EVmatch

EVMATCH MULTI-FAMILY EV CHARGER SHARING PLATFORM

INNOVATION ONRAMP PROJECT SUMMARY REPORT

PREPARED FOR SILICON VALLEY CLEAN ENERGY
BY EVMATCH, INC.

SILICON VALLEY CLEAN ENERGY

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Overview

EVmatch, Inc. (EVmatch) is a Bay Area-based software startup that is committed to supporting widespread electric vehicle (EV) adoption by providing accessible software solutions that enable any property owner to easily become a public charging provider. EVmatch was awarded funding through an Innovation Onramp project from Silicon Valley Clean Energy (SVCE) in 2020 to test how reservation-based software could enable tenant and public sharing of on-site Level 2 (240V) EV charging stations. The idea behind the approach is to improve the economics of installing chargers at multi-family properties by leveraging public utilization until tenants adopt EVs and by reducing the number of chargers needed to serve a given population via the reservation system.

The program required EVmatch to build out a unique subnetwork software application feature, the SubNet, for multi-family properties and demonstrate this new sharing solution at four sites in SVCE territory. EVmatch successfully completed its SubNet software in 2020, which included the following components:

- charging station grouping
- group-specific pricing
- group-specific availability schedules
- access code generation & management
- dynamic display of pricing and availability for users with and without access codes

This unique app-based user management system enables efficient sharing and optimal utilization of Level 2 EV charging infrastructure at a lower cost compared to other industry approaches. The EVmatch Subnet allows properties owners to grant specific access schedules and pricing to different user groups. By enabling software features for easy public sharing and access controls, EVmatch SubNet also supports charger deployment in properties that currently have few or no tenants with EVs. The chargers can initially be made available to the public 24/7, and then public availability can be revised over time as more tenants begin to drive EVs. This flexibility helps to strengthen the business case for installing chargers in the near-term rather than delaying until resident demand reaches a critical threshold. The SubNet software feature set also has broader applications beyond multi-family housing, including with homeowners' association (HOA) communities, vacation rentals, electric vehicle fleets, workplaces, co-working spaces, and houses of worship.

Site Recruitment and Installation

EVmatch conducted an outreach campaign in the summer of 2020 to recruit four multi-family properties in SVCE territory to receive Level 2 electric vehicle supply equipment with EVmatch's SubNet and reservation software. All hardware, electrical installation, permit, and software fees were covered by funding from SVCE.

EVmatch created a co-branded animated video about the program opportunity, and co-branded flyer and blog post. EVmatch also integrated co-branding into its web and mobile application that clearly credits SVCE as the funding source for charging stations deployed through the program.

EVmatch successfully recruited and qualified twelve sites for the project, four of which were selected in coordination with SVCE staff for project funding. The four sites - Park Plaza Apartments in Mountain View, Revere Apartments in Campbell, The Cannery Apartments in Gilroy, and Manzanita Apartments in Sunnyvale – included both market-rate and affordable housing and ranged in size from 28 units to 168 units.

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EVmatch worked with two sub-contractors to install eight Enel X JuiceBox charging stations at the four selected sites - two charging ports per site. Installation began in October 2020. A few key considerations when preparing a multi-family site for charger installation include proximity to electrical panel, electrical capacity and the potential need for a new panel, ground surface to be trenched, ADA parking, and WiFi availability (or lack thereof).

Charging Station Utilization

All charging stations installed through this program are available to both on-site residents and the general public. Site hosts were required to restrict access to residents for the first two months of charger operation, and then open them up for public access in order to test the SubNet. EVmatch's SubNet software features have been used to create different EV driver user groups, and assign differentiated schedules and prices to each. All selected site hosts are required to operate their funded charging stations and provide shared public access for a minimum of two years.

EVmatch charging hosts set their own EV charging prices with guidance from EVmatch staff, ranging from $0.20 - $0.30 per kWh. The price for EV charging is set on a kWh basis and then EVmatch adds a service fee on a percentage basis. Site hosts considered their own electricity rates and the price of nearby public charging stations when setting their prices. Site hosts also had the option of setting different prices for tenants versus the public. All site hosts chose to set the same price for both tenants and the public. Revere Apartments selected a different availability schedule for tenants, compared to the public, but kept the price the same for the two groups.

EVmatch promoted and marketed the SVCE-funded charging stations throughout the project, and continues to do so as part of its ongoing company marketing efforts. All EV drivers who download the EVmatch app (App Store and Google Play) or use evmatch.com can locate, reserve, and pay to use the charging stations at Revere Apartments, The Cannery Apartments, Park Plaza Apartments, and soon Manzanita Apartments. Each charging station has its own unique URL that can be shared directly, or on platforms and social media.

EVmatch also promotes the SVCE-funded charging stations to EV drivers through paid digital advertising, email marketing, social media marketing, yard and station signage, direct outreach/flyering, and other public EV charging platforms including PlugShare, the DOE's Alternative Fuels Data Center (AFDC) locator tool, and Google Maps. It's clear that drivers have myriad avenues to discovering the chargers. Tenants mostly learned about them through property management, while members of the public may have received an email from SVCE, found the chargers on plugshare.com, or discovered the chargers any number of other ways.

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Figure 1. Percentage of public charging sessions by quarter

Public charging sessions increased from 55% in Q1 2021 to 87% in Q4 2021.

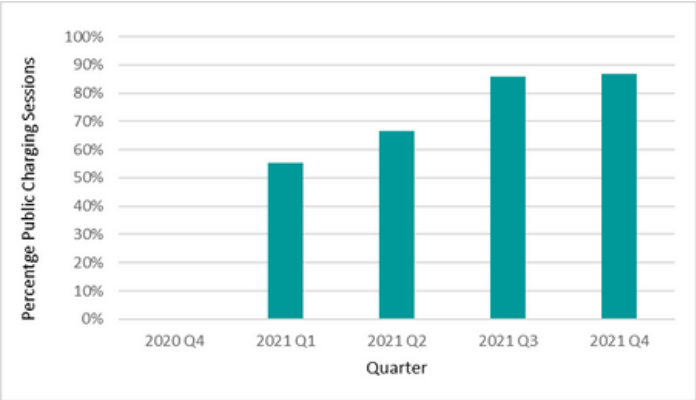
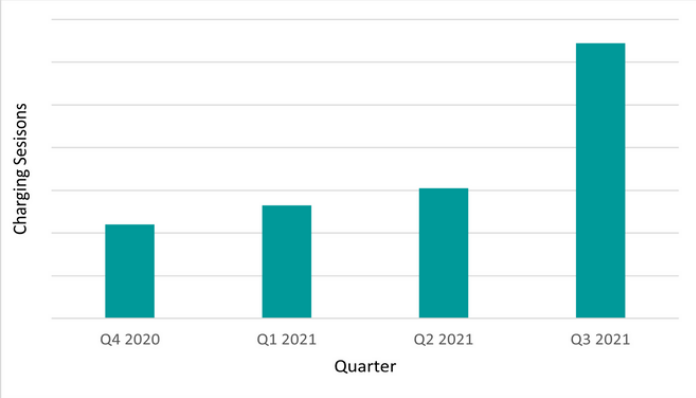


Figure 2. Total charging sessions by quarter across all SVCE funded charging stations

Quarterly charging sessions increased by 193% from Q4 2020 to Q3 2021.



EVmatch's software system enables shared charging station access among both on-site residents and the public. Each charging station in this project was restricted to resident-only access for the first two months after commissioning and was then opened to all EV drivers. Thirty seven percent (37%) of total charging sessions were completed by on-site residents while 63% of total charging sessions were completed by members of the public. This high percentage of public sessions demonstrates the value of enabling shared public-private Level 2 charging station access at private multi-family properties in SVCE territory.

Figure 1 shows that over 80% of total charging sessions in Q3 and Q4 2021 were from public users. The percentage of public charging sessions by quarter increased steadily throughout 2021, with a 57% increase in public charging sessions from Q1 2021 to Q4 2021 (Figure 1). This percentage increase of public charging sessions corresponded to an overall increase in number of charging sessions (Figure 2), implying that many of the new charging sessions at the end of 2021 were from members of the public.

Park Plaza in Mountain View has been the highest performing site in terms of overall utilization and public usage. EVmatch suggests that the following characteristics have contributed to this positive result and may lead to higher levels of public charging for future projects:

- high EV ownership rates in the city
- property status is market-rate
- parking area is not gated
- prominent nearby amenities are recreational (e.g. parks, tennis courts)
- close proximity to many other multi-family properties

Eighty eight percent (88%) of customers have used the chargers more than once, and EVmatch has received predominantly positive feedback from drivers. Active and repeat customers of the charging stations have provided EVmatch with invaluable product feedback that has been incorporated into EVmatch's technology or its software product roadmap.

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The site host at Revere Apartments commented that "EVmatch chargers are user friendly - just download the app and reserve the time you want to charge. We loved working with EVmatch's team to install chargers at our multi-family properties." EVmatch has since worked with this site host to add an additional ten Level 2 charging stations to buildings in their property portfolio with support from CALeVIP funds.

Types of Vehicles using SVCE Chargers

Tesla, Audi, and Chevrolet electric vehicles accounted for the majority of charging sessions over the reporting period, with these three vehicle makes accounting for 82% of total charging sessions (Figure 3). Thirty six percent (36%) of charging sessions were completed by the drivers with an Audi A3 E-Tron, followed by 31% with a Tesla Model 3, and 20% with a Chevy Bolt (Table 1). Notably, the majority of charging sessions were completed by battery electric vehicles (91%), compared to plug-in hybrid electric vehicles (9%). Battery electric vehicles (BEVs) particularly benefit from Level 2 charging stations (7-9 kW power) and have onboard chargers that can take full advantage of this level of power. Additionally, BEV drivers are more reliant on public charging compared to plug-in hybrid electric vehicle drivers as they do not have gasoline as a back-up fuel option.

Figure 3. Summary of vehicle makes using SVCE chargers and session count by vehicle make

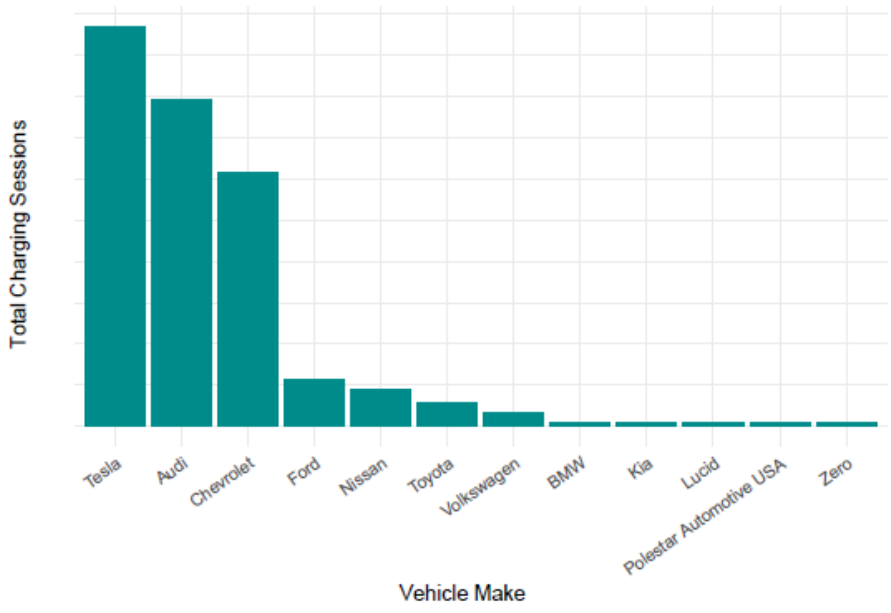

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Table 1. Percentage of reservations by vehicle type

Make	Model	Percentage of Total Reservations
Audi	A3 E-Tron	36.36
Tesla	Model 3	31.44
Chevrolet	Bolt	20.83
Chevrolet	Volt	8.33
Tesla	Model S	7.95
Tesla	Model Y	6.44
Ford	Focus Electric	5.30
Nissan	LEAF	4.17
Toyota	Prius Prime	2.65
Volkswagen	E-Golf	1.52
Audi	E-Tron SUV	0.76
Audi	A7 Sportback 55 PHEV	0.38
BMW	i3 94 Ah w/ Range Extender	0.38
Kia	Niro EV	0.38
Lucid	Air	0.38
Polestar Automotive USA	Polestar 2	0.38
Zero	SR/F	0.38

Media Coverage

Throughout the duration of the program, EVmatch pursued media coverage and other awareness efforts listed here:

- EVmatch blog post about EVmatch MUD charging service, which highlights this project
- Sponsored CleanTechnica post about EVmatch MUD charging service, which highlights this project
- Presented project alongside Revere Apartments site host, Gina Ishida, at Bay Area Air Quality Management District (BAAQMD) EV Coordinating Council Meeting on March 25th, 2021 (Zoom conference call)
- EVmatch blog post about MUD sites, including selected SVCE sites, republished in EVannex blog
- EVmatch has taken photos of all SVCE project sites and continues to promote them on social media (Facebook, Twitter, LinkedIn, and Instagram) and through its testimonials webpage
- EVmatch mentioned SVCE in a press release about the company's recent CEC BESTFIT Innovation Charging Solutions grant award
- CEC BESTFIT press release promoted on social media and picked up by Smart Cities Dive and Utility Dive

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Testimonials and Photos

Revere Apartments

Host: Gina / Revere Apartments
Property Type: Apartment/Retail Combo
Location: Campbell, CA
Pictured (below): EVmatch charging station at Revere Apartments charging a Chevy Bolt

"EVmatch chargers are user friendly - just download the app and reserve the time you want to charge. We loved working with EVmatch's team to install chargers at our multi-family properties."
-Revere Apts. Mgmt.

Park Plaza Apartments

Host: Jeff / Heritage Realty Group
Property Type: Apartment Complex
Location: Mountain View, CA
Pictured (**below**): EVmatch charging station at Park Plaza Apartments charging a Tesla Model 3

"EVmatch is a breath of fresh air after working with ChargePoint for a number of years. EVmatch is customer driven and provides great turnkey solutions, not to mention their staff took the frustration out of chasing down rebates, incentives, and installations. We look forward to working again with EVmatch on other projects in the future.
-Park Plaza Apts. Mgmt.

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The Cannery Apartments

Property Type: Apartment Complex
Location: Gilroy, CA
Pictured (below): EVmatch charging station at The Cannery Apartments charging a Chevy Bolt

Manzanita Apartments

Property Type: Apartment Complex
Location: Sunnyvale, CA
Pictured (below): EVmatch charging station at Manzanita Apartments

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Future Opportunities

EVmatch will continue to manage and support the chargers funded through this program that site hosts are obligated to operate for two years following installation. EVmatch will continue to promote the charging stations to residents and the public, provide customer and technical support, and collect and analyze utilization data.

Given the immense needs for EV charging at multi-family properties and EVmatch's unique and cost-effective management solution, EVmatch applied for and was awarded a grant from the California Energy Commission (CEC) in April of 2021. SVCE committed a $100,00 match share contribution to the project and has signed a separate MOU to build upon this program and scale up efforts in SVCE territory. Through this $728,250 CEC BESTFIT Innovation EV Charging Solutions grant, EVmatch will install 120 Level 2 charging stations at multi-family properties in Santa Clara, Los Angeles, and San Diego counties. With both financial and in-kind support from SVCE, EVmatch will deploy 50 additional Level 2 EV charging stations at multi-family property in SVCE territory and offer 5 years of software subscriptions services to property owners at no cost. All charging stations must be made available to building residents and the general public.

EVmatch is thrilled at this opportunity to expand upon this current work and looks forward to continuing to work with SVCE staff on site outreach, recruitment, and media opportunities related to its CEC BESTFIT project. The CEC-funded work will also allow EVmatch to revisit previously qualified properties and offer them a similar opportunity to add shared EV charging at no cost.

The application window is now open for CEC grant awards – if you own or manage a multi-family property in Santa Clara, Los Angeles, or San Diego County, please contact EVmatch at https://bit.ly/EVmatchmultifamily.

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