



Case Study: CityFront Terrace Plug-In Electric Vehicle Charging

CityFront Terrace Profile:

CityFront Terrace is a mid-rise luxury condominium community in the Marina District of downtown San Diego, just blocks from the waterfront, restaurants and shopping areas.

- Built in 1993 with 13 stories and over 300 condominium residences.
- Amenities include, 2 pools a 3500 square foot fitness center, conference room and the expansive “Citrus Room” available for private events.
- Secure underground resident assigned parking, optional valet parking and a 24-hour lobby attendant.
- With 400,000 bricks this is the largest brick building ever built on the West Coast, and designed to incorporate the 1920s-era Citrus Soap Factory.

Plug-in Electric Vehicle Charging Need:

Residents of CityFront Terrace began to inquire about their charging station options for electric vehicles they were planning to purchase in 2011. A variety of all-electric and plug-in hybrid vehicles, and charging stations, were being considered by residents. Property management and residents were seeking a billing solution that would allow residents to pay for their energy usage directly without the property managers having to track usage or collect payments.

With assigned underground parking spaces far from the residents’ individual living unit electric meters located on upper floors and common area meters on commercial rates subject to demand and time-of-use impacts, this project proved to be a challenge. The property and facility managers, home owners association and residents all worked together to identify a solution that allowed for lower cost electric vehicle charging rates, individual billing and flexibility of charging units for each resident. Management also knew that vehicle charging would allow their community to market it as an important new green amenity.

Technical Situation

During early evaluation, CityFront Terrace uncovered many technical challenges. Solutions were needed for wiring the parking spaces with different brands of 208-volt charging stations as well as for individual user billing. Facilities management suggested the installation of individual meters for each charging unit, therefore using San Diego Gas & Electric's billing direct to each resident installing and using a vehicle charger. By not having vehicle charging electricity being metered by common area meters the property manager is removed as middle man in billing and disputes.

By wiring new individual meters directly to electrical service in the underground meter room in the garage, the additional cost of trying to wire to residential meters on upper floors was eliminated. By assigning the accounts to individuals, lower cost electric vehicle time-of-use (EV TOU) could be applied and each user would see the benefit for off peak charging. This approach also negated the need to rearrange the previously assigned resident parking spaces by wiring directly to the user's space and installing the resident's preferred brand of vehicle charger.

Solution

After working together on a compromise to the design, installation and billing plan, CityFront Terrace agreed they would install 20 individual meters wired directly to the utility side of the building electrical supply via one of the main buses. Wiring hubs on each floor of the parking garage would allow for wiring to individual parking places. Each individual requesting vehicle charging would pay an equal portion of the upfront capital expenditure for the project and purchase/own their own charging unit for installation in their space. Each resident secures the required liability insurance referenced under SB 880 in California for potential liability that may occur from these units being located within a "common area".

Under this arrangement each resident receives their monthly bill directly from San Diego Gas & Electric and sees first hand their individual time-of-use behavior and resulting cost savings from the utility's special low electric vehicle rates. Although the project was capital intensive up-front – an estimated \$80,000 – the consensus among the stakeholders was that it was worth making an investment that would be returned over time – an estimated \$4,000 for each resident requesting charging – to have a program that allowed for individual flexibility for charging units, reinforced off-peak charging advantages and removed property management from additional responsibilities relating to vehicle charging. The costs are therefore passed on directly to the user and the community investment is paid back for its up-front support of a solution.

Benefits

This thoughtful electric vehicle charging solution project brought about many benefits for both the residents and property management. They included:

- Creating a sense of community and consensus among the residents and property managers by taking time to develop a solution that was agreeable to all and able to recoup costs over time.
- Removing additional work for the property managers by having billings going directly from the utility to the residents.
- Being able to market the property as a facility that caters to forward-thinking electric vehicle drivers that supports a cleaner transportation options.
- The ability for residents to have a choice over charging station vendors.
- The project that is scalable over time, and does not have to be “sold out” right away.
- The project allows for either removal of the charging unit if the condominium is sold or moving it to another parking spot.

Future metering technology could allow wireless sub-metering in the car or charging station and industry and regulators are currently working on this effort. Pending state policy decisions will determine the spectrum of possible solutions for the future.

Products and Services

- Billing: Cost recovery billing through the HOA
- Metering: San Diego Gas & Electric
- Engineering: MPE Consulting, Pacific Electric Inc.
- Installing Contractor: California Southwest Electric
- Electric Vehicle Rates: www.sdge.com/ev
- CityFront Terrace Contact: info@cityfrontterrace.org