

Nevada City Cohousing Electric Vehicle Charging Infrastructure Project

Nevada City Cohousing is in the final preparation stages for installation of six Level 2 (48 amp/240 volt/1 ph) electric vehicle (EV) charging stations (EVCSs) to serve the 34-unit community. Due to the complexity of the present electrical system, following conduct of a detailed electrical load analysis, the committee¹ with responsibility for the project determined that the most sensible approach was to install a new service dedicated to EV charging that would be owned and operated by the HOA.

- The EVCSs will be located in the main parking lot (which has unassigned parking) and wired to the new service equipped with a 400 amp/240 volt/1 ph meter and panel. This consolidation will reduce the costs for trenching and undergrounding of the conduit and electrical cable.
- Only EV chargers, and no other types of loads, will be connected to the service. Each EVCS will have a separate branch circuit. This enables the HOA to qualify for a special EV utility rate, tariff “BEV-1” in our case. (That tariff imposes a charge for both the electrical *energy* consumed (kWh) during the month and the maximum *demand*--the greatest of the computed 15-minute averages of the energy consumed over the month, expressed as kW (*power*)).
- The EVCSs will be provided by Enel X, maker of the popular *Juice Box*[™] brand of charging stations.
- Each EVCS will be part of a locally-networked system under supervisory control by Enel X *JuiceNet*[™] Enterprise software.
- To minimize EV charging costs, the software has the capability of managing demand by trimming the power² drawn by the chargers and scheduling the time of day any particular EV will be charged (see Enel X *JuiceNet* Enterprise flyer, attached).
- Each EVCS will enable any HOA-authorized EV user to connect and pay the charging cost by credit-card billing. Preferential rates may be given to CoHo residents; surcharges may be added to compensate for the cost of installing the system.
- As this description is being composed, PG&E is finalizing its design for the utility’s portion of the work, which we expect to be under \$15k. Fortunately the utility’s existing 100 kVA transformer appears to have sufficient reserve capacity to handle the additional load of the EVCSs.
- The HOA applied for grant-funding in 2021 under the California Energy Commission’s *California Vehicle Infrastructure Project* (CALeVIP), and expects to receive an award of \$33k that will cover up to 75% of the cost.

¹ Questions: contact NCCoHo resident and project engineer, Mikos Fabersunne, msfabersunne@sonic.net; (530)-400-5263

² This feature is essential in multi-unit developments with centralized power distribution systems. For projects where EVCSs will be connected to a panel serving other types of loads, the capability of limiting demand is vital for controlling costs. Another manufacturer, *Atom Power* in North Carolina (website: <https://www.atompower.com/solutions/ev-digital-charging/>) is introducing a system that can track power consumption from each EVCS in real time and respond instantly to signals to cap or time-shift the load from connected EVs to prevent the total demand from exceeding a predetermined threshold.