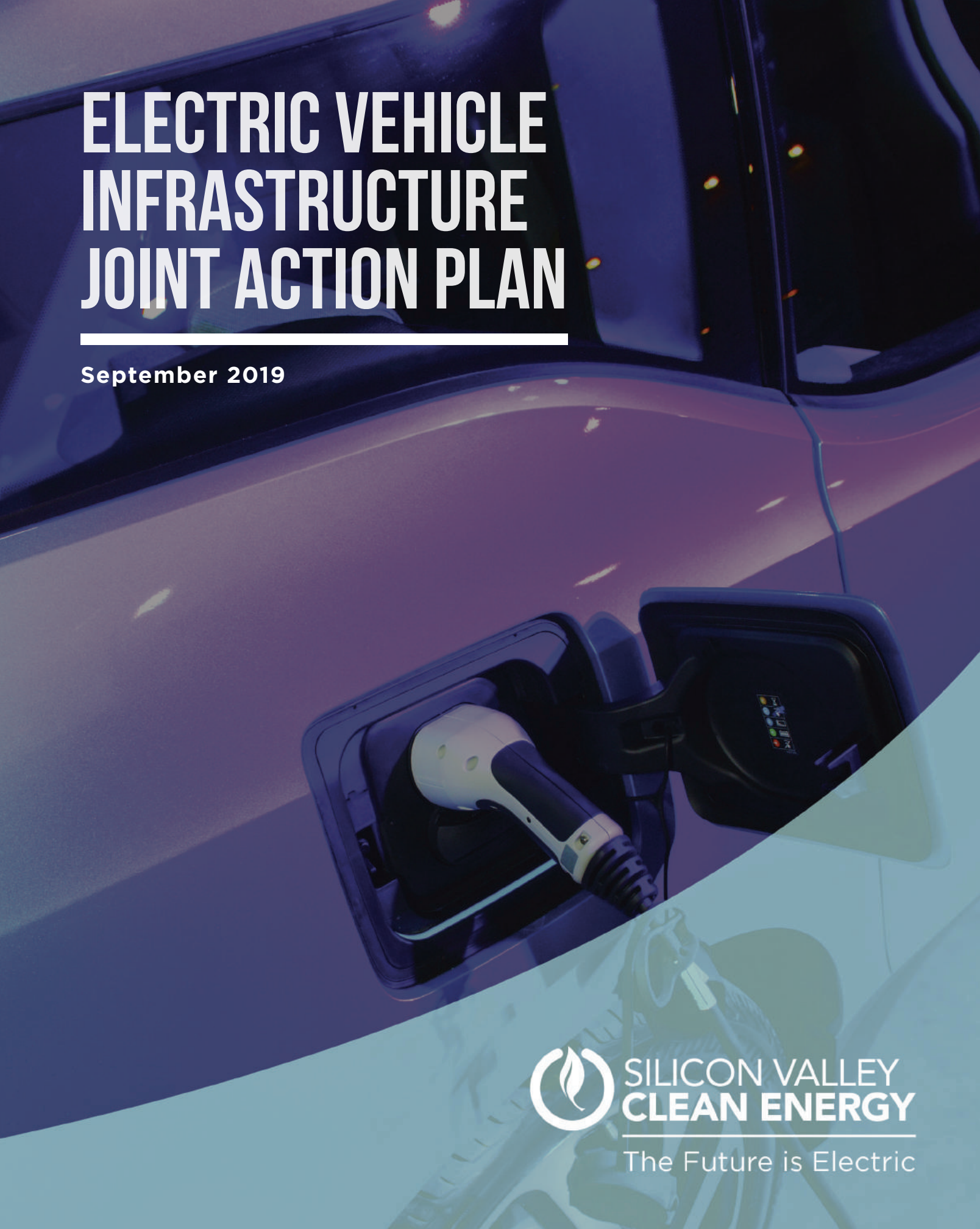
ELECTRIC VEHICLE INFRASTRUCTURE JOINT ACTION PLAN

September 2019



SILICON VALLEY CLEAN ENERGY

The Future is Electric

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ACKNOWLEDGMENT

The EV Infrastructure Joint Action Plan was created by Silicon Valley Clean Energy with substantial support from E-Mobility Group. It is the result of significant research and input from many local organizations and agencies – a special thanks to those who provided their time and expertise.

ELECTRIC VEHICLE INFRASTRUCTURE GLOSSARY

Charger Levels[1]

Level 1 (L1): (110 volts AC) Typically used for residential overnight charging or long-dwell charging at workplaces, L1 charging provides ~4.5 miles of additional range per hour of charging.

Level 2 (L2): (208-240 volts AC) Commonly found in workplace, public, and some home charging applications, L2 charging provides ~26 miles of additional range per hour at a 6.6kW charge rate. Level 2 charging is becoming quicker over time, with 20 kW charge rates possible on some vehicles and chargers (potentially providing over 50 miles of range per hour).

Level 3 or Direct Current Fast Charging (DCFC): High-powered DC Fast Charging (ranging from 24kW – 350 kW) is typically found in public commercial charging plazas and fleet charging applications. DCFC provides ~40 miles of range in ten minutes at a 50kW charge rate. DCFC is also becoming much quicker over time, with 150kW – 350kW chargers now being deployed. Fast Chargers typically require high-cost electric infrastructure upgrades.

Technical Note on EVSE Deployment Measures: Charging Stations vs. Charging Ports

Commercial EV Charging Stations – also known as Electric Vehicle Service Equipment (EVSE) – can be counted in two ways: 1) based on the number of charging stations – typically defined as a single charging pedestal with one or two charging ports, or 2) based on the number of charging ports (also known as "plugs," "points," or "connectors"). For Level 2 stations, a dual port station can typically be used concurrently by two vehicles.

For DC Fast Chargers, in cases where two ports are provided in the two primary connector formats (CCS and CHAdeMO), most often only one vehicle can charge at a time. Most public data sources do not distinguish between charging stations (typically referred to as EVSE) and charging ports. Where such data is available, it is reported here in terms of ports. Where port-level data is not available, and data sources report only the number of Level 2 EV charging stations (or EVSE), it can be assumed that an unknown but significant percentage of these Level 2 stations (likely more than 20%) include at least two ports each.

LIST OF KEY TERMS

BEV	Battery Electric Vehicle	**MUD**	Multi-Unit Development
CARB	California Air Resources Board	**PHEV**	Plug-In Hybrid Electric Vehicle
DCFC	Direct Current Fast Charger	**SVCE**	Silicon Valley Clean Energy
CALeVIP	California Electric Vehicle Infrastructure Project	**SVTEC**	Silicon Valley Transportation Electrification Clearinghouse
EV	Electric Vehicle	**TNC**	Transportation Network Company
EVI	Electric Vehicle Infrastructure	**VPP**	Virtual Power Plant
EVSE	Electric Vehicle Service Equipment	**MTCO2e**	Metric Ton of Carbon Dioxide Equipment
GHG	Greenhouse Gas		
kWh	Kilowatt Hour		

[1] Saxton, January 2011, Plug In America. *Understanding Electric Vehicle Charging*, https://pluginamerica.org/understanding-electric-vehicle-charging/

1 EV INFRASTRUCTURE JOINT ACTION PLAN OVERVIEW

Silicon Valley Clean Energy (SVCE) serves thirteen communities in Santa Clara County, providing carbon-free electricity and local programs for ongoing carbon emissions reduction. The Electric Vehicle Infrastructure Joint Action Plan assesses and prioritizes future electric vehicle (EV) charging needs across local communities. It then outlines new SVCE programs focused on deployment of charging infrastructure, also known as electric vehicle infrastructure (EVI), needed to sustain and accelerate rapid adoption of electric vehicles.

Purpose and Format of the EV Infrastructure Joint Action Plan

Emissions from transportation comprise the largest source of greenhouse gases (GHGs) within the SVCE service area. Accordingly, transportation electrification represents the region's single largest decarbonization opportunity. New sales rates for electric vehicles are higher in Silicon Valley than anywhere else in the United States, and continue to grow rapidly. Nonetheless, EVs still represent less than 5% of all vehicles on local roads. Far greater rates of overall adoption will be required to achieve longer-term local and state climate action goals.

EV adoption is driven by a wide range of factors – including model diversity, all-electric range, performance, styling, pricing, incentives, and general economic conditions. Another critical factor is access to convenient and ubiquitous EV charging.[2] To date, access to charging has been particularly challenging for many low-income households, residents of multi-unit developments, small businesses, and fleet operators of all kinds. Planned SVCE investments in EVI will be focused on high-priority market segments such as these – where improving access to EV charging will help drive greater EV adoption rates.

To accelerate the electrification of transportation, in 2019 the SVCE Board of Directors authorized approximately $8 million in SVCE EV infrastructure incentives and investments over the FY 2020 – FY 2023 period. SVCE expects these resources will leverage substantial additional public and private funding for EVs and EV charging over the coming four years.

To guide these new investments, SVCE has developed this Electric Vehicle Infrastructure Joint Action Plan as a high-level articulation of program strategy. SVCE also developed six specific EV infrastructure Program Implementation Plans with extensive stakeholder engagement, which will guide development of future solicitations and final program designs to be developed and launched in FY 2019-20 and beyond. The Joint Action Plan includes a summary of each Program Implementation Plan that highlights the key components of the rationale, design, strategy, and estimated costs and outcomes.

Coupled with EV infrastructure reach codes, development of online educational resources and other SVCE activities currently in process, these six new EVI programs will enable SVCE communities to reduce emissions via: 1) investment in charging infrastructure and 2) enhanced community awareness and engagement in EV ecosystem development.

The SVCE EV Infrastructure Action Plan describes strategies to achieve transportation emission reductions based on today's technologies and mobility patterns. Future updates to EV infrastructure programs will be made as SVCE's decarbonization goals evolve, and as new mobility trends emerge. New trends include what are known as the "three revolutions" of electrification, autonomy and ride hailing/ride sharing, as well as micro-mobility technologies and changes in land use policy.

Autonomy

Autonomous vehicle (AV) pilot projects are already operating in Los Altos, Los Altos Hills, Mountain View and Sunnyvale within the SVCE territory.[3] The exact timeline on fully autonomous driving being commercially available, let alone commonplace, is unknown. Additionally, the impact that autonomous driving will have on transportation patterns and the number of miles traveled remains to be seen.

Sharing

Third-party ownership of vehicles, along with ride hailing, both fall under the umbrella of ride sharing. Transportation network companies such as Uber and Lyft are some of the more visible ride sharing organizations to date. A transition away from personal ownership and towards shared ownership and ride-hailing modalities may have a significant impact on Silicon Valley's transportation patterns.

Micro-mobility

Micro-mobility refers to small-scale vehicles – such as electric bicycles, e-scooters, and even electric skateboards and hoverboards – that can reduce dependence on cars, especially for short-haul trips. They can complement bus and rail transit to close the "first mile" and "last mile" gaps and enable commuters to quickly reach widely dispersed workplaces. Widespread deployment will likely improve the utilization of public transit offerings and impact other modes of transportation.

Land Use Planning

Land use planning is a powerful tool that can influence overall transportation patterns. Key trends in Silicon Valley include an emphasis on higher-density and in-fill development, and the promotion of mixed-use areas including residential, retail, and office or live/work spaces. The goal of such policies is in part to reduce auto dependence, promote shorter commutes and drive a modal shift to more walking, biking and micro-mobility utilization.

[2] See the following studies:
McKinsey & Company, August 2018, *Charging ahead: Electric-vehicle infrastructure demand*, https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/charging-ahead-electric-vehicle-infrastructure-demand

Edison Electric Institute, February 2018, *Customer Solutions - Electric Transportation*, https://www.eei.org/issuesandpolicy/electrictransportation/Documents/Accelerating_EV_Adoption_final_Feb2018.pdf

Harris Poll, March 2018, *More Charging Stations Biggest factor to Increase EV Purchases: Volvo Car/USA The Harris Poll*, https://evadoption.com/charging-infrastructure-is-it-critical-to-automaker-ev-sales-success%EF%BB%BF/

[3] Hawkins J., July 2019, The Verge. *Waymo gets green light in California* to pick up passengers in self-driving cars, https://www.theverge.com/2019/7/3/20680938/waymo-self-driving-cars-passengers-permit-california-pick-up

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

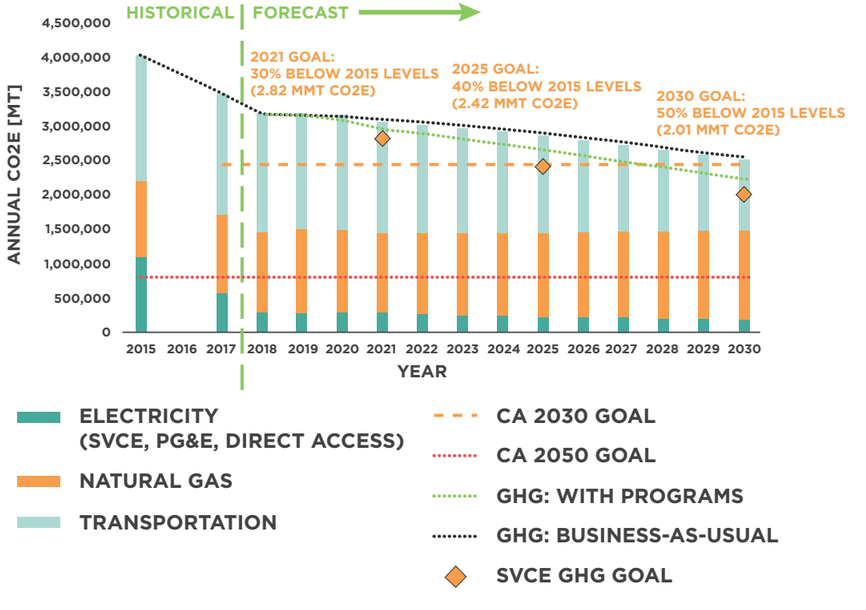
The Joint Action Plan relies on EV registration and charger installation data gathered by SVCE in support of its 2018 Decarbonization Roadmap. While data on EV adoption and publicly accessible EV charging infrastructure is relatively complete, comprehensive information on charging deployment in private 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.

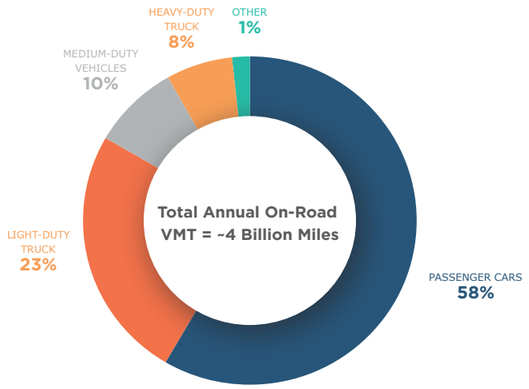
Bridging the gap between BAU and SVCE GHG reduction goals will, by definition, require accelerated rates of vehicle electrification and associated charging infrastructure deployment. The programs identified in this EVI Joint Action Plan represent an initial tranche of EVI programs necessary to help SVCE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



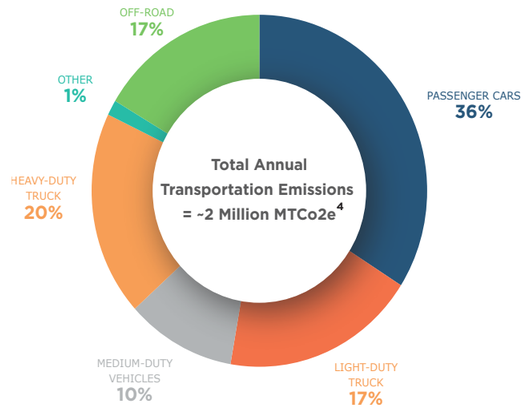
EV Adoption Needed to Meet GHG Reduction Targets

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.



2018 SVCE Territory Data



2018 SVCE Territory Data

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	Cargo vans, pickup trucks, utility vehicles	Transit buses, big-rigs, school buses, motor homes	Motorcycles, construction equipment

The GHG emissions chart shows transportation sector emissions from internal combustion vehicles spanning all vehicle segments for 2018. SVCE ended 2018 with ~26,000 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.

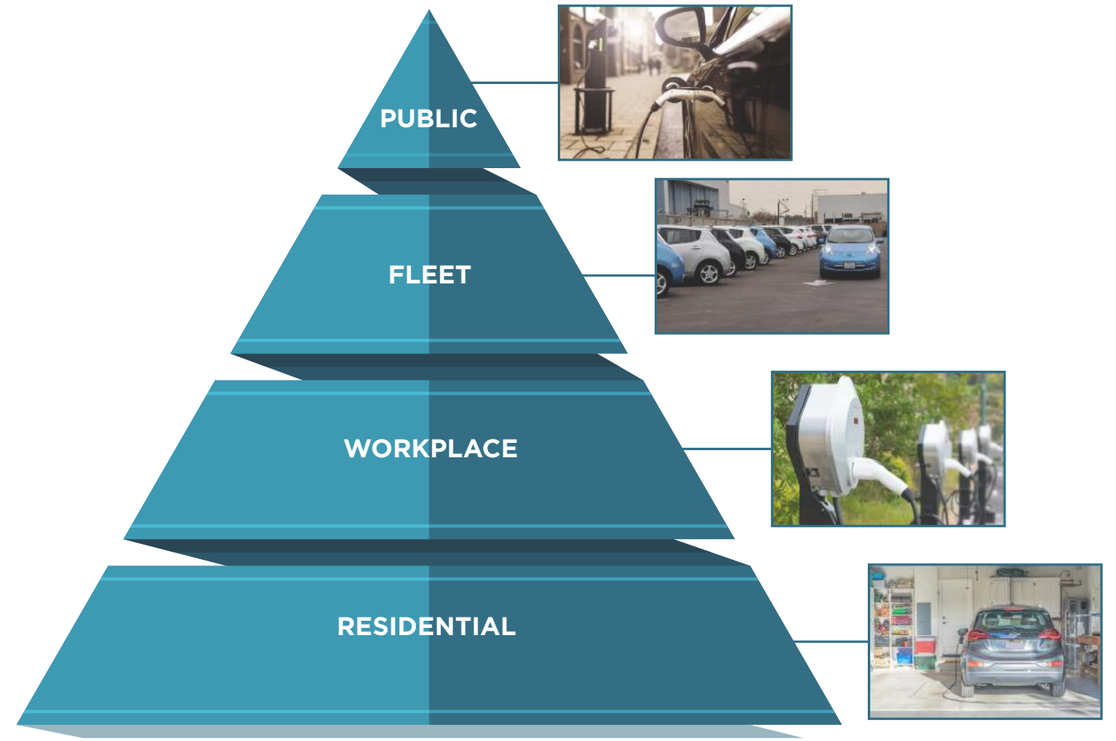
Achieving the additional GHG emissions reductions needed to meet SVCE's 2025 goal will require substantial adoption of EVs beyond this BAU scenario. This growth will require a correspondingly significant increase in the deployment of EV infrastructure. SVCE programs identified in this report represent 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.[5] 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).



[4] 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.

[5] U.S. Department of Energy, November 2015, *Costs Associated with Non-Residential Electric Vehicle Supply Equipment*, https://afdc.energy.gov/files/u/publication/evse_cost_report_2015.pdf

Residential EV Charging Use Cases

Most EV charging currently occurs at the home, at either the Level 1 or Level 2 speed. Most EV adoption to date has been among residents of single-family homes, where a charger can be deployed in the occupant's garage or parking area. Residents in MUDs, such as apartment or condominium complexes, have substantially lower EV adoption rates in SVCE's service territory as well as other regions throughout the state. MUD EV adoption in California has been seriously hindered by the lack of residential charging infrastructure, which stems from challenges including physical constraints, cost, complexity and competing priorities for owner investment.[6] Because of the disparity in EV ownership, most residential EV charging currently occurs in single family homes. The table below compares EV adoption by single family and MUD residents.

RESIDENTIAL EV ADOPTION BY RESIDENT TYPE IN SVCE SERVICE TERRITORY

RESIDENT TYPE	HOUSEHOLD BY RESIDENT TYPE		REGISTERED EV BY RESIDENT TYPE	
Single Family	150,000 units	61%	20,000 EVs	91%
MUD	95,000 units	39%	2,000 EVs	9%
Total	245,000 units	100%	22,000 EVs	100%

Workplace EV Charging Use Cases

The second most common location for EV charging is currently at work. As a workplace amenity, a number of large employers in SVCE's service area provide free or low-cost EV charging to their employees. EV infrastructure at large workplaces is typically private, meaning charging is reserved for company employees only. In most small or medium businesses, it is often more difficult to install charging, due to resource constraints, physical constraints and ownership-related constraints. Yet in small office complexes or mixed-use developments where EV charging is available, it is often available both to employees and the general public.

Access to charging at the workplace can be a major driver of EV adoption, especially for employees that do not have charging at home. Also, daytime charging of EVs at the workplace is well-aligned with the cleanest and lowest-cost electricity available on the grid.

Workplace Charging Deployment in SVCE Territory

As of 2017, more than 8,000 workplace chargers are estimated to be in operation throughout the SVCE service area, with large employers leading the way. Unfortunately, more exact data is difficult to obtain as workplaces are typically considered "private" – being predominantly restricted for employees – and thus are not included in the Department of Energy or Plugshare databases of public chargers.

To help fill in this data gap, SVCE's programs include plans to partner directly with local employers to survey current charger deployment, future growth and the extent of unmet need. In addition, surveys will endeavor to determine to what extent workplace chargers are serving commuters who may really need the range extension versus employees who are simply "topping off" for convenience or due to the availability of free charging. Surveys will also track pricing and parking management policies to better understand (and share) how local employers are managing EVI demand that is often in excess of available EVI supply.

[6] David Peterson, D., UCLA Luskin Center, June 2011, *Addressing Challenges to Electric Vehicle Charging in Multifamily Residential Buildings*, https://luskin.ucla.edu/sites/default/files/EV_Multifamily_Report_10_2011.pdf

Fleet EV Charging Use Cases

Vehicle fleets are groups of vehicles used by an organization to support day-to-day operational activities. In most cases, these vehicles are owned by the organization, though in some cases such as with Uber and Lyft, vehicles are usually owned by individual drivers. There are a number of specialized fleet charging applications – including light-duty public and private fleets, transportation network companies (TNCs) and heavy-duty passenger bus and commercial freight vehicles. To date, construction of fleet charging centers has been nascent – due to complexity, cost and dependencies on high-capacity charging and electric distribution infrastructure.

Fleets consisting of light-duty vehicles are used by both public agencies (like city governments) and private organizations (including private workforces or drivers TNCs). These fleets can take advantage of other use cases, such as public EV infrastructure built to serve non-commercial EVs or at residences if employees are able to bring the EVs to their homes overnight. However, EV charging for public agencies and most private fleets will typically take place in private fleet charging centers – the fleet charging use case in this Joint Action Plan refers to this private charging setup.

Fleet charging for public/private transit and for other large private fleets (such as delivery trucks) require substantially more expensive and faster charging equipment than other use cases. These heavy-duty vehicles like buses and commercial vehicles typically use private fleet charging centers, and cannot effectively utilize any EV charging infrastructure deployed to support the other use cases.

Public EV Charging Use Cases

Charging stations at retail locations or other "destination" locations (e.g. civic centers, parks, recreation facilities) are typically available to the general public. When located in visible, frequently-visited locations, these charging stations help alleviate range anxiety and promote EV awareness. Similarly, fast charging facilities at or near major freeway corridors are essential for enabling EV drivers to make longer-range trips. Public fast chargers can support a variety of driver needs.

Public DC Fast Chargers Support Drivers with Diverse Needs

- Charging for MUD or other residents with no charging at home
- Charging for visitors and commuters on long trips
- TNCs or taxis
- Delivery fleets
- Medium- and heavy-duty vehicles

To support broad-based transportation electrification, EV infrastructure must be deployed across all major use cases. If charging expands only in selected uses cases (for instance, at single family homes and large workplaces), mass adoption of EVs will be severely impacted. Harder-to-serve segments – such as MUD residents and fleet operators – will be greatly limited in their ability to make the transition to clean mobility. To meet SVCE's ambitious GHG goals, progress must be made in all charging use cases.

Key Barriers by Use Case

Based on SVCE's survey of existing community efforts, it is clear that new EV infrastructure programs – including increased region-wide resourcing and coordination – are needed to sustain and accelerate EV adoption necessary to meet 2025 GHG reduction targets. In designing the new programs, SVCE has sought to identify and address specific barriers associated with deployment in each major EV charging use case. While some barriers are unique to each use case, others are common to many use cases – as illustrated in the chart below and the discussion of key barriers that follows.

SUMMARY OF KEY BARRIERS TO EVSE ADOPTION, BY USE CASE

USE CASE	CHARGER LEVEL	EASE OF DEPLOYMENT	BARRIERS		
Corridor Charging	Level 2 Level 3	Low	Upfront Costs	Siting Permitting, Service upgrades & Interconnection	Interconnection & Demand Charge Management
Destination/ Retail	Level 2 Level 3	Med	Siting and Owner Permission, Permitting	Utilization Certainty	Sustainable Business Models
Fleets	Level 2 Level 3	Low	Upfront Costs	Site Specific Electrical Needs	Performance Assurance
Large Workplace	Level 2 Level 3	Med/Low	Upfront Costs	Site Specific Electrical Needs	Charger Oversubscription
Small/Med Workplace	Level 2 Level 3	Low	Upfront Costs	Lack of Planning Capacity	Technology Selection/ Knowledge Gaps
MUDs	Level 1 Level 2	Very Low	Site Specific Electrical Needs	Knowledge Gaps	Lack of Financial Incentives & Tenant Demand
Single Fam	Level 1 Level 2	Very High	Technology Selection/ Knowledge Gaps	Contracting & Install Management	Accessing Incentives & EV Rates

High upfront costs and site-specific electrical needs: EV charging infrastructure costs vary substantially from site to site based on differences in electric service, panel capacity, distance from the charging station to the electrical panel and many other factors. In most cases, property owners and site hosts require external subsidies to move forward on the installation of public EV charging stations. Creative "charging as a service" or "mobility as a service" financing options can also help overcome capital cost constraints.

Knowledge gaps: Building owner knowledge gaps about EV charging options, utility programs and installation requirements can slow or prevent EV charger adoption.

Lack of financial incentives and low tenant demand: Difficulty recouping charger capital costs through user fees – as well as a lack of tenant demand – can slow or prevent EV charger adoption in multi-unit residential settings and some workplaces.

Performance assurance: Fleet operators and other site hosts with critical needs require that their charging stations be highly reliable and meet robust standards for uptime and repair. The lack of such guarantees can inhibit EVSE deployment.

Siting, permitting, and service upgrade challenges: Identifying optimum sites for EV charger installation requires extensive planning to address user demand, geographic charging gaps, availability of electrical capacity, business models and other issues. These challenges – as well as delays in permitting or utility service upgrades – can slow or prevent EVSE deployment.

Utilization certainty: A lack of certainty regarding charger usage can discourage site hosts and EV service providers from deploying new public chargers.

The programs outlined in this Joint Action Plan target key challenges to EV infrastructure deployment identified by diverse customers, and seek to increase deployment levels in many use cases outlined above. SVCE will be focusing more of its limited resources on unlocking EV ownership in market segments that have seen lower adoption to date – including MUD residents and private and public fleets. Investment in charging infrastructure to support these segments will also support SVCE's goals for social equity – and provide significant co-benefits including accelerated reduction of diesel pollutants in the fleet sector.

4 ENABLING PRACTICES AND PRINCIPLES TO ACCELERATE EV INFRASTRUCTURE DEPLOYMENT

SVCE is committed to closing EV infrastructure gaps identified above with strategic use of SVCE program funding and by catalyzing increased investment from other public and private entities. These efforts will be guided by the following Core Priorities that SVCE has established for its overall decarbonization efforts. Each considered EVI program was assessed using criteria linked to these priorities.

- **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.

SVCE Enabling Practices

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.

Enabling Practices for EV Impact[7]

Regional Coordination: Local governments, employers, educational institutions, commercial property owners, innovators and other stakeholders all have a key role to play within Silicon Valley's EV infrastructure ecosystem. Bringing stakeholders together to share information and purpose can help to accelerate EV infrastructure deployment.

Funding Support and Incentives: Many local agencies, employers and fleet operators lack the funds required to overcome the one-time, up-front cost of EV infrastructure upgrades. Particularly for installations with costs that exceed "average" due to unique challenges, the availability of incentives, rebates, and grant funds are often essential to EV infrastructure adoption.

Education and Outreach: Decisionmakers determining whether to install EVSE often do not have the awareness or expertise to plan, select and install EV charging infrastructure. Education and outreach can help provide fluency and comfort in the technology.

Building Codes: EV charging standards embedded within local building codes can ensure that EV charging stations are ubiquitous, safe, and accessible. Building codes can have far-reaching impacts because they affect ongoing development and because new charging infrastructure installed at the time of construction or major remodel is far less costly than a retrofit approach.

Permit Streamlining: Making the permitting process simple, affordable and timely for member agencies and permitting applicants can help speed the roll out of charging infrastructure and meet the requirements of AB 1236, which mandates streamlined local EVSE permitting.[8]

Planning, Land Use and Zoning: Local governments can include charging requirements or incentives in their zoning ordinances, development guidelines and parking codes. These requirements can help ensure that cities are well-positioned to meet projected EV demand and that EV-equipped spaces are efficiently utilized.

Electric Rates: Customer-friendly electric rates for EV charging will provide predictable fueling costs for EVs that provide benefits to the electrical grid and the community as a whole.

Vehicle-Grid Integration (VGI): Integrating EVs and chargers with the electrical grid can enable revenue-producing grid services such as frequency regulation and load balancing. This integration has the potential to unlock new value streams for customers, vehicle owners, EV service providers and SVCE.

[7] 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/dnz/Documents/Task-1B-EVs-and-Charging-Infrastructure-A-White-Paper-for-the-Cities-Association-of-SCC.pdf

[8] California Legislative Info. *AB 1236: Local Ordinances: electric vehicle charging stations*, https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160AB1236

5 CURRENT STATE OF LOCAL ENABLING PRACTICES, POLICIES AND INITIATIVES

Many SVCE member communities have adopted CalGreen-aligned building code requirements for EV readiness, and are working to make these even more robust. However, other EVI-related initiatives have been slower to develop. As part of the SVCE program research and development process, the current status of each of the key enabling practices identified above was assessed for each community in the SVCE territory relative to each EV charging use case.

Building code, parking and permitting initiatives were the most commonly deployed across SVCE communities. However, programmatic approaches to funding support, education and outreach, and vehicle-grid integration (VGI) initiatives have not yet been locally developed. The EVI program portfolio formed by SVCE helps address the most critical gaps to support EVI development and market acceleration.

SVCE TERRITORY USE CASE AND ENABLING PRACTICE MATRIX - CURRENT VIEW

ENABLING PRACTICE

USE CASE	Regional Coordination	Funding Support & Incentives	Education & Outreach	Building Codes	Parking Enforcement or Signage Requirements	Permitting	Planning, Land Use, & Zoning	Electric Rates	VGI
Fleet - Public/Private Transit Buses, Shuttles	Ad Hoc Coordination	Intermittent State & Regional Funding Opportunities Available	No Permanent Program	N/A	N/A	N/A	N/A	No Specialized Rates	No Programs
Fleet - TNC					No Relevant Language				
Fleet - Public/Private Vehicles (City Fleets, etc.)					N/A				
Corridor	Drive the ARC			Low Adoption of EV Supportive Building Code	Low Adoption	More Than 50% of Communities Have Permitting in Place	No Relevant Language		
Destination/Retail	Ad Hoc Coordination								
Workplace - Large									
Workplace - Small/Medium									
MUD									
Single Family Residential					N/A			EV Rates in Place	

Given SVCE's ambitious emissions reduction goals and the importance of transportation electrification as a strategy, progress will need to occur across the matrix. Cells marked in yellow, indicating some level of accomplishment today, will likely need additional focus and/or investment. Cells marked in red, indicating no active and local accomplishment, will need to be addressed via newly formed program activities.

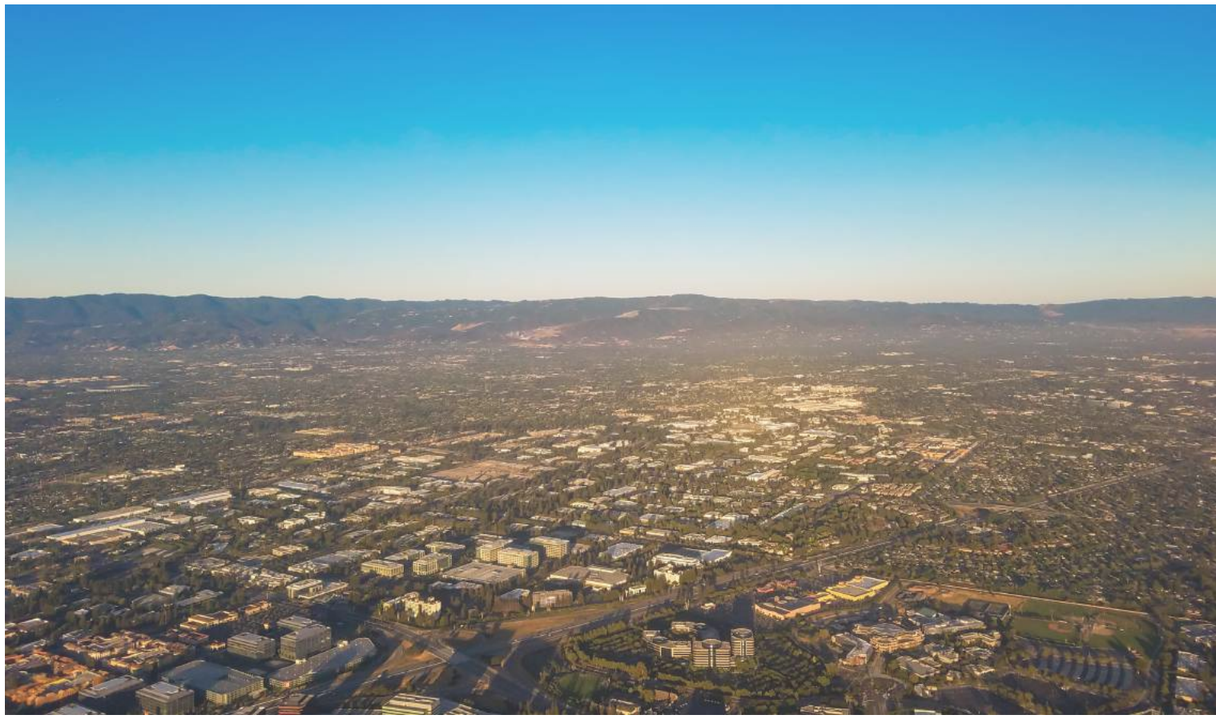
6 SVCE EVI PROGRAMS

SVCE is proposing six programs to support EV infrastructure deployment in its territory as an initial tranche of programs that will address the particularly in-need use cases. Additional programs will also be needed to meet SVCE's future GHG goals and will build on lessons learned from this first set. Additionally, SVCE has initiatives in adjacent sectors that will also support EV infrastructure deployment.

Context – Existing External EVI Support Programs

Substantial funding for EV infrastructure has been made available by the California Energy Commission and the Air Resources Board, the Bay Area Air Quality Management District, PG&E and private industry. These resources are generally increasing over time. However, most of this funding is available only on a first come, first served or competitive basis, and available funding levels vary month by month.

A key conclusion of this report is that a professionally managed funding clearinghouse could significantly increase the level of competitive funds awarded to SVCE customers and communities. Accordingly, a relatively modest but important strategic investment in resource development will likely yield a substantial return for the community.



Ongoing SVCE EVI Initiatives

Prior to the beginning of the current EV infrastructure planning process, SVCE established six EVI-related initiatives that will help to address some of the identified barriers in the EVI domain. These include:

- **Reach Codes Initiative:** SVCE partnered with Peninsula Clean Energy (PCE) to co-develop, with a collective thirty-four member agencies and industry stakeholders, proposed "reach codes" – local amendments to the building code that go above and beyond the state baseline requirements. The reach code initiative incorporates code development to advance EVSE buildout, in addition to a second track that focuses on supporting building electrification. The more rigorous EVSE reach codes will increase the number of parking lots that include EVSE-ready electrical infrastructure (called "make-readies") and the number of EV charging stations deployed in newly constructed facilities. Because charging infrastructure is far less costly to install when facilities are pre-wired for charging stations at the time of new construction, enhanced EV infrastructure mandates can reduce future installation costs by as much as 80% compared to the retrofit costs for buildings without EV-ready infrastructure. Multiple SVCE and PCE member agencies are scheduled to adopt model reach codes by the end of 2019, with an effective date of January 1, 2020.

  SVCE and PCE also are in the process of developing a companion program to provide financial support and technical assistance specifically to affordable housing projects in jurisdictions that adopt EVSE reach codes. This is to help ensure affordable housing providers bear little or no added construction cost to meet local requirements, address incremental operating costs associated with EV charging, and provide lower-income residents with significant, tangible benefits from SVCE's program investments.

- **Permit Streamlining:** As identified in its 2018 Decarbonization Roadmap, SVCE plans to partner with its local member agencies to develop permit streamlining practices. These will include practices designed to expedite the approval process on new EVI installations by creating model code language and processes to be adopted at a local level. The effort aligns with policy guidance from the Governor's Office of Business and Economic Development (GO-Biz) – provided in the new Electric Vehicle Charging Station Permitting Guidebook and ZEV Readiness website.

- **EV Rates:** SVCE currently supports EV-specific electric rates for residential customers. In 2020, SVCE will support new commercial EV rates, including a 'subscription' charge that helps limit the impact of EV charging on demand charges paid by most commercial customers.

- **Customer Resource Center:** SVCE is currently pursuing a customer-focused online information platform for SVCE customers to access information on all SVCE programs, including EV-related incentives and technical assistance. Customer Resource Center programs in the EV and EVI domains are still being evaluated, but will likely include information on EV performance, pricing, and available models, EV charging hardware and installation options, links to qualified installation contractors and help accessing available incentives. The Customer Resource Center may also make available negotiated discounts on chargers and EVs and be presented in multiple languages.

- **Virtual Power Plant (VPP) Initiative:** SVCE is currently developing itsVPP program to monetize and harness the value that distributed energy resources can provide customers and the grid to advance decarbonization and manage the anticipated load growth resulting from electrification. A variety of strategies are under consideration, including real time pricing, peak shedding demand response programs and broader load shifting approaches that incorporate direct energy market participation. Electric vehicle charging equipment can participate in a VPP program through smart charging platforms.

California Electric Vehicle Infrastructure Project

The California Electric Vehicle Infrastructure Project (CALeVIP) was created by the California Energy Commission (CEC) to support electric vehicle infrastructure throughout the state. The CEC has reached out to local partners to help fund and launch targeted programs in major regions throughout the state. To date, the CEC has launched four such regional programs, which have typically funded both Level 2 and DC Fast Charging initiatives.

To attempt to steer CALeVIP funding to local communities, SVCE formed a regional CALeVIP funding coalition with the City of Palo Alto Utilities, Silicon Valley Power, San Jose Clean Energy and Peninsula Clean Energy. This coalition created a compelling application to the CEC to fund a strategically aligned program for EV infrastructure that addresses one of the highest-need, fastest-growing areas of EV adoption in the state.[9] SVCE's letter of intent to participate in CALeVIP included a pledge of up to $6 million in match funding.

The CEC announced in August 2019 that it selected SVCE's coalition as a partner and will launch a local program in early 2020. The pledged funding for this program across the entire coalition's service area, including CEC and coalition member investments, is $60 million. The CEC plans to dedicate $6 million of their funds to SVCE's territory, to take advantage of SVCE's offered match. CALeVIP will result in $12 million in combined funding for EVI dedicated to serving SVCE customers within its member jurisdictions.

The final eligibility requirements and program design for CALeVIP will be publicly workshopped through the first quarter of 2020. SVCE believes that its programs will run smoothly in parallel with the final CALeVIP design, by referring applicants to the CALeVIP program for incentive payments. The other components of SVCE's programs would function as described in the Joint Action Plan. This arrangement would allow SVCE to make an even larger impact with its programs by utilizing the joint pool of $12 million in incentive funding. However, since the CALeVIP requirements are still being workshopped, final determinations on how CALeVIP will impact budgets, designs and timelines for SVCE's programs have not been made in this report.

[9] *National Renewable Energy Laboratory*. CEC EV Infrastructure Projection Tool (EVI-PRO), https://maps.nrel.gov/cec/

Overview of SVCE's New EVI Programs

Through the process and analysis outlined in this Joint Action Plan, SVCE created six program designs – two *EV infrastructure ecosystem support programs and four EV infrastructure programs.* These designs are briefly summarized below.

SVCE EVI Ecosystem Support Program Summaries

A. Silicon Valley Transportation Electrification Clearinghouse - SVTEC

- SVCE-funded regional work group focused on transport electrification
- Goals: 1) Share information; 2) Attract external funding using professional grant writing firm
- Includes key stakeholders in EV/EVSE industry, public agencies, employers, and local organizations
- SVTEC will interface with PG&E to streamline interconnection process

B. Regional EV Leadership Recognition

- Ongoing recognition for employer-led EV infrastructure initiatives
- Promotes Electrification Pledge by leading organizations
- Participants access SVCE funding and support
- Case studies of excellence in EV infrastructure and EV adoption

SVCE EVI Program Summaries

C. Priority Zone DC Fast Charging

- Competitive RFP for incentives for DCFC deployment in SVCE-defined priority areas
- Focus on areas to support MUD residents and corridor use cases

D. Multi-Unit Residential Charging Technical Assistance

- Target medium-density apartments to enable shared charging
- Includes site visits and techincal assistance
- SVCE incentives enable near 100% cost recovery

E. Workplace Charging Rebates

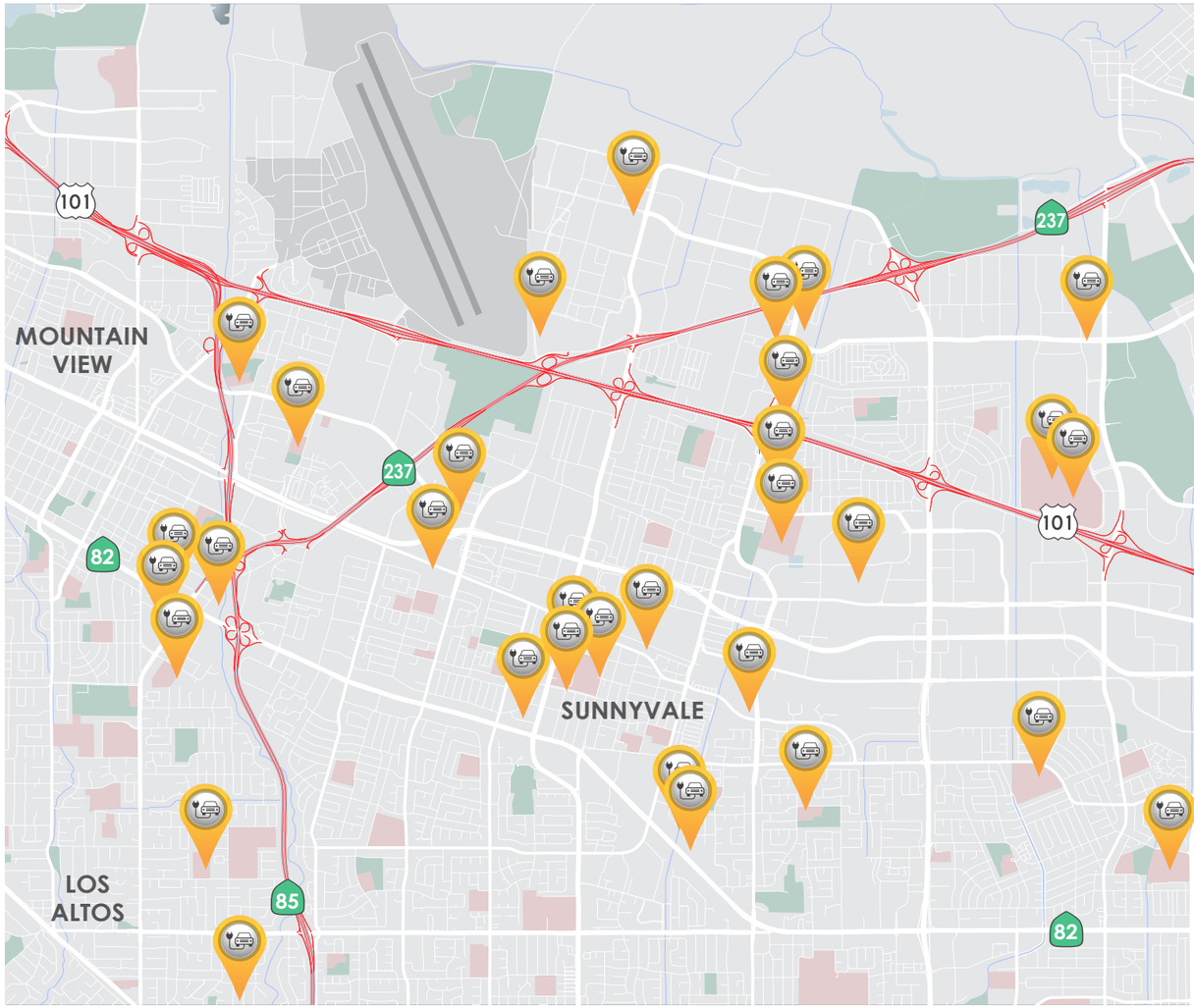
- Rebates for workplace charger deployment
- Focus on small/medium businesses
- Technical assistance enabled with link to Leadership Recognition Program

F. Fleet Electrification Grants

- Competitive grants for fleet electrification planning and site upgrades
- Focus on high-visibility fleet and public agencies (such as school buses)

One-page summaries of key elements from each design's Program Implementation Plan are provided in this report, which include information on the program rationale and examples of representative impacts and costs. These designs provide a starting point for future development, launch and ongoing refinement of each program.

Once each program proceeds to final launch planning, additional details – such as the total funding amount, specific project selection criteria or targeted locations – will be determined with supplementary stakeholder input. SVCE's internal Program Implementation Plan documents contain additional information including cost details and assumptions, implementation workplans and launch requirements, which will be used to inform this final scoping process.



A. Silicon Valley Transportation Electrification Clearinghouse

Program Rationale: A working group is an effective way to develop the needed resources to accelerate EV and EVI deployment across the region, and to share information among stakeholders. The Silicon Valley Electric Vehicle Transportation Electrification Clearinghouse (SVTEC) will bring together SVCE member communities and key leaders from relevant private and public sector organizations. The scale of the investment needed to accomplish SVCE's GHG goals necessitates coordinated action and the acquisition of external funding. The SVTEC will also allow SVCE to hear from its group of local stakeholders on needs that SVCE can address, such as acting as an interface with Pacific Gas and Electric (PG&E) on streamlining interconnection processes and helping engage with other statewide agencies.

Program Design: The SVTEC will enable regional information sharing and a coordinated and rapid response to funding opportunities – leading to substantial new public and private investment in EV infrastructure. The SVTEC will contract with a professional grant firm to monitor and respond effectively to grant funding opportunities, increasing the participation and "win rate" for SVCE and its partner communities and stakeholders.

Equity in Service: SVCE will work proactively with SVTEC members to target funding support for lower income households and communities that face barriers to EV adoption. Innovative shared e-mobility programs and technologies, including micro-mobility technologies (e.g. electric scooters and bikes), as well as electric buses and electric TNC vehicles will be among the eligible projects resourced through SVTEC in order to enhance e-mobility access for all residents in the service territory.

Program Strategies

S1. Establish a Regional SVTEC Steering Committee that includes key customers and community stakeholders

S2. Develop a bold regional vision for transportation electrification and robust program concepts that can be pro-actively seeded with key funders

S3. Develop a strong portfolio of projects that enable equitable access to e-mobility by all customers, including underserved communities

S4. Engage a grant firm with a proven track record to monitor and respond to funding opportunities

S5. Explore the feasibility of a regional decarbonization bond to increase regional EV infrastructure investment

S6. Provide a venue for SVCE to hear from key stakeholders about EVI-related issues that SVCE is best suited to address with statewide agencies

Representative Costs and Impacts: The exact impact based on SVCE's costs will depend heavily on the types of opportunities that are presented to the SVTEC and how successfully the group pursues outside funding. To win between $20 and $30 million in outside funding over four years, SVCE would need to spend approximately $250,000 to launch the group and pay for the first year of consultant assistance, until outside funding could be secured to run the group. Other activities and deployment would ideally be funded through outside grants.

B. Regional EV Leadership Recognition

Program Rationale: Employers and organizations of all types need more information and support to understand the value of installing EV charging, and to learn about the benefits, incentives and deployment strategies available to charging providers. The EV Leadership Recognition program is designed to create a platform for information sharing, recognition of accomplishments and accelerated action with key employer partners.

Program Design: The EV Leadership Recognition program will spotlight the efforts of local businesses, educational institutions and public agencies to install EV charging, and will identify emerging EV infrastructure best practices. To participate, entities will need to: 1) create an EV action team of the relevant internal stakeholders, 2) submit a pledge to participate in the program, 3) deliver a basic EV and EVI implementation plan within four months of completing the pledge and 4) report on progress in implementing the plan within one year of its submittal. At the outset of their engagement, participants can join regular information exchanges among participants and access to SVCE planning support. Following their initial plan submission, organizations can qualify for access to grant funds for EV infrastructure through SVTEC.

Equity in Service: SVCE will provide clear guidance on desired equitable outcomes across the service territory, and link recognition programs to those efforts. SVCE will also track the flow of benefits from EVI programs across SVCE communities and customer demographics to ensure that the economic and environmental benefits of EVI and EV adoption are broadly shared throughout the service area.

Key Program Strategies

S1. Develop EV Leadership Recognition campaign to include: 1) campaign branding, website, materials; 2) Steering Committee; 3) recognition criteria; 4) survey instrument to regularly assess current charger deployment in the service area

S2. Recruit and manage first participant cohort to include at least 20+ leading organizations

S3. Provide technical assistance, peer learning, and SVTEC access to support participating employer EV teams and pledges

S4. Screen applications for awards and develop case studies of leading projects

S5. Conduct annual recognition event for EV leadership organizations and EV pledge fulfillments

S6. Leverage technical assistance learnings for program improvement and data collection

Representative Costs and Impacts: To run the program for four years and engage at least 400 organizations and property owners, SVCE would need to spend approximately $200,000 to launch the program and pay for the first year of consultant assistance. This would result in thousands of additional EV chargers at these workplaces, though the exact number would depend on the level of engagement at each workplace and its size. After the first year, outside funding through SVTEC could be secured to run the program.

C. Priority Zone DC Fast Charging

Program Rationale: Public DC Fast Chargers (DCFCs) are critically needed to provide EV drivers with a rapid recharging experience. The current generation of DCFCs can provide from 30 to 100+ miles of additional range per 15 minutes of charging, depending on the vehicle and charger type. While DCFCs are much more costly than Level 2 chargers per port deployed, DCFCs enable the much quicker fill-ups needed by longer-distance travelers, and are cost-competitive when measured in kilowatt hours of charging provided and electric vehicles serviced. In addition, residents – particularly those in MUDs – who may not have charging available at home or work gain the ability to charge rapidly at public DCFCs stations, increasing the likelihood of EV adoption.

Program Design: SVCE will focus DCFC incentives near concentrations of those MUD developments where onsite charging is not practical (i.e. limited onsite parking spaces available or accessible), and in high traffic areas near major travel corridors and destinations. Exact incentive levels per site will be based on vendor input received within competitive responses. SVCE will issue a Request for Proposals (RFP) to solicit competitive bids and ensure that program incentives gain the greatest possible matching funds from EV service providers and site hosts. The designation of priority zones will be driven through a stakeholder process with the local member agencies to ensure that the locations align with local transportation and other planning efforts.

Equity in Service: By establishing priority deployment zones for DCFC near target MUDs, SVCE aims to provide charging access to renters who otherwise face significant barriers to charger access. Some of the priority deployment zones will be also be established in areas of underserved residents.

Key Program Strategies

S1. Identify DCFC zones near MUDs, high traffic areas and underserved areas (note that SVCE will identify general priority zones for DCFC deployment, while leaving it up to project developers responding to the solicitation to identify specific site addresses)

S2. Facilitate a competitive RFP to identify highest-value DCFC projects in those zones

Representative Costs and Impacts: Actual impacts will depend heavily on the level of incentive paid per site, matching funds secured and site conditions. To install ~30 new DCFC ports, SVCE would need to spend approximately $300,000 to launch the program and pay a consultant to administer it. The associated incentives would be about $2.5 million.

D. Multi-Unit Residential Charging Technical Assistance

Program Rationale: Only 15 apartment properties in SVCE territory currently are known to have onsite EV charging, yet ~40% of SVCE customers live in MUDs (i.e. apartments or condos). To unlock the market for EVs in this key customer segment, it is essential to provide more charging options for MUD residents at their place of residence. A combination of site surveys, technical assistance and direct incentives are needed to address barriers to EV Infrastructure deployment and subsequent EV adoption in MUDs. Targeting medium-density properties (such as garden-style apartments) will allow the program to best leverage SVCE funds because they have a much higher ratio of parking stalls to dwelling units than most apartment complexes, so EV chargers can more easily be deployed as shared charging. A shared charger can serve many vehicles, with the caveat that drivers must rotate their vehicles through the shared charging space. The shared approach allows far more units to be enabled for charging per dollar expended, as well as avoiding the serious problem of dedicated chargers quickly becoming stranded when a tenant with an EV moves out of the unit with the assigned charger.

Program Design: The SVCE approach focuses marketing and outreach initially on medium-density apartment complexes as these represent the best opportunity for shared charging – other MUD types would still be able to participate if they meet the eligibility criteria. Targeting this concentrated group of properties will enhance program efficiency and maximize SVCE's impact. The other key element of the MUD program is provision of technical assistance to MUD owners to help solve the many site-specific challenges relative to electrical capacity upgrades, load management, equipment selection, business models and energy metering and payment.

Equity in Service: The MUD program aims to support SVCE community members who have traditionally faced significant barriers to EVSE deployment. To drive higher EVSE deployment and EV adoption in the MUD segment, SVCE plans to provide a larger proportion of cost coverage for MUDs than in any other customer segment. Co-location of EVSE with shared EV services, such as on-site car sharing, will be encouraged. Additional outreach efforts will be focused on MUDs designated as affordable housing or located in areas with a concentration of underserved residents.

Key Program Strategies

S1. Provide basic site planning for property owners to determine best fit EVSE for each site, including analysis of electrical requirements, selection of business models and possible deployment of load management, solar and energy storage to reduce long-term costs

S2. Focus first tranche of technical assistance on medium-density apartments with many units on-site to take advantage of opportunity for shared charging

S3. Provide substantial incentives to enable 100% or near 100% cost coverage to targeted properties (stacking additional available incentives where available)

Representative Costs and Impacts: To install ~450 shared EVSE, SVCE would need to spend approximately $300,000 launch the program and pay a consultant to administer it. The associated incentives would be about $2 million.

E. Workplace Charging Rebates

Program Rationale: Workplaces are currently key locations for charging, second in importance only to residential charging. At most workplaces, day-long dwell times are well-matched to Level 2 charging or in some cases Level 1 charging. According to workshop feedback, EV drivers and employers currently report that workplace charging throughout SVCE communities is oversubscribed and the need for additional ports is urgent, especially for workers with long commutes or who lack home charging options. SVCE workplace programs and incentives will focus on small and medium businesses which have not yet deployed EVSE in large numbers.

Program Design: SVCE workplace charging rebates will focus on networked EVSE equipped for managed charging to help balance loads and ensure utilization of lowest-carbon electricity. SVCE incentives would be $3,000 per plug on average. Some limited technical assistance will be provided through this program, with additional support from peer-to-peer learning available through the Regional EV Leadership Recognition program.

Equity in Service: Workplace rebates are designed to support small and medium businesses which currently lack EVSE.

Key Program Strategies

S1. Provide cost reimbursement for EVSE and installation

S2. Optimize EVSE procurement with negotiated smart charger discounts

S3. Link EVSE incentives to participation in smart charging via Demand Response or Virtual Power Plant programs

S4. Create a robust workplace EVSE marketing program as part of a regional EV awareness campaign

S5. Consider flexible funding for special site needs (e.g., Level 1 EVSE at ~$2,000 per plug; or power upgrades ~$20,000 per site)

Representative Costs and Impacts: To install ~325 Level 2 EV charging ports at small and medium businesses, which may include some Level 1 charging, SVCE would need to spend approximately $150,000 to launch the program and pay a consultant to administer it. The associated incentives would be about $1 million.

F. Fleet Electrification Grants

Program Rationale: To ensure that fleet operators in the SVCE territory make a rapid transition to electric vehicles, a comprehensive support program is needed that combines outreach and education for fleet managers, technical assistance in fleet transition planning for select fleets, and fleet charging incentives. Funding and technical support will be provided on a competitive basis to fleets that offer the highest benefit-cost ratio for accelerating GHG reduction, provide other community benefits or meet other specified criteria. To ensure that the fleet plans will also be usable as models for other fleet managers in the SVCE territory, SVCE will attempt to select a wide variety of fleets for this program – spanning from light-duty to heavy-duty vehicles.

Program Design: SVCE will provide support for fleet-specific transition planning and flexible grant funds for fleet EV infrastructure. Fleet transition assistance provided with SVCE support may include (on an as-needed basis): 1) assistance in vehicle replacement planning (taking into account duty cycles and routes); 2) infrastructure upgrade cost assessment and planning (including load studies), 3) help accessing SVCE and external incentives; and 4) assistance in structuring bid processes for EV infrastructure. While a few larger fleets have in-house capabilities to undertake the electrification transition, most fleets confront a host of uncertainties and challenges that call for specialized assistance to effectively launch and accelerate their electrification journey. Eligible fleets will include, among others, those used by TNCs, municipalities, private workplaces, rental agencies, delivery companies, and public/private transit. SVCE will also tailor its program design to take advantage of any complementary fleet electrification funding and support programs.

Equity in Service: Equity-related outcomes achieved via fleet electrification will be incorporated into scoring criteria on competitive applications to the SVCE fleet assistance program. Criteria will include emissions impact, benefits to underserved communities, and scalability and transferability to other communities and fleets.

Key Program Strategies

S1. Engage large fleets in EV transition planning – focusing on high-visibility fleets with an emphasis on accelerated replacement of the dirtiest diesel trucks and buses (such as school buses and public fleets)

S2. Provide EVI incentives to support EV charging procurement, installation, and capacity expansion

S3. Support fleet electrification efforts that support local resilience goals and initiatives, especially by means of solar and energy storage integration, and/or microgrid deployments

Representative Costs and Impacts: To complete ~12 electrification plans, SVCE would need to spend approximately $125,000 to launch the program and pay a consultant to administer it. The associated incentives would be about $1 million. The exact costs will depend heavily on the specific makeup of the fleets selected for support through the competitive process.

7 SUMMARY OF REPRESENTATIVE IMPACTS AND PROGRAM COSTS

The program design summaries in the previous section are, in some sense, irrespective of budget. The designs can be scaled up or down based on available SVCE resources, with corresponding adjustments to the expected impacts. However, to provide a sense of the scope of these programs, the summaries included some examples of the costs that would be expected to make a given impact.

This table aggregates those numbers and provides some additional information on how the as-designed programs align with expected CALeVIP requirements. SVCE will make determinations on how to fund each program once it is being prepared for launch, based on desired impacts and other considerations – the funding allocation will depend heavily on the outcome of the CALeVIP design process.

	A. SVTEC	B. REGIONAL EV LEADERSHIP RECOGNITION	C. PRIORITY ZONE DCFC	D. MULTI-UNIT RESIDENTIAL CHARGING TECHNICAL ASSISTANCE	E. WORKPLACE CHARGING REBATES	F. FLEET ELECTRIFICATION GRANTS	TOTAL
FOR A COMBINED COST TO LAUNCH AND OPERATE OF APPROXIMATELY...	$250,000	$200,000	$300,000	$300,000	$150,000	$250,000	$1.5M
ASSUMING THE PROGRAM LASTS...	4 years	4 years	N/A	N/A	N/A	N/A	N/A
WITH ASSOCIATED INCENTIVES OF...	$0	$0	$2.5M	$2M	$1M	$1M	$6.5M
THE PROGRAM COULD ACHIEVE...	$20-30 MILLION IN UNLOCKED FUNDING	400 PARTICIPATING ORGANIZATIONS	30 DCFC PORTS	450 SHARED L2 PORTS	325 L2 PORTS AT SMALL AND MEDIUM BUSINESSES	12 ELECTRIFICATION PLANS	N/A
WILL THIS PROGRAM BE IMPROVED BY CALeVIP?	YES	YES	YES	YES	YES	YES	N/A

8 FUTURE STATE OF LOCAL ENABLING PRACTICES, POLICIES AND INITIATIVES

Following implementation of SVCE's EVI programs, the enabling practices and use case matrix is expected to include new activities across SVCE's member communities and customer segments. As programs evolve, the matrix will have additional green cells representing growing support of EVI across the service territory.

FUTURE STATE OF LOCAL ENABLING PRACTICES, POLICIES AND INITIATIVES

ENABLING PRACTICE

USE CASE	Regional Coordination	Funding Support & Incentives	Education & Outreach	Building Codes	Parking Enforcement or Signage Requirements	Permitting	Planning, Land Use, & Zoning	Electric Rates	VGI
Fleet - Public/Private Transit Buses, Shuttles	SVTEC	Competitve Grant	Competitive Grant, Regional Recognition Program	N/A	N/A	N/A	N/A	Assuming CPUC/PG&E Approval	VPP Program
Fleet - TNC					No Relevant Language				
Fleet - Public/Private Vehicles (City Fleets, etc.)					N/A				
Corridor		DCFC Solicitation	No Permanent Program	SVCE Working Group	Minimal Coordinated Effort	SVCE Coordinated Permit Streamlining	No Relevant Language		
Destination/Retail									
Workplace - Large		EVSE Rebate	Regional Recognition Program						
Workplace - Small/Medium									
MUD		MUD TA and Incentive	MUD TA, Incentives, Customer Resource Center, Regional Recognition						
Single Family Residential	Ad Hoc Coordination	Intermittent State & Regional Funding Opportunities Available	Customer Resource Center		N/A			EV Rates in Place	

9 SUMMARY AND NEXT STEPS

Achieving SVCE's transportation emission reduction goals will require the collaborative engagement of SVCE, member communities, local employers, property owners and customers. To drive this broader engagement, SVCE plans to implement the portfolio of EVI initiatives articulated in the Joint Action Plan, while engaging in a continuous improvement process with regular input from stakeholders and customers. SVCE will support the community's charging needs through deployment of DC Fast Charge infrastructure, and through programs specifically targeted at workplaces, fleets, and multi-unit developments. The regional recognition program and funding clearinghouse will provide essential support to these efforts, along with SVCE's existing efforts including the Reach Code initiative, Permit Streamlining, Customer Resource Center and Virtual Power Plant programs.

As SVCE moves forward to launch EVI initiatives beginning in 2019-2020, the internal Program Implementation Plans will provide key guidance to rapidly deploy new programs. Prior to program launch, each program concept will be adjusted as necessary to incorporate supplementary stakeholder input and respond to any changed conditions. SVCE will secure external program support where needed, and organize its own internal staff support. Anticipated program achievements and expected costs will be determined based on the more detailed information uncovered through the final program development and launch process. In this way, the high-level program designs described in the Joint Action Plan will evolve into full-fledged programs and launch in a relatively short period, since most of the key stakeholder input and strategic thinking has already been integrated into the program design summaries and implementation plans.

SVCE will also closely consider the impacts of CALeVIP on the program designs and timeline. By securing the additional state funding, SVCE has greatly magnified the amount of EVI deployment that will occur in its service territory.

The best way to structure the targeted SVCE programs outlined in the Joint Action Plan will depend on the final CALeVIP requirements, which will not be finalized until the end of the stakeholder engagement process sometime in 2020.

Finally, SVCE intends to closely evaluate the impact that these programs have on EVI deployment and corresponding EV adoption in its territory and throughout the region. Future EVI programs to be designed and deployed in support of the 2025 and later GHG goals will learn from the successes and failures of these initial programs in reaching target audiences and driving change.

Given the urgent need for additional EV deployment by 2025 to achieve SVCE's decarbonization goals, SVCE encourages all Silicon Valley community leaders and the public at large to join together in accelerating the EV infrastructure build-out inspired by these programs.

SVCE SERVICE AREA

- Campbell
- Cupertino
- Gilroy
- Los Altos
- Los Altos Hills
- Los Gatos
- Milpitas
- Monte Sereno
- Morgan Hill
- Mountain View
- Saratoga
- Sunnyvale
- Unincorporated Santa Clara County

SILICON VALLEY
CLEAN ENERGY

SVCleanEnergy.org