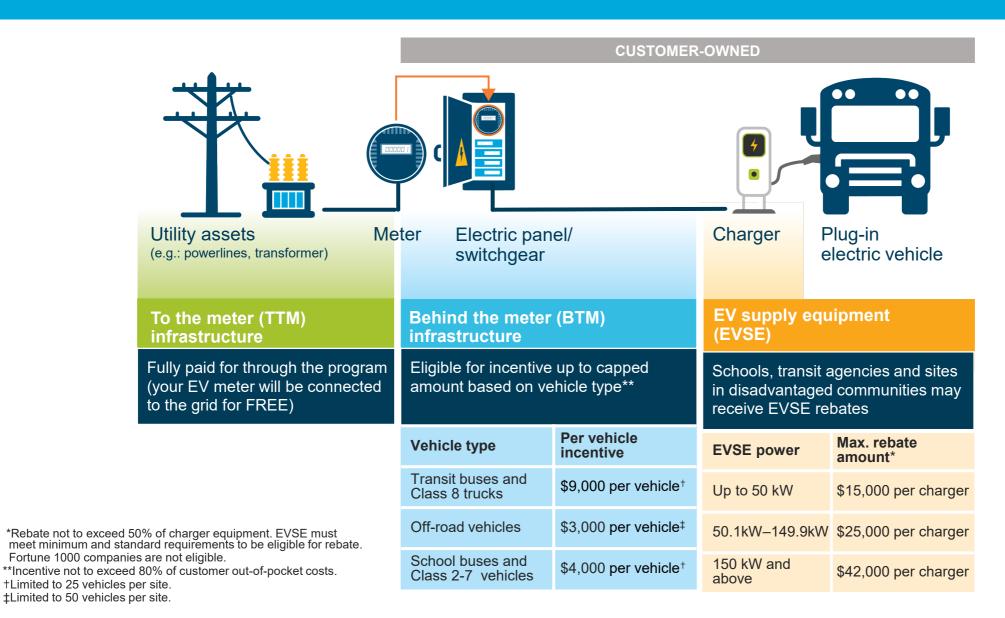
Off road

Class 1 forklifts, tractors, construction equipment, TRUs, ground support equipment, cargo handling equipment, etc.

EV charging project breakdown



Available incentives and rebates



Public

Eligibility requirements

Be a PG&E electric customer

This includes Direct Access and retail customers, as well as customers receiving power from a Community Choice Aggregator.

Acquire at least 2 eligible EVs

Customers must plan to put into operation a minimum of two medium duty, heavy duty or off-road electric vehicles over the next 5 years.

Own or lease the property

Applicants must have authority to install charging infrastructure on their site.



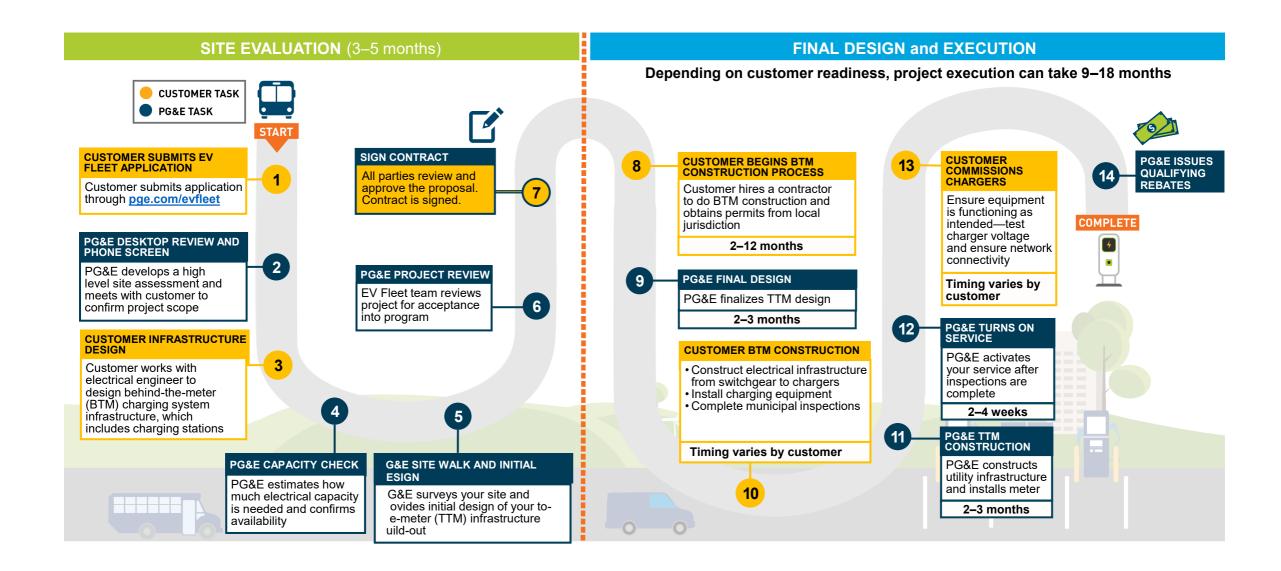
Customers must make a 10-year commitment to operate and maintain equipment, a 5-year commitment to provide EV usage data and agree to all terms and conditions.

Ready to apply

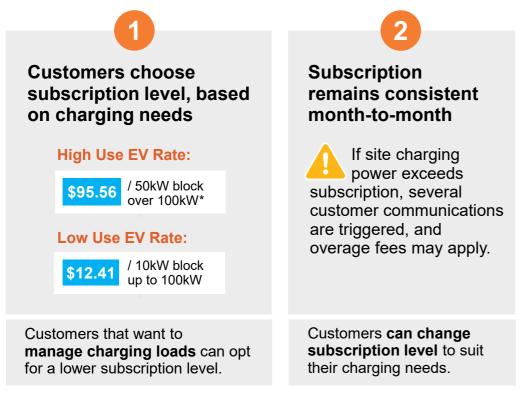


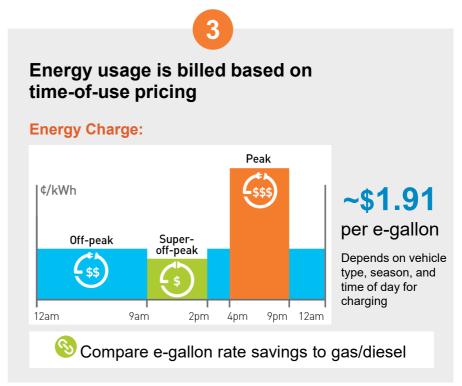
1	Vehicle deployment plan	Quantity, make and model of EVs that you plan to deploy over the next 5 years
2	EV charger deployment plan	Quantity, make, model, power level and datasheet for each EV charger that you plan to deploy Approved Product List (hosted by Southern California Edison)
3	Map of EV charger location	Map screenshot indicating the location where you plan to install your EV chargers
4	Secured funding for out-of-pocket costs	Grants or approved budget to cover cost of BTM infrastructure, vehicles and chargers
5	Leadership approval	Must have internal readiness to sign a contract to commit to the EV Fleet Program
6	Proof of vehicle procurement	Paid vehicle invoice, approved vehicle grant or a letter from board/owner/city council/etc
7	Permission from property owner	Property owner must be willing to sign an easement with PG&E for infrastructure installation

EV Fleet electrification process



Business EV rate structure



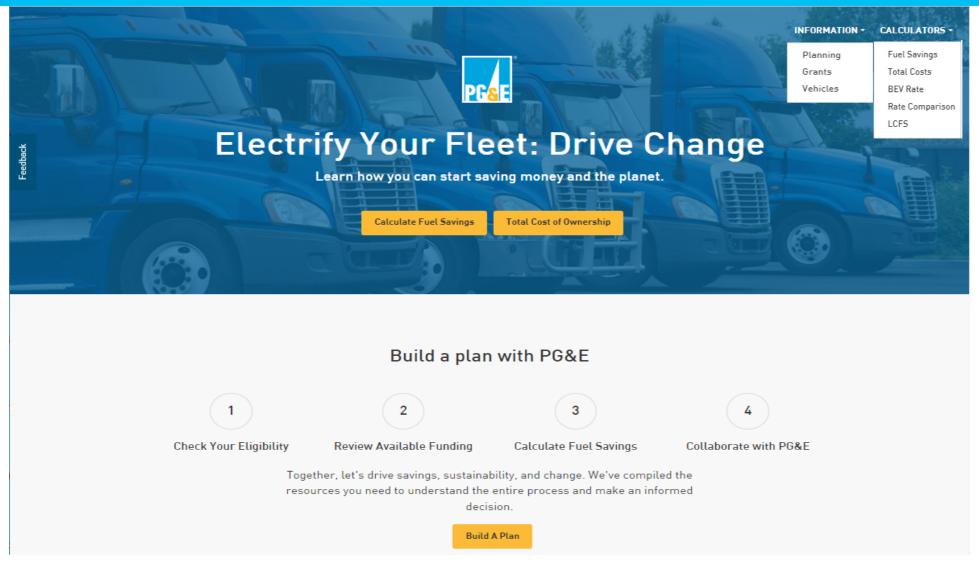


Significant Visit the Business EV Rate website for more information

^{*} Values for Business High Use EV Rate Secondary (BEV2-S) voltage. For Business High Use EV Rate Primary (BEV2-P) voltage, the price of each 50kW block is \$85.98. Please refer to the <u>Business EV Tariff</u> for exact values.



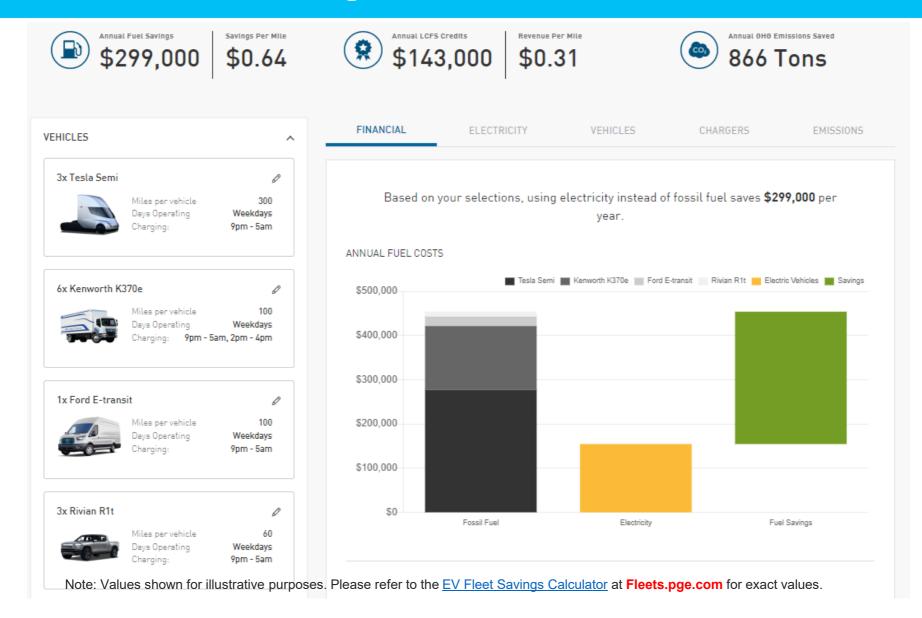
EV Fleet Savings Calculator



Note: Values shown for illustrative purposes. Please refer to the EV Fleet Savings Calculator at Fleets.pge.com for exact values.

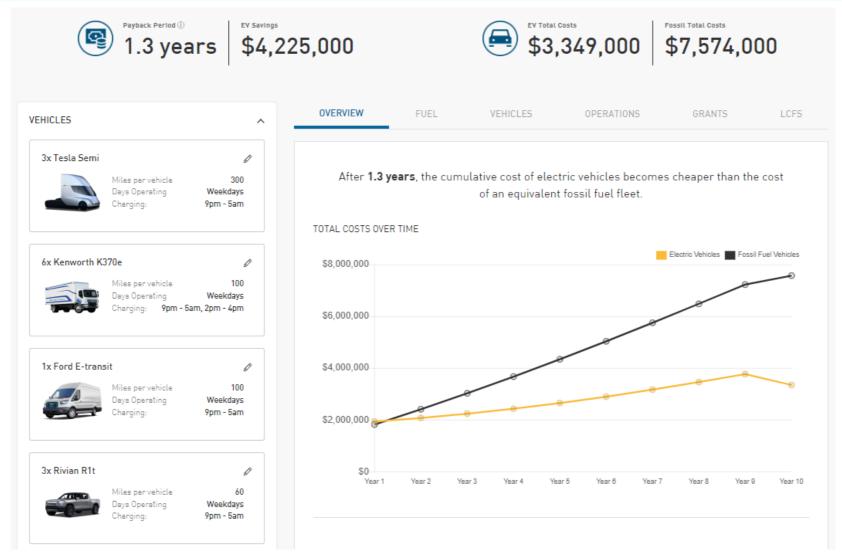


EV Fleet Savings Calculator





EV Fleet Savings Calculator



Note: Values shown for illustrative purposes. Please refer to the EV Fleet Savings Calculator at Fleets.pge.com for exact values.

Helpful resources



- SEV Fleet Website
- PG&E Integration Capacity
 Analysis (ICA) Map
- SEV Fleet Application
- S Approved List of Chargers
- Request to add Chargers to APL
- Requesting Letter of Support
- 3rd Party Authorization Form

- SEV Permit Streamlining Map
- SEV Fleet Terms and Conditions
- SEV Fleet Easement
- PG&E Service Territory Map
- SPSPS Map and Outage History
- PG&E Power Mix
- Generating Revenue with Low Carbon Fuel Standard (LCFS)



Thank you!

Tim O'Neill

tko2@pge.com

209-401-8189

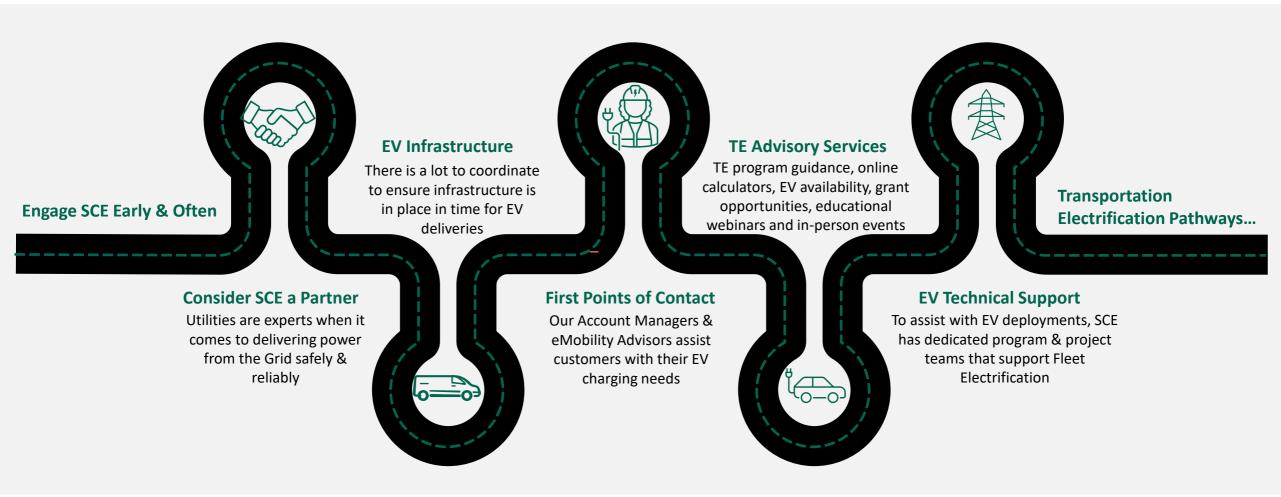
SCE's Transportation Electrification Pathways





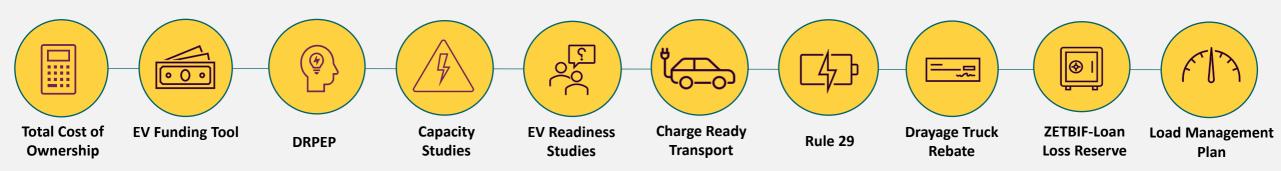
Working With SCE For Your Power Needs

Requesting or upgrading power can seem like a long and complicated process, but by planning ahead, you don't have to do it alone



SCE Supports Every Stage of Your Electrification Journey

Programs and self-serve resources are available to help you understand the impact of electrification, define requirements, and access funding for your fleet transition



START HERE:

Power Service Request

SHARE YOUR PLANS:

- EV Acquisition Plan Survey
- SCE Forecasting Process
- SCE System Planning Process

EARLY STAGES-PLANNING:

- SCE Distribution Resources Plan External Portal (DRPEP)
- Engineering Analysis Reports
- Total Cost of Ownership
- Drayage Truck Rebate
- ZETBIF-Loan Loss Reserve
- EV Funding Tool

TE ADVISORY SERVICES:

- EV Readiness Studies
- Load Management Plans
- In Person Events & Webinars

EV INFRASTRUCTURE:

- Charge Ready Transport
- EV Infrastructure (Rule 29)
- SCE Approved Product List



Low to No-Cost EV Infrastructure Installation – Charge Ready Transport

Offset the Cost of EV Infrastructure Installation With Up to a 10 – Year Fleet Deployment Strategy



Program Considerations

Highlights

- Program open until December 31, 2026
- Provides two construction tracks
- Can apply for multiple phases / sites
- Supports 100% electric class 2-8 & off-road EVs



Program Budget

Total Budget of \$342.6 million

- Allocated in accordance with the Decision
- Budget is allocated for transit agencies, ports and warehouses, forklifts, and disadvantaged communities



Financial Offsets

Charger Hardware Rebate up to 50%

- School District, Transit Agency or project site in a DAC, and applicant not on Fortune 1000 List
- Rebate cap \$1,800 to \$39,200 per charger



Charge Ready Transport

For More Information:

Ramiro Lepe

(626) 842-7129

Ramiro.Lepe@SCE.com

www.sce.com/crt



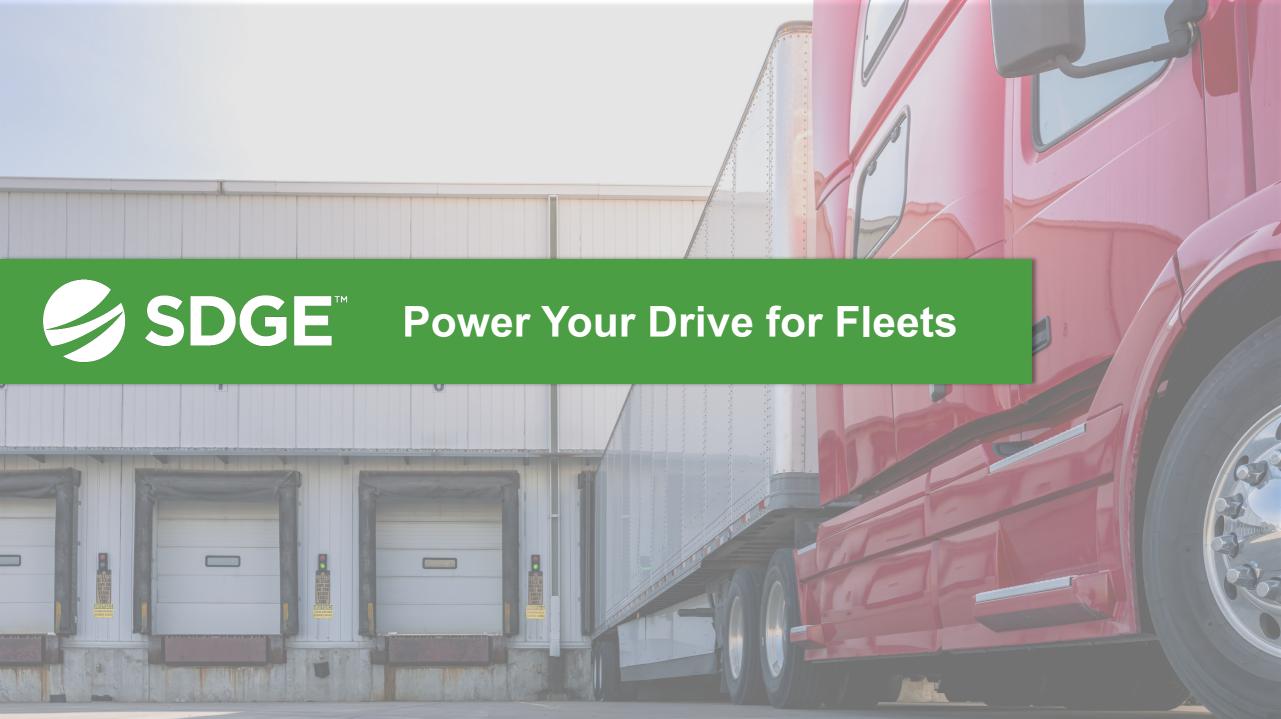




Fleet Customer Support

May 2025





Power Your Drive for Fleets

Make-ready charging infrastructure for MD/HD fleets

Program Overview

\$107 million over 5 years

3,000+ new EVs on- and off-road Class 2-8

300+ customer sites public and private fleets

Program Requirements



Demonstrate commitment to procure a minimum of 2 EVs



Demonstrate long-term electrification growth plan and schedule of load increase



Provide data related to charger usage for a minimum of 5 years

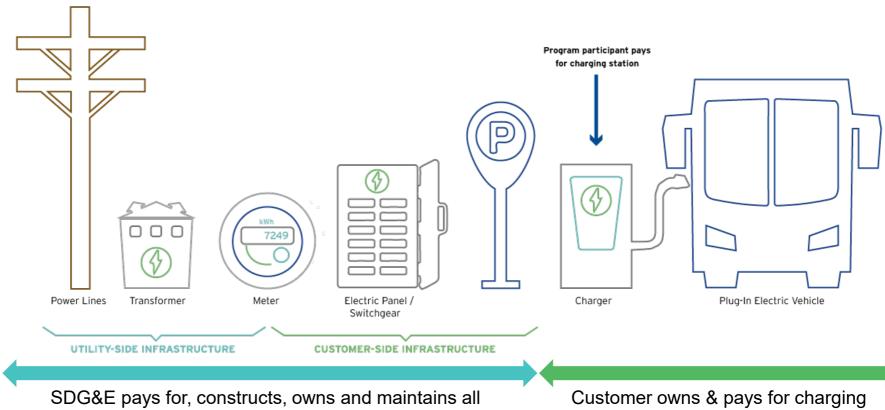


Own or lease the property where chargers are installed, and operate and maintain vehicles and chargers for minimum of 10 years



Power Your Drive for Fleets

Two options for installation & ownership



Option 1: SDG&E-Owned

Option 2: Customer-Owned infrastructure up to the charging station

stations; charger rebates may apply

SDG&E pays for, constructs, owns, and maintains infrastructure to the meter

Customer pays for, constructs, owns, and maintains infrastructure behind the meter for a rebate of up to 80% of the costs; owns & pays for charging stations; charger rebates may apply



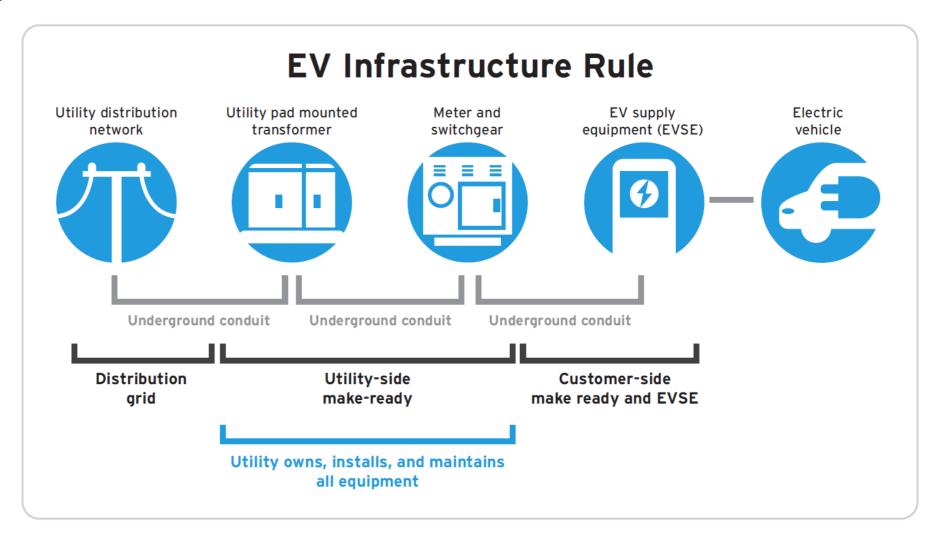


Rule 45 for EV Infrastructure

Utility-side "make-ready" infrastructure

Rule 45 is an optional tariff in lieu of Rule 16 to provide "make-ready" infrastructure upstream of the meter:

- ✓ Transformer and electrical conductor
- ✓ Construction work like trenching and repaving a parking lot
- Service-related ducts and structures







Program Overview



Provides guidance and expertise to medium- and heavy-duty fleet customers, including customized resources and tailored education to help them in their electrification journey.

- Coming soon
- Launched

Fleet Electrification Planning

Where do I Start?

- External Funding Information
- Electric Vehicle Selection
- Rate Education
- Charging Selection
- Estimated Environmental Benefits & Emission Reductions
- Total cost analysis
- Total Project Planning

Post-Energization Support

- Rate Optimization & Load Management
- Training for Operations & Technology Maintenance
- Emergency Preparedness for EV Fleets

Pre-Energization Support

- Capacity Analysis
- Site & Load Planning
- SDG&E Liaison Services
- EVSP selection support

Emerging Tech Consulting

- Vehicle-to-X (V2X)
- Automated Load Management (ALM)
- Microgrids
- Mobile temporary charging solution providers
- DER resiliency components



LADWP Medium & Heavy Duty Vehicle Funding

- \$8M in funding available for Medium & Heavy Duty EV Charger Rebate program
 - Funding available as of 5/1/2025
 - Applicable to chargers for Class 3 – 8 vehicles
 - Funding only available for chargers, not MHD vehicles
 - Expires 6/30/25, funding being set aside for post June 2025
- Links:
 - Commercial Program Overview
 - Funding Dashboard
- Questions: pluginla@ladwp.com

Chargers for Medium-and Heavy-Duty EVs	Guaranteed Output (kW) per Charger	Max Rebate Amount per Charger	Max Amount per Site
AC-1	6.2 to 49	\$10,000	\$2,000,000
AC-2	50 to 99	\$20,000	
AC-3	100+	\$30,000	
DC-1	24 to 49	\$35,000	
DC-2	50 to 99	\$60,000	
DC-3	100 to 149	\$100,000	
DC-4	150+	\$125,000	



EnergIIZE
Fast Track 2025 + Drayage & Transit
Set-Asides

May 12, 2025

Overview of EnergIIZE

Energy Infrastructure Incentives for Zero-Emission Commercial Vehicles

Provides reimbursement-based incentives for zero-emission vehicle (ZEV) infrastructure equipment for medium- and heavy-duty (MDHD) battery-electric and hydrogen fuel cell vehicles in California.

Funding is released in Standard and Set-Aside lanes, each representing a key area of the commercial ZEV landscape. Vehicles must be Class 2b-8, off-road applications are considered on a case-by-case basis.









TETRA TECH

Current EnergIIZE Funding Lanes



2025 Fast Track

Provides EV and hydrogen infrastructure funding based on readiness tiers

- Opens May 13, 2025 at 9am PT, closes July 15, 2025 at 5pm PT in the IPC.
- Up to 100% of eligible costs, up to \$3.75 million for EV and \$5 million for hydrogen



Transit

Provides EV and hydrogen infrastructure funding for transit agencies and tribes



Drayage

Provides EV and hydrogen infrastructure funding for drayage truck fleets

- The Set-Aside lanes pair EnergIIZE infrastructure funding with vehicle funding such as <u>HVIP</u> vouchers
- Currently open with extended application window to October 2nd, 2025
- Up to 100% of eligible cost, up to \$5 million covered for all projects
- Apply for Set-Asides through the <u>IPC</u> just like Standard EnergIIZE



Resources

- □ IPC Application Portal (https://calstart3.my.site.com/apply/s/)
- ☐ EnergIIZE Implementation Manual
- ☐ Fast Track 2025 Application Packet
- Drayage Application Packet
- ☐ Transit Application Packet
- □ EnergIIZE Application Workshop
- ☐ EnergIIZE Application Workshop Slides

Contact Us



infrastructure@calstart.org



877-ENR-GIZE 877-367-4493



www.EnergIIZE.org

Recap and Next Meeting

- Recap of today's discussion
- Next steps
 - Next Infrastructure TRIG meetings are 1:00-3:00 on August 11 and November 3
 - What topics should we cover at future meetings?
 - Email Leslie.Goodbody@arb.ca.gov

