DOCKETED	
Docket Number:	20-TRAN-04
Project Title:	Electric Vehicle Infrastructure Project Funding
TN #:	255552
Document Title:	Electric Vehicle Charging for All Coalition Comments to CEC re Community Charging in Urban Areas
Description:	N/A
Filer:	System
Organization:	Electric Vehicle Charging for All Coalition
Submitter Role:	Public
Submission Date:	4/5/2024 3:44:04 PM
Docketed Date:	4/5/2024

Comment Received From: Electric Vehicle Charging for All Coalition
Submitted On: 4/5/2024
Docket Number: 20-TRAN-04

EVCAC Comments to CEC re Community Charging in Urban Areas

Please see the attached comments from the Electric Vehicle Charging for All Coalition.

Additional submitted attachment is included below.

April 5, 2024

California Energy Commission
715 P Street
Sacramento, California 95814

Re: Pre-Solicitation Workshop and Comments for Community Charging in Urban Areas

Dear California Energy Commission:

The EV Charging for All Coalition (EVCAC) is a broad coalition of nonprofits, companies, individuals and elected officials dedicated to expanding equitable access to EV charging. Our guiding principles are to minimize cost and complexity for residents, builders, and apartment/condo managers, and to bring affordable and accessible EV Ready charging to all residents, particularly those living in Multi-Family Homes (MFH).

Over the past three years, EVCAC has worked closely with the California Department of Housing and Community Development (HCD) and the California Building Standards Commission (CBSC) to ensure that the Title 24, Part 11 CALGreen code supports equitable, cost-effective and sensible access to EV charging for residents of newly built apartments and condominiums.

When looked at from the perspective of the EV driver, many of the issues discussed in the CALGreen Code workshops also apply to CEC grant funding for retrofit of existing buildings, namely the CEC's proposed "Pre-Solicitation Workshop for Community Charging in Urban Areas". In this regard the EVCAC has several observations and recommendations for CEC consideration that attempt to identify win-win scenarios for builders, property owners and managers, and current and future EV drivers regarding the implementation of EV infrastructure programs for existing buildings.

Background

Since the installation of EV charging infrastructure may be different for existing and newly constructed buildings, it will be important for marketplace forces and government support programs to optimize for different demographics, electric vehicle characteristics, EV uses and building types. It will be important also for State, Federal and Local government agencies to provide support for EV adoption programs that avoid leaving behind any segment of the population, especially the 30-40% of residents who live in Multi-Family Homes (MFH) and lack access to EV charging at home or at work, the two locations where affordable EV charging will be most convenient and accessible.

Also, since the retrofitting of EV charging technology in existing buildings can be very expensive - up to 12 times the cost of installing EV charging technology at the time of new construction - it will be important to allow flexibility, innovation and creativity in EV charging design approaches that enhance charging opportunities for different demographic groups, electric vehicle uses and building types. As an industry we have a lot to learn about best practices for EV charging in MFHs, and CEC funding should support unique and different approaches in order to take advantage of this learning opportunity.

As the CEC so aptly noted in its "Final 2022 Integrated Energy Policy Report Update": "The CEC's vision of working with state partners to create the energy system of the future — one that is clean, affordable, modern, and reliable and ensures California's economy continues to thrive — is a vision for all Californians to live with dignity and achieve prosperity. Without the participation of all Californians, the state cannot achieve its energy and climate action goals."[1]

Before reading the Summary and Recommendations that follow, we highly encourage you to take two minutes to watch our eye-opening video (at **bit.ly/EVvideoSJ**) that contrasts the experience of two EV drivers: one who lives in a single-family home and one who lives in a multi-family home with shared charging. This will make the following suggestions more meaningful.

[1] https://efiling.energy.ca.gov/GetDocument.aspx?tn=250084

Summary

The EVCAC recommends that the CEC provide grant guidelines for Community Charging in Urban Areas that encourage stakeholders to submit proposals with the following priorities:

1. Proposals that demonstrate **equitable approaches of EV charging for residents of Single Family Homes (SFH) and Multi-Family Homes (MFH)** whereby the same low-cost of charging for residents of SFHs is also provided for residents of MFHs;

2. Proposals that **reduce the retrofit cost of charging to residents of MFH by deploying relatively simple and low cost technologies**, such as Level 1 and Low Power Level 2 EV Ready circuits with receptacles that have lockable covers, especially since residents of MFH may prefer Plug In Hybrid Vehicles (PHEVs) with a battery pack that can be fully charged overnight with lower power circuits;

3. Proposals that **utilize load management programs that do not impose ongoing monthly network fees** and other costly recurring operational costs that are passed on to the EV driver. An example of local and autonomous load management technology that does not have ongoing costs is the DCC-9[2], especially for older MFHs that may be served by smaller electrical panels (e.g. 60A electrical service);

4. Proposals with a **more pervasive and sector-wide approach**, such as providing funding to reduce the cost of charging at public DC fast charging stations for residents of MFH to the same low cost paid by residents of SFH, since public DC fast charging stations may be the only "home" charging station available for the residents of MFHs;

5. Proposals for **direct wiring of the EV Ready circuit where parking is unbundled and assigned.**

Recommendation #1

[2] https://dccelectric.com/ – See Recommendation #12 for further discussion of this technology.

In the powerpoint deck presented by the CEC staff at the March 7 workshop, the following question was posed:.

“2. What are your thoughts on allowing projects to use any of the SAE standardization charger types?”

The EVCAC recommends that any of the connector types in combination with NRTL certified adapters, whether J1772 or J3400 (NACS), be allowed in any proportion since J1772 addresses non-Tesla EVs and J3400 addresses all Tesla EVs in addition to future EVs manufactured by many non-Tesla EV manufacturers, per recent news stories. We do encourage the CEC to work with CARB and the legislature to ensure EV drivers have easy access to safe, inexpensive, UL-listed adapters.

We note, however, that requiring an uptime of 97% or 98% as part of a grant requirement has little leverage when performance is reviewed after the fact without any teeth to force a repayment of grant funds. Perhaps requiring some type of insurance bond that is provided by the grant recipient, based on a very clear time-based metric, agreed to by all of the stakeholders ahead of time, would give an “uptime” metric real teeth.

Recommendation #2

In the Powerpoint deck presented by the CEC staff at the March 7 workshop, the following question also was posed:.

“3. What is a feasible charging port minimum count per application? 40?, 60? or 100?”

The EVCAC recommends that there should be no minimum requirement that would prevent smaller projects from reaching fruition with a CEC grant, especially if a small stakeholder is proposing a project in a DAC area that is scaled to serve the community.

The key to the success of many MFH projects will not be how many “handles” or “connectors” are proposed to be installed in a DAC, but how many affordable and conveniently accessible opportunities to charge are proposed and implemented. Those projects that propose pricing for residents of MFH that is no greater than the price paid by residents of SFH in the same electric utility service area are likely to be more

attractive to MFH residents and therefore more successful, and should be encouraged. Project proposals for residents of MFH that offer EV charging at prices that are 2 to 5 times greater than pricing offered to SFH are much less likely to be successful and should not be encouraged.

Only proposals that offer EV charging to residents of MFH at a cost that is no greater than that offered to residents of SFH should qualify for CEC grants. This may require stakeholders to partner with the local electric utility to negotiate a reduced cost of electricity, so that the price offered to the MFH resident who lives in a DAC is affordable when compared to prices available to those living in SFH. This type of negotiation might not be considered “normal” to some industry observers, but if price equity for MFH residents is important and fair, and we advocate that it must be in order for California to meet its EV adoption goals, then this type of negotiation is essential and should become a normal industry practice.

Regarding more accessible opportunities, greater accessibility may mean different things. For one, it may mean that EV charging is available at assigned parking stalls, so that each apartment or condo is guaranteed a charging opportunity at an assigned stall, so residents are not required to compete with each other to find a “shared” charging station that is available. Or, adequate accessibility may mean providing at least one EV charging opportunity (EV Ready circuit, or EVSE) for each MFH resident, so that every apartment or condo is guaranteed access to at least one charging stall.

Recommendation #3

MFH Residents Should Pay No More than SFH Residents for EV Charging

Whenever possible, the same low-cost, Time of Day (TOD), sometimes called Time of Use (TOU), utility tariff that is available to residents of MFH for appliances inside their apartment or condo, such as for cooking, lighting and air conditioning, should also be available for their EV charging in the parking lot and at no greater cost. This is the situation for residents of Single Family Homes (SFH) today since their electrical panel serves all electrical appliance loads inside the home as well as the EV charging circuit in the garage or driveway. It is only fair that this approach be deployed for residents of MFH whenever possible. There may be multiple ways to achieve this price equity, so

the grant funding provided by the CEC should allow flexibility for different approaches. The most obvious use case is where the EV Ready circuit in the parking lot is wired directly to the electrical panel or electric utility meter for the resident of the MFH.

This may mean that Electric Vehicle Service Providers (EVSPs) are not in the picture for this use case of Multi-Family properties. While EVSPs need to make a profit when providing "public" EV charging services, home charging is not by definition, "public"- it's residential. Since the price of electricity provided by EVSPs at MFH properties is not regulated in California, there are no limits on the price of electricity that EVSPs charge at apartments and condominiums for "home charging". The EVSP is essentially in a monopoly position and the only competitive pressure to prevent the price of EV charging from going higher is the cost of gasoline at the pump.

Furthermore it is standard practice for the landlord or property manager - not the EV driver - to negotiate the price for EV charging with the EVSP. Often the EVSPs encourage landlords to view EV charging as a potential profit center by adding fees that go to the landlord as "profit". As a result, the price of electricity EVSPs charge MFH residents is typically 2 to 5 times greater than the price paid by residents of Single Family Homes (SFH), which is unfair. Therefore, when grant funding is provided by the CEC for EV charging at Multi-Family Homes (MFH), there should be predetermined limits on the price of electricity so that it is comparable to the price paid by residents of SFH during the lowest cost, off-peak hours.

Recommendation #4

Ubiquitous Charging Opportunities are Needed for Residents of MFHs

While we encourage CEC to support MFH retrofits as much as possible, we recognize that California does not currently have sufficient resources to retrofit 100% of MFHs with EV charging by 2035 when all cars sold in California will be EVs. Even if electric utilities and government programs retrofit 1% of all MFHs every year, it would take 100 years to retrofit all MFH buildings and at great cost to the ratepayer and taxpayer. The CEC should therefore also consider funding pilot program approaches that provide residents of MFHs with more ubiquitous, pervasive and equitable EV charging options.

The CEC grant guidelines should encourage grant proposals that give residents of MFHs access to the same low-cost tariffs as residents of SFHs have during off-peak hours, but at public DC Fast Charging stations, which are currently the only accessible charging stations for most MFH residents. The nearby public DCFC station is the equivalent at-home charging location for most MFH residents. In this situation MFH residents should pay no more for EV charging at the local public DCFC station than residents of SFH pay for charging at home during off-peak hours. With this approach EV drivers who live in a MFH would be able to pull into a public DCFC station and pay the same price as a SFH resident pays at home during off-peak hours, but the MFH resident would be given access to the low-cost rate all year long on a 24/7 basis. Additionally, this approach may require funding for standardized end-user authentication capability, which would be especially important for low-income and disadvantaged community EV drivers to charge at the lower cost CARE/FERA utility-provided rates for which they qualify. Allowing MFH residents to charge at public DCFC stations for an equitable cost is a ubiquitous solution that can be implemented with CEC funding.

The CEC grant guidelines should also encourage proposals for the installation of Level 1 & Low Power Level 2 receptacles with an “all you can eat” “flat” or “fixed” monthly fee without requiring a separate utility or EVSP grade submeter on each circuit. Power can be metered by a single “master” meter that monitors all of the separate EV circuits in the aggregate. See the case study below in Appendix A below for specifics regarding an apartment building owner considering a simplified, lower-power, “flat” or “fixed” monthly fee approach with Level 1 or Low Power Level 2 EV Ready circuits.

Other options to encourage could include low-cost submetering by electric utilities. In California most electric utilities have implemented smart metering systems, which means their communications towers and associated hardware, and software data and metering systems, are already installed and being amortized for revenue recovery. For MFHs with assigned parking spaces with EV charging, the addition of a second utility meter may not be very costly on a monthly basis.

Another option is the possible use of vehicle telematics for virtual sub-metering. This technology may already be used in pilot programs, and is worth following as a possible solution. (Note, however, that virtual metering is less desirable than a direct-wired approach, as it does not provide any bidirectional resilience features.) .

These are some ideas, but there are probably other program approaches the CEC grant guidelines can encourage that would provide MFH residents with ubiquitous and equitable EV charging access, and which could be implemented in a short period of time with CEC grant funding to help ensure we meet our 2035 goals.

Recommendation #5

Flexible Combinations of EV Ready Circuit Sizes for Residents of MFH

Since every existing building site is unique in its layout and electrical configuration, grant funding guidelines should encourage flexible approaches that reduce costs to landlords who are interested in EV charging, including the deployment of lower-cost Level 1 EV Ready circuits, Low Power Level 2 EV Ready circuits and Level 2 EV Ready circuits, and/or a mix of these options. Guidelines should encourage proposals that allow landlords and property managers to optimize a combination of EV charging approaches, including lower power levels or a mix of power levels, that fit the demographics and building use cases for the properties they own or manage.

Recommendation #6

Direct Wiring of the EV Ready Circuit to the MFH Electrical Panel or Utility Meter

Grant funding should encourage retrofits that directly wire the EV Ready circuit in the parking lot to the apartment or condominium's electrical panel or electric utility meter[3]. This is the most straightforward way of ensuring that the low cost of using appliances during less expensive off-peak hours inside the home is also available for EV charging in the parking lot. Direct wiring of the EV Ready circuit has the additional resilience benefit of allowing for future bidirectional power flow to support the MFH when power outages occur on the grid, and affords MFH residents the opportunity to participate in future Vehicle to Grid power markets.

[3] In some cases, this approach may involve a lockable receptacle cover over the EV Ready receptacle.

Recommendation #7

Innovative and Creative Pilot Programs by CCA's and Electric Utilities

Grant guidelines should support innovative and creative concepts by CCAs and electric utilities that are likely to lead to less expensive EV charging costs for residents of existing Multi-Family Homes, and access to bi-directionality benefits. This should include funding for electric utility and CCA programs that are piloting new approaches to avoid expensive electrical panel upgrades or electric utility service upgrades by installing only Level 1 or Low Power Level 2 EV Ready receptacles, or perhaps in combination with Level 2 EV charging stations, at MFHs.

Recommendation #8

More Lower Power EV Ready Circuits than Fewer Higher Power Circuits

Grant guidelines should encourage proposals that provide more EV Ready charging circuits at a lower power rather than fewer charging circuits at a higher power level that must be shared. Shared charging situations require residents to move their EV in order to access EV charging. Having to coordinate with other residents to re-park your EV is an inconvenience and a significant barrier to EV charging that too often will discourage potential EV drivers from adopting an EV. It is critical that residents of MFH have convenient access to power for EV charging which minimizes the extent to which they must move their EV to hunt for an available space to charge. To this end guidelines should encourage proposals for programs that include Level 1 and Low Power Level 2 charging.[4]

According to surveys, residents of MFHs are more inclined to purchase or lease a Plug In Hybrid Electric Vehicle (PHEV) than a Battery Electric Vehicle (BEV). The average driver travels less than 40 miles/day, and the typical all electric range of PHEVs is 20 to 40 miles with a battery size of +/- 10 kWhs. This battery size can be fully recharged overnight at MFHs with Level 1 charging, or Low Power Level 2 charging without any problems. Conversely, drivers with larger EV batteries have a larger reservoir to handle occasional longer trips. In either case, there is no need for Level 2 charging on a 40A

[4] Level 1 charging is 120V on a 15A or 20A branch circuit. Low Power Level 2 charging is 208V/240V on a 16A branch circuit, delivering 4-9 miles/hour of charger. This level of charge is sufficient for the vast majority of driving needs.

208/240V branch circuit when either of two cheaper options will suffice, namely a 20A 208/240A branch circuit or a 15A or 20A 120V branch circuit.

Recommendation #9

“EV Ready” Circuits, not “EV Capable” Circuits

Grant guidelines should encourage installation of EV Ready circuits, not EV Capable circuits. EV Capable circuits leave too much uncertainty about whether they will become EV Ready at a future date; they are also functionally useless for MFH residents, who lack not only the knowledge required to retrofit EV charging at a MFH complex, but also the authority, resources, and economic incentive to do so.

Recommendation #10

More EV Ready Circuits Instead of EV Charging Stations for Lower Overall Cost

Grant guidelines should encourage proposals for lower-cost options, such as EV Ready circuits with receptacles that have lockable covers, rather than for EV charging stations, since the latter option is more likely to result in much higher costs to the EV driver living in a MFH. All EVs and PHEVs come with a convenience cordset in the trunk (or can be purchased by the driver as an asset that goes with their car), so there is no need for the addition of expensive Level 2 charging stations to be installed by the EVSP. The installation of expensive charging stations that require expensive ongoing network fees and operations and maintenance costs often result in much higher costs for MFH residents than for residents of SFH. As mentioned earlier, the price of electricity from EVSPs at MFHs is not regulated in California and too often the cost of EV charging provided by EVSPs is many times more expensive than the cost of EV charging for residents of SFH who have direct access to less expensive electricity from their local electric utility.

Recommendation #11

Signage at Every Parking Space with EV Charging Access

Grant guidelines should encourage prominent signage at each EV parking space, not only one sign at an entry point. Each parking space with an EV charging receptacle or EVSE should have a sign indicating that the receptacle and charging station equipment is for EV charging. For multi-family residents who already drive an EV, this indicates that charging is available. At the same time, it plants the seed of EV acquisition in the mind

of the non-EV driver and raises awareness that not all EV charging is done at DC fast charging (DCFC) stations. Peninsula Clean Energy suggests specific language and formatting and other associated requirements the CEC should consider adopting in order to improve programs designed to stimulate EV adoption.

Recommendation #12

Priority for Proposals that Do Not have Ongoing Monthly O&M Expenses

Grant guidelines should encourage proposals that focus more on low-cost approaches that do not involve ongoing Operations and Maintenance (O&M) costs and provide MFH residents access to affordable EV charging. Funding should be made available for projects that may not involve an EVSP, since EVSPs naturally incur ongoing network, metering, billing, and other operations and maintenance expenses when a charging station is installed, in addition to needing to make a profit on their investment – all of which can significantly increase the price for EV charging. As such, we recommend that the CEC provide funding for the following types of projects:

- In cases where there is not enough power available in the MFH electrical panel to provide EV charging without overloading the electrical panel, grant funding should be available for the cost of autonomous and localized load management devices, such as the DCC-9[5],which is an Automatic Load Management System (ALMS) that does not require the ongoing services of an EVSP, once installed. The DCC-9 avoids the need to bring in extra power to an existing dwelling unit for EV charging by using available power in the electrical panel for the DCC-9 EV circuit when the apartment or condominium appliance load is reduced, thereby enabling EV charging to proceed without overloading the electrical panel. This option gives the resident access to the same low-cost, Time Of Use (TOU) utility tariff for EV charging in the parking lot as for the appliances inside their apartment or condo, since the power provided by the DCC-9 for EV charging runs through the unit's electric panel and utility meter. Furthermore, the use of this type of autonomous load management technology would make it straightforward for residents who qualify for CARE and FERA rates to access these lower-cost utility rates for EV charging.

Recommendation #13

[5] https://dccelectric.com/

Project Evaluation Plan and Implementation

In order to make the most of its current and future grant funding, the CEC grant guidelines should require that all proposals contain a project evaluation plan and that all grant awards should be implemented with an independent program evaluation phase, conducted by a third party to extract lessons learned and publish results to be taken into account by subsequent program funding. Launching a program without a serious program evaluation effort for each project does not fully leverage CEC resources required to achieve our State goals, and potentially wastes taxpayer dollars.

Conclusion

Keeping in mind the recommendations above,EVCAC recommends that the CEC develop grant guidelines that encourage proposals to incorporate the following priorities:

1. Residents of MFH should not be required to pay more for EV charging than residents of SFH.
2. Priority should be given to projects that will provide a lower cost of EV charging to the MFH resident.
3. Prioritize proposals with load management features that are local and autonomous and do not pass on load management costs to the EV driver.
4. Ubiquitous and sector-wide equity pricing is needed at public DCFC stations for residents of MFH, in addition to the slower process of retrofitting all MFH.
5. Direct wiring of the EV Ready circuit, including where parking is unbundled and assigned.

The EVCAC would welcome a meeting with the CEC staff to share thoughts, including any of the recommendations in this letter, or to address questions the staff may have about recommended solutions. If interested, you are welcome to reach out to anyone on the EVCAC leadership team.

Thank you for your consideration,

Dwight MacCurdy, Sven Thesen, Linda Hutchins-Knowles, Wendy Chou, and Vanessa Warheit, Co-Leads on Behalf of the EV Charging for All Coalition
EV Charging for All Coalition

APPENDICES

Appendix A: Case Study

Case Study with Investor in Multi-Family Properties Interested in EV Charging Sacramento, CA

In October 2022 EVCAC spoke with a local Sacramento multi-family property owner who was considering retrofitting one of his apartment properties for EV charging. The comments below are a summary of the conversation.

- The property owner is also the manager of the property, so he is in close touch with the daily operation and understands tenant needs and interests. He mentioned that the decision process for the apartment is very quick since he is the owner and manager.
- This person owns several other properties in Sacramento and if EV charging retrofit proved successful at one property he would think about EV charging retrofits at other properties.
- The property owner is knowledgeable about EVs even though he does not own one. He follows updates in EV technology and was contemplating a Ford Lightning for his own use.
- **He envisions EVs to be fairly common in five years and would like for his properties to be EV ready, especially if he can leverage outside funding to partially reduce the cost of the retrofit process.**
- He is very open to the idea of EV charging at every parking space, depending on the cost and availability of grant funding.
- The specific property discussed has 21 apartments with 21 parking spaces along the south fence line and 9 parking spaces adjacent to the sidewalk next to the pool area for a total of 30 parking spaces, with one parking space reserved for the property manager.
- This number represents one parking space for each apartment plus 8 extra parking spaces for families that may have two vehicles.
- The property owner preferred the idea of non-networked Level 1 or Low Power Level 2 EV Ready receptacles with a lockable receptacle cover where he would simply charge a monthly “flat” or “fixed” fee for an “all you can eat approach” to any resident who wants to charge an EV. He wanted to keep the process simple with no need for the complication of having to address separate metering or billing arrangements for each receptacle or upkeep of charging stations.

Appendix B: Examples of Annual EV Charging Costs

Appendix B shows “Examples of Annual EV Charging Costs” where the cost to charge at a MFH may cost more than to charge at a local DC Fast Charging station.

Figure B-1:

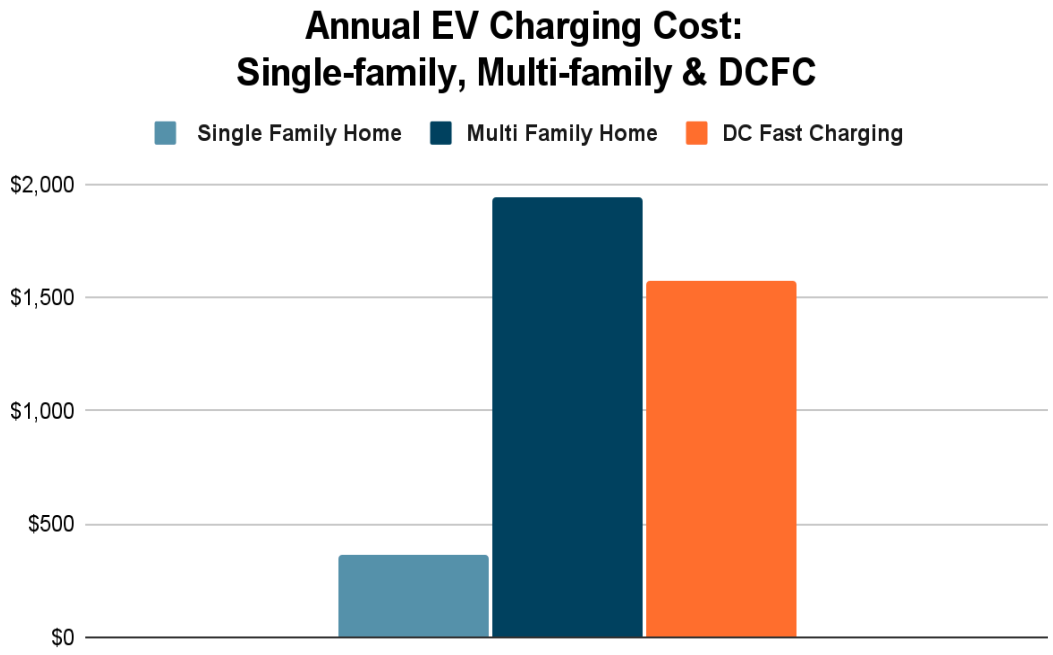


Figure B-1 shows the average annual cost to charge in three scenarios: At a single-family home, at a multi-family home with shared chargers, and at a DCFC public charging station, based on an analysis by Dwight MacCurdy and Diya Kandhra for EVCAC.

As illustrated by Table B-1 below, requiring shared EV charging infrastructure without direct wiring is particularly egregious for multi-family residents who are also low-income **CARE ratepayers** since they are unable to access special discounted rates for charging that single-family CARE customers can access.

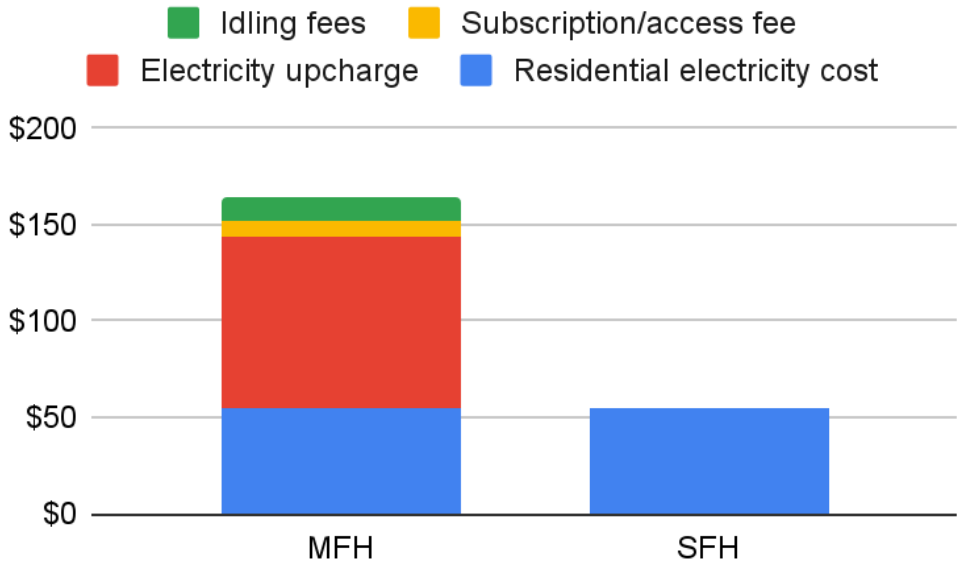
Table B-1: How lack of assigned and directly-wiring charging affects CARE customers

EV2-A RATE	EV-B SUB-METERED TARIFF
The PG&E 30% CARE program discount is only available for the EV2-A rate **when the EV circuit is wired directly to the customer's electrical panel.**	If they lack direct wiring for charging, and separate EV metering is involved, residents on PG&E's EV-B rate not only don't qualify for a CARE discount, but they **also must pay an additional $16/month Basic Service Fee**.

Appendix C: Example of Fees for EV Charging at MFH

Appendix C shows the components of typical EV charging fees at MFHs and at SFHs“ so the reader can more easily see why there is significant cost inequity between the cost paid by residents of SFH compared to the EV charging costs for residents of MFHs.

Figure C-1:
Example of Monthly Cost to Charge at a Multi-family Home (MFH) without Direct Wiring Versus a Single-family Home (SFH) or a MFH with Direct Wiring (Based on National Data Collected by the EV Charging for All Coalition)



Ensuring equitable and affordable access to charging: When multifamily residents have dedicated parking, an individually-assigned/designated EV charging circuit (receptacle or EVSE) makes tremendous sense. It’s the key that gives residents **access to their utility-regulated electricity rate for charging, including discounted rates for CARE residents** that are not available when chargers are shared. It also avoids the musical cars inherent in shared chargers, and closely replicates the ease of charging enjoyed by single-family residents. The cost of EVSE hardware is a fraction of the value of vehicles: everyone can have, and deserves, their own. Just as single-family residents don’t need to share their chargers and parking spaces with their neighbors, multi-family residents shouldn’t have to share either.