



# Electric Vehicle Infrastructure Programs

October 23, 2019

# Overview

- Intro to SVCE
- CALeVIP
- EVI Plan

# SVCE Intro



# SVCE Member Communities



Campbell | Cupertino | Gilroy | Los Altos | Los Altos Hills



Los Gatos | Monte Sereno | Morgan Hill | Milpitas



Mountain View | Santa Clara County | Saratoga | Sunnyvale



# SVCE Benefits



## **Reducing Carbon**

*Fighting climate change by cutting carbon emissions*

We are helping our communities lead the fight against climate change by reducing the use of fossil fuels for energy, transportation and buildings, and building new renewable energy projects.



## **Reinvesting Locally**

*Net revenues directly benefit our local community*

SVCE returns value to our customers through competitive rates, clean energy programs, projects, scholarships, grants, and improved access and education.



## **Accelerating Innovation**

*Finding new ways to improve the grid and provide more renewable energy*

As the electricity industry undergoes unparalleled changes, SVCE encourages the advancement of new technologies to help our community meet its climate goals.

# Electricity Choices



## GreenStart

Your default option – carbon free and cheaper than PG&E

- Carbon Free
  - 50% wind + solar
  - 50% hydropower



## GreenPrime

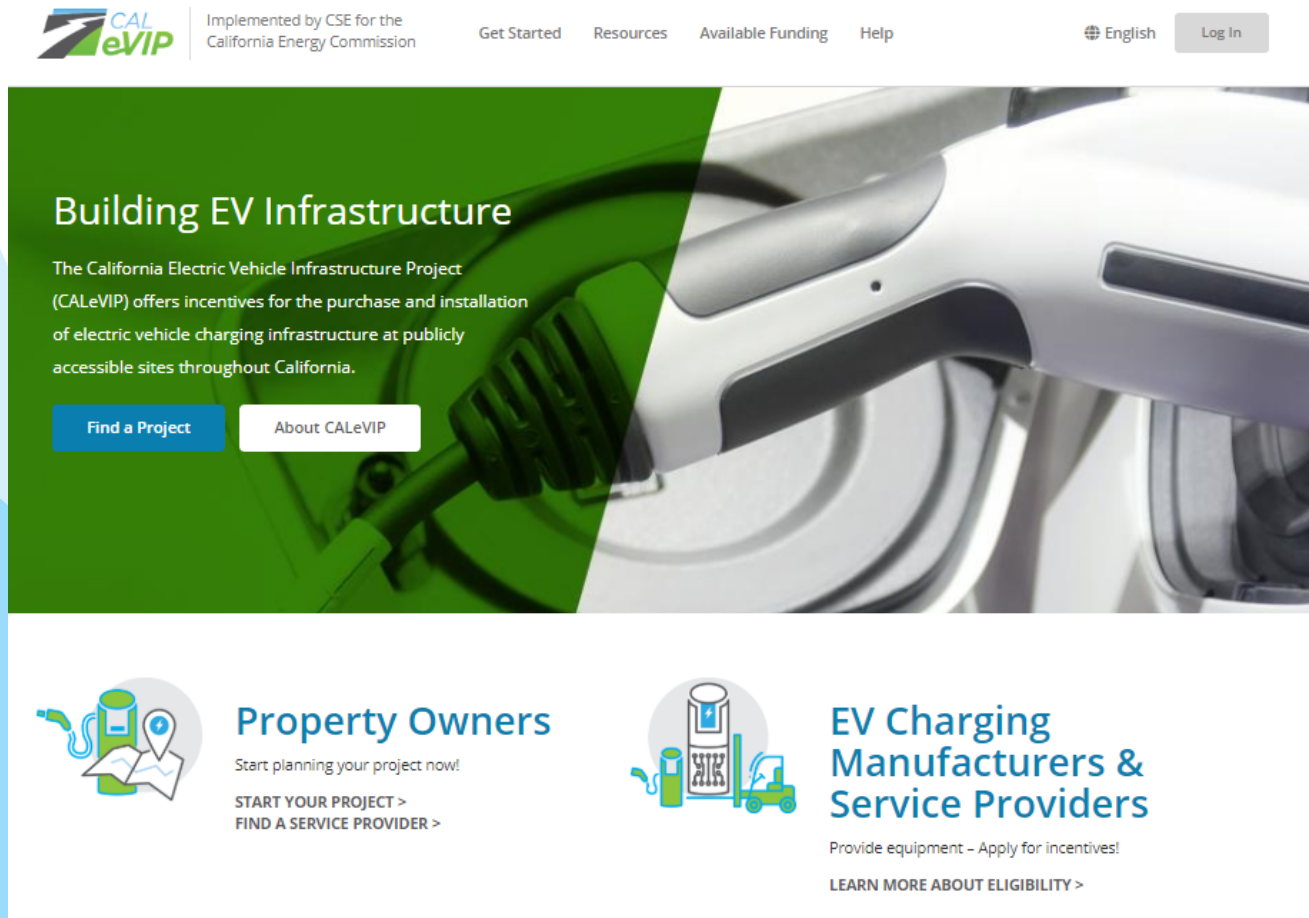
Your voluntary option costs less than 1 penny more per kilowatt hour than GreenStart

- 100% renewable wind + solar



# California Electric Vehicle Infrastructure Project (CALeVIP)

# What is CALeVIP?



The screenshot shows the CALeVIP website. At the top left is the CALeVIP logo, followed by the text "Implemented by CSE for the California Energy Commission". Navigation links include "Get Started", "Resources", "Available Funding", and "Help". There are also links for "English" and "Log In". The main banner features a green background with the text "Building EV Infrastructure" and a description: "The California Electric Vehicle Infrastructure Project (CALeVIP) offers incentives for the purchase and installation of electric vehicle charging infrastructure at publicly accessible sites throughout California." Below this are two buttons: "Find a Project" and "About CALeVIP". The footer has two sections: "Property Owners" with the text "Start planning your project now!" and links "START YOUR PROJECT >" and "FIND A SERVICE PROVIDER >"; and "EV Charging Manufacturers & Service Providers" with the text "Provide equipment - Apply for incentives!" and a link "LEARN MORE ABOUT ELIGIBILITY >".

**CALeVIP**  
Implemented by CSE for the California Energy Commission

Get Started Resources Available Funding Help

English Log In

## Building EV Infrastructure

The California Electric Vehicle Infrastructure Project (CALeVIP) offers incentives for the purchase and installation of electric vehicle charging infrastructure at publicly accessible sites throughout California.

[Find a Project](#) [About CALeVIP](#)

**Property Owners**  
Start planning your project now!  
[START YOUR PROJECT >](#)  
[FIND A SERVICE PROVIDER >](#)

**EV Charging Manufacturers & Service Providers**  
Provide equipment - Apply for incentives!  
[LEARN MORE ABOUT ELIGIBILITY >](#)

- Funded by CEC and implemented by Center for Sustainable Energy
- Intent is to deploy L2 and DC fast chargers rapidly to meet gaps in charging availability



# Peninsula-Silicon Valley CALeVIP Project

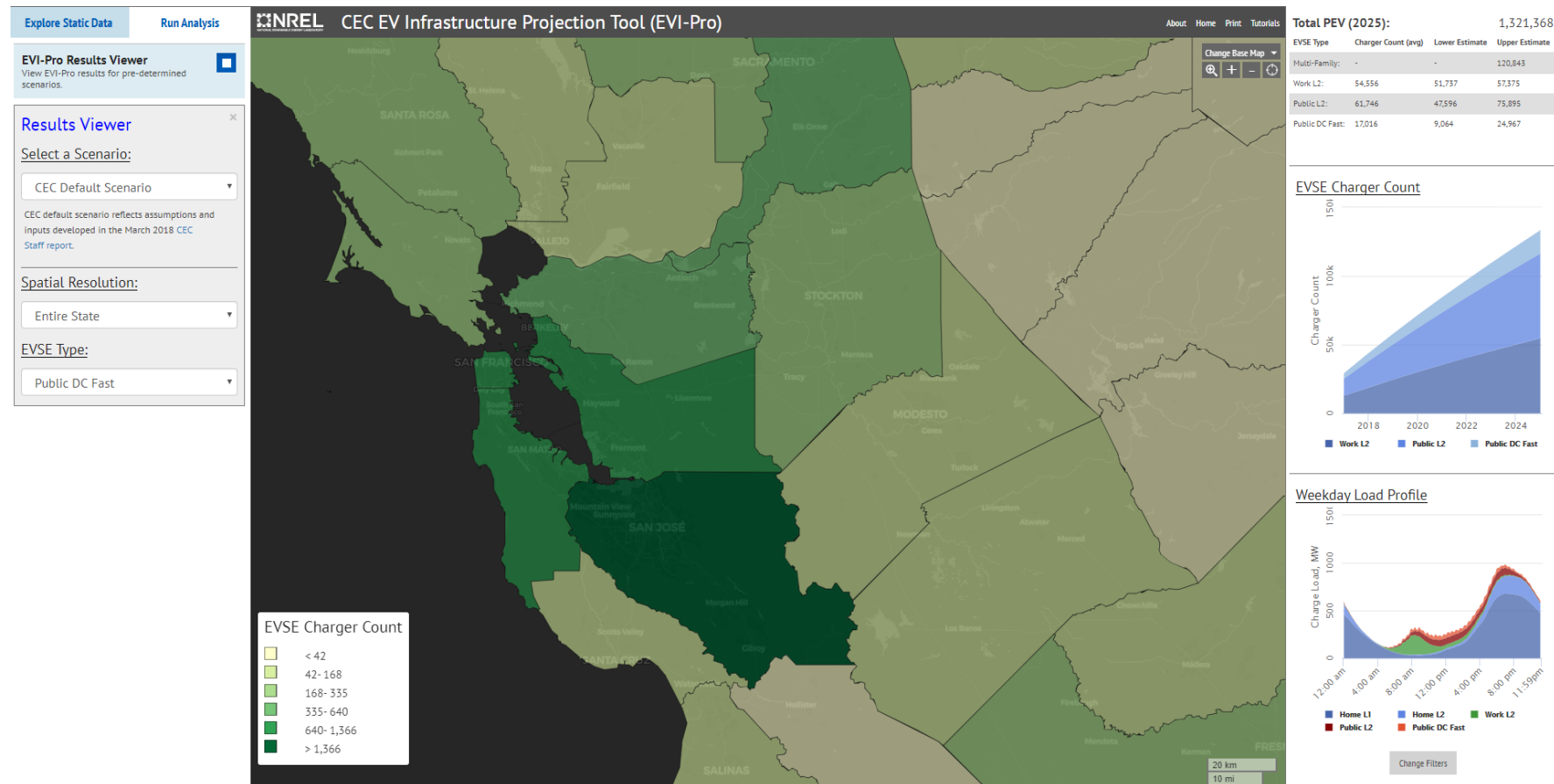
- Joint application with neighboring CCAs and munis
- Receiving a combined \$33M in funding from CEC for a total of \$60M across two counties
- Expected launch: May 2020
- SVCE will tie in with its own EVI programs





# Lessons Learned

- CEC determines selection and funding by projected EVI need, based on <https://maps.nrel.gov/cec/>



# Lessons Learned

- CEC is looking for county-wide applications
- Begin conversations with CSE early (now)
- Offering matching funds can help interest the CEC in your project



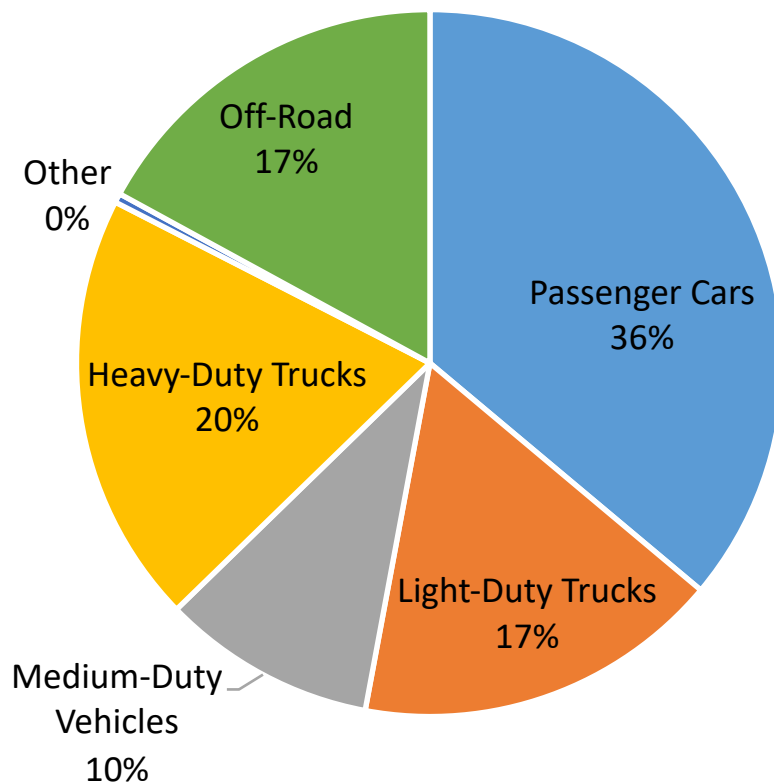
# EVI Plan



# Transportation in SVCE Territory

Annual Transportation GHG Emissions (2018)

Total = ~ 2 Million MT CO<sub>2</sub>e

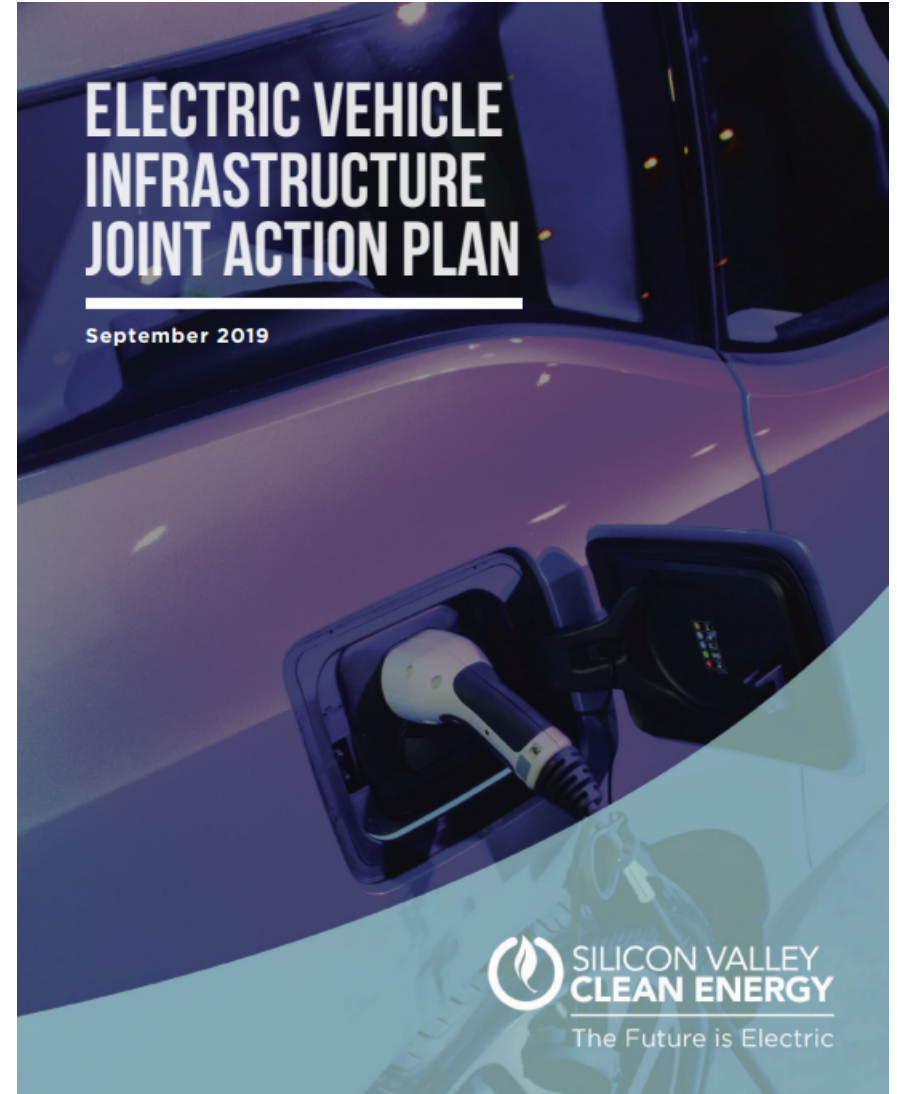


- Transportation responsible for over half of community emissions
- Access to convenient and ubiquitous EVI is a critical factor in EV adoption



# EVI Joint Action Plan

- Board approved EVI Plan in September 2019
- Available in Transportation section of programs page: <https://www.svcleanenergy.org/programs/>
- Result of several months of local stakeholder and member agency input





# Programs for 2019 Launch

## Silicon Valley Transportation Electrification Clearinghouse

- Regional group of key stakeholders focused on information sharing and attracting external funding to the SVCE community

### EV Infrastructure Program Planning Process

The EVI program planning process was initiated with a current-state assessment of electric vehicle and EV infrastructure deployment trends. From March through July 2019, SVCE developed an overall EVI strategy and individual Program Implementation Plans, informed by market data, best practices in EVI program design and several rounds of local stakeholder input. The planning process included these steps:

- Assessment of EV and EVI Deployment and Market Barriers:** including a summary of the current status and utilization of EVs and EV chargers across the 13 jurisdictions in the SVCE service territory.
- Growth Forecasts in Vehicle Electrification and Infrastructure:** including projected growth in EV and EVI deployment and related contributions to GHG reduction goals through 2025.
- EV-Related Surveys, Education and Stakeholder Engagement:** two workshops were convened with a broad array of stakeholders, including member agencies, EV service providers, community organizations and local employers; an online survey was also distributed to a randomized set of community members. More than 60 individuals and organizations provided expert input across nearly a full day of workshops - and more than 600 community members responded to the public survey.
- Program Implementation Planning:** individual Program Implementation Plans were developed across four key areas of EV infrastructure - including public DC Fast Charging, Workplaces, Multi-Unit Developments and Fleets. Two related support programs - a Regional Recognition Program for EV infrastructure, and the Silicon Valley Transportation Electrification Clearinghouse (SVTEC) - have also been identified to advance best practices and attract significant new funding to the region.



## 2 TRANSPORTATION EMISSIONS AND EV ADOPTION TRENDS

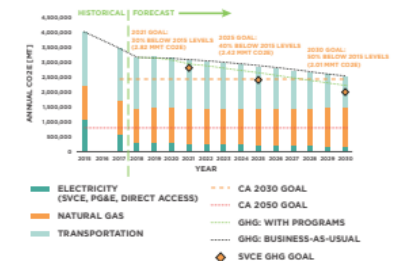
The Joint Action Plan relies on EV registration and charger installation data gathered by SVCE in support of its 2018 Decarbonization Roadmap. While data on EV adoption and publicly accessible EV charging infrastructure is relatively complete, comprehensive information on charging deployment in private settings (e.g. workplaces, multi-unit residential developments, private fleets) is difficult to compile. Additional research on privately accessible EV infrastructure will be important to refine future assessments and forecasts.

### Greenhouse Gas Emissions Projections

SVCE recently set ambitious goals for GHG emissions reduction in its service territory. SVCE targets GHG reductions of 30% below the 2015 baseline by 2021, 40% by 2025 and 50% by 2030. The graph below shows how a business-as-usual case for emissions reductions compares to SVCE goals (and what staff estimated they can achieve through programs).

To meet the SVCE 2025 goal of cutting GHG emissions to 40% below the 2015 baseline, significant reductions must be achieved in the transportation sector. Some of this reduction is expected to be achieved from existing, ongoing transportation electrification and market trends, which is reflected in the business-as-usual (BAU) forecast.

Bridging the gap between BAU and SVCE GHG reduction goals will, by definition, require accelerated rates of vehicle electrification and associated charging infrastructure deployment. The programs identified in this EVI Joint Action Plan represent an initial tranche of EVI programs necessary to help SVCE and its member communities sustain and accelerate emissions reductions in the transportation sector.



# Programs for 2019 Launch

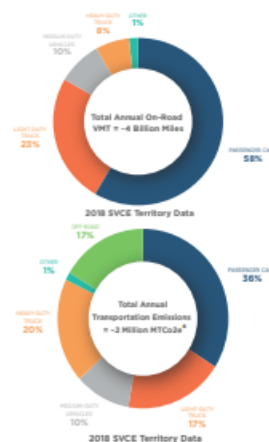
## Regional EV Leadership Recognition

- Recurring recognition for best practices in EV infrastructure deployment

### EV Adoption Needed to Meet GHG Reduction Targets

To meet SVCE's 2025 and 2030 GHG reduction targets, the share of EVs on the road must increase substantially as replacements for existing internal combustion vehicles. This transition must occur across all vehicle segments. While more than 75% of all local vehicle miles travelled (VMT) are from passenger cars and light trucks, these vehicles produce only half of all transportation-related emissions. Most currently available EVs are in those two segments.

Medium- and heavy-duty vehicles, while fewer in number and driving fewer miles, make up nearly a third of local transportation-related emissions. Compared with light-duty vehicles, electrification of heavier-duty vehicles and fleets is nascent. Electrification in these segments represents an important need and opportunity going forward.



Vehicle segments are defined based on vehicle type and gross weight. Passenger cars are typically non-commercial, although they can be used for fleets and commercial purposes. Light-duty trucks (which include many SUVs) and medium-duty vehicles are also a mix of commercial and non-commercial. Heavy-duty trucks are almost solely commercial. Examples of the vehicles that belong in each segment can be found in the table below.

### EXAMPLES OF VEHICLE SEGMENTS

PASSENGER CARS	LIGHT DUTY TRUCKS	MEDIUM DUTY TRUCKS	HEAVY DUTY TRUCKS	OTHER
Sedans, hatchbacks	Small pickup trucks, SUVs	Large vans, pickup trucks, utility vehicles	Tractor-trailers, dump trucks, garbage trucks, school buses	Motorcycles, commercial equipment

The GHG emissions chart shows transportation sector emissions from internal combustion vehicles spanning all vehicle segments for 2018. SVCE ended 2018 with ~25,000 EVs registered in its territory, which were predominantly non-commercial. The BAU scenario in the GHG emissions forecast used recent EV adoption trends to project that this number will increase to ~190,000 total EVs in 2025, a roughly sevenfold increase. The BAU scenario also assumed that ~5% of commercial VMT would be electrified by 2025.

Achieving the additional GHG emissions reductions needed to meet SVCE's 2025 goal will require substantial adoption of EVs beyond this BAU scenario. This growth will require a correspondingly significant increase in the deployment of EV infrastructure. SVCE programs identified in this report represent important incremental efforts needed help to sustain and accelerate local EV adoption rates through initial SVCE investment in EV infrastructure and broadened collaborative planning and deployment efforts.

While electrification will occur at different rates depending on vehicle segment, it must be actively encouraged and supported across all segments to achieve SVCE's decarbonization goals. On a periodic basis, SVCE will take stock of progress against goals, bring stakeholders together to share collective experiences, assess priorities for action, and refine program designs or create entirely new programs.

### 3 EV CHARGING USE CASE

EV adoption needed by 2025 must be supported by an increase in EV infrastructure deployed across a broad range of charging use cases. These EV charging use cases represent different scenarios in which EV drivers may choose to charge their vehicles - as such, a given driver may make use of different charging use cases at different times.

The EV charging "pyramid", shown below, is an image often used to generally describe how EV drivers have typically needed and utilized charging at different locations.<sup>4</sup> Research has shown that among current EV adopters, most charging events occur at home, followed by workplace, destination and corridor locations. Of course, this is an idealized model, as actual usage depends greatly on individual driver circumstances (e.g. driving patterns, single family home versus apartment or condo, availability of charging at the workplace). Additionally, the charging paradigm presented in the pyramid may not be able to adequately serve some potential EV drivers, such as residents in multi-unit developments (MUDs).



<sup>4</sup>Off-road emissions are presented in the GHG emissions chart, but this Plan focuses on on-road emissions only. Future SVCE efforts may target the off-road sector.  
<sup>5</sup>U.S. Department of Energy November 2018, Cited Associated with Non-Residential Electric Vehicle Supply Equipment: [https://blm.energy.gov/files/publication/evse\\_rpt\\_report\\_2018.pdf](https://blm.energy.gov/files/publication/evse_rpt_report_2018.pdf)

# Priority Zone DC Fast Chargers

- ## 4 ENABLING PRACTICES AND PRINCIPLES TO ACCELERATE EV INFRASTRUCTURE DEPLOYMENT

- **Customer and Community Value:** Deliver value to SVCE customers and community through program offerings and ongoing initiatives.
- **Core Role of SVCE:** Focus on activities where SVCE can and must play a key role given its unique position as a community-owned electricity provider.
- **Equity in Service:** Focus on activities that meet the needs of the diverse SVCE customer base and geography.
- **Emissions Impact:** Prioritize activities with the greatest emissions reduction potential.
- **Scalability and Transferability:** Deploy solutions that can be expanded and adapted by others, both within and beyond its borders.



Within the EVI program portfolio, SVCE has also identified key Enabling Practices that are critical approaches to overcoming specific barriers to EV infrastructure deployment and associated EV adoption. Programs were constructed to help further establish and leverage these important enabling practices. The enabling practices are described below.



<sup>2</sup> Enabling practices are based on ICF's 2018 Driving to Net Zero Report for the County of Santa Clara Office for Sustainability, ICF, County of Santa Clara Office of Sustainability, March 2018, Plug-in Electric Vehicles and Infrastructure: A White Paper for the Cities Association of Santa Clara County, <https://www.sccgov.org/sites/dca/Documents/Task-18-Plug-in-Electric-Vehicles-Infrastructure-A-White-Paper-for-the-Cities-Association-of-SCC.pdf>

# Programs for 2020(?) Launch

## MUD Technical Assistance

- Technical assistance and rebates for shared L2 charging at MUDs

## Workplace Charging Rebates

- L2 charging rebates for small/medium businesses

## Fleet Electrification Grants

- Competitive solicitation for fleet electrification planning support and funding for site upgrades

# Learn More:



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