Utility Incentive Design Best Practices for EV Charging at Multifamily Properties

CHARGE at HOME

Background

Charging at home is an essential component for enabling rapid electric vehicle (EV) adoption. As areas outside existing EV strongholds experience significant year-over-year growth, it is increasingly necessary to support drivers across all housing types. EV charging for residents of apartments, condominiums, and certain townhomes is less straightforward than providing charging at single-family homes. Charging infrastructure at multi-family housing (MFH) properties must be carefully incentivized to foster sustainable development and build-out. Ideally, EV charging incentives provided by utilities encourage manageable load growth, which should benefit the property owner, the resident, (if the home is not owner-occupied), and the utility: a win-win-win situation for MFH owners, residents, and the utility that serves them.

Rationales

There are several key reasons for utilities to incentivize EV charging at multifamily properties. Teams may seek to boost grid resiliency through demand response (DR) and distributed energy resources (DERs), forecast where grid hardware will be most stressed, or simply support EV adoption.

Utility Side

Existing customer demand for charging is the most immediate and visible reason to incentivize EV charging. As electric vehicle adoption rates increase, more EV drivers will live at MFH properties, thus increasing demand for EV charging access at MFH property parking lots. EV charging at MFH properties can also potentially lead car-buying neighbors to consider EVs as a viable option.

Incentivizing EV charging infrastructure can be particularly important for utilities so that EV chargers installed can respond to grid signals when peak demand events happen.

Incentives allow the utility to have a say in both the kind of infrastructure that is deployed as well as when energy is consumed, which is usually the difference between a net negative and a net positive impact to the utility and non-EV-driving ratepayers.

If charging takes place during peak demand periods, the utility has to purchase higher-cost power to serve that load, and may have to build new additional, and expensive generation or energy storage, likely increasing ratepayer costs in the long-term. If the charging load can be shifted predominantly to non-peak times, EV charging will be a net positive to the utility as power is less expensive off-peak, and marginal demand at off-peak times can put pressure on rates to be reduced. To combat on-peak charging, utilities - including San Diego Gas and Electric, Eversource, Xcel Energy, National Grid, and most others - offer time-of-use (TOU) rates, and some even offer EV-specific TOU rates. Some utilities have additional demand response programs that pay customers to allow the utility to reduce or stop power flow during peak demand events.

Property Management-Side

In many places around the country, EV charging has become an expected amenity, like laundry machines or onsite parking. Incentives can help property managers meet this demand, as well as give properties a competitive advantage in attracting and retaining residents who either own or plan to purchase EVs.

https://www.pexels.com/photo/road-traffic-street-industry-9800006/

MFH properties offer significant potential upside to utilities seeking to encourage electric vehicle charging. High concentrations of drivers mean that any infrastructure upgrades (transformers, conduit) are likely to benefit many individuals. However, property owners and condominium associations do not typically have the upfront capital ready to procure, install, and maintain EV charging without help from their utility, state grants, and other financial sources.

Sample Programs

There are multiple ways to structure MFH EV charging incentive programs, each with its own unique strengths and drawbacks. Below are three potential structures that utility program managers should consider. A fourth structure, grant programs, is rare (a non-utility example is Charge Vermont), but can be particularly effective for properties that have a hard time with financing upgrades or obtaining short-term bridge loans.

Rebate Programs

Rebate programs operate on a reimbursement basis, requiring site hosts to purchase and install eligible equipment, whereupon the utility compensates them at a later time. For example, National Grid's Massachusetts MUD EV Charging Upgrade Program offers a rebate up to $3,900 per port in charger purchase costs for eligible MFH properties, and up to $9,600 in customer-side infrastructure, including transformers, trenching, and labor. In the Great Lakes region, Consumers Energy's Power MI Drive will supply up to $7,500 for the establishment of at least two 50-amp charge ports at an MUD site. These programs are relatively simple to operate and provide low administrative barriers, but require site hosts to have the capital needed for procurement and installation.

Make Ready Programs

These programs fund only the make-ready utility work that supports EV charging infrastructure at a property. Generally, this is accepted as the trenching, conduit, concrete pours, and electrical upgrades which are located between the site feeder line and the site meter, and which are required to support some future level of EV charging. Utilities in New York state (including National Grid), Southern California Edison, and Peninsula Clean Energy (PCE) are among the utilities offering make-ready programs for MFH properties.

Utility-Owned Programs

These programs generally cover to-the-meter/utility-side infrastructure work, behind-the-meter/customer-side infrastructure work, and the charging stations themselves. Utility ownership requires the highest level of utility investment in projects and may place the responsibility for operation and maintenance on the utility, as seen in SDG&E's Power Your Drive Pilot. This significantly lowers the site host's financial and logistical barriers to installing EV charging. However, this additional investment allows the utility to manage the chargers with the site host's consent, allowing for options such as dynamic rate-setting on an hourly basis, monitoring charging usage in real time, and conducting load management, all while prioritizing affordability to residents. For utilities that have particularly large peak demand periods, investing in this infrastructure may be helpful to long-term load balancing capabilities.

Structuring an MFH EV Charging Incentive Program

Incentive programs exist across the United States and vary greatly by utility type, objectives set by program designers, and the state regulatory environment. Below follow recommendations for a successful incentive program, as well as key design considerations when custom-tailoring programs to utility service areas.

Guiding Principles

The most effective charging incentive structures for MFH properties are often unlike those for single-family homes (SFHs) and retail, public, and workplace sites. Incentivizing different MFH properties and property types requires varied considerations and specific directions of funding to spur usage. Setting high-level objectives before determining incentive amounts, incentivized hardware, or any data reporting requirements is fundamental to a quality incentive program. The following guiding principles, grounded in work done by PCE, will help program designers craft those objectives:

- Focus on installing the largest number of ports possible on existing electrical supply, without sacrificing future flexibility or upgrading transformers. However, maximizing ports and prioritizing affordable end-user costs frequently oppose DR capabilities, the enabling of which necessitates an incremental cost of networked chargers.
- Aim to reduce the overall cost-to-charge for EV drivers. When wiring distances, parking lot security, financing, and physical space allow, wiring directly to the customer meter or employing virtual submetering technologies can remove the 'middleman' energy markups, typically from network service providers and property managers. This approach can be particularly valuable to condo owners. Wiring directly to a resident's meter can be accomplished by connecting a charging circuit to the resident's unit panel, the feeder line between the unit's meter and the resident's panel in-unit, the meter base, or between the meter and the meter base.

- Control the cost-per-port incurred by sites to lower barriers to adoption. This may include strategies such as incentivizing low-power or load-managed chargers to stay within existing electrical capacity.
- Craft incentives geared towards specific market segments and types of properties (new vs existing properties, condos, mid-rise, garden style, etc.). Multiple different incentives and incentives of varying amounts are likely needed to address all target property segments within the MFH industry.
- Consider including streamlined utility design processes and access to technical experts who can guide development teams through the incentive program and utility requirements. Early (pre-construction) utility engagement for new developments is key to avoiding delays and aligning project needs (Lewallen & Huether, 2025).

Specific Program Design Recommendations

Additional program-specific recommendations from PCE can be found in their EV-readiness guide for utility incentive programs, with detailed recommendations in section 3.2 on page 9 (see references section for link). The Charge at Home team has integrated PCE's guidance with recommendations gleaned from lessons learned from charging projects across the United States. The applicability of these recommendations will vary by geographic region, MFH development type, utility type, and regulatory environments.

These recommendations and considerations can be encompassed by considering the following four overarching questions.

1. What level(s) of charging do drivers at MFHs actually need?

At sites where drivers leave their vehicles plugged in for extended periods of time (>4 hours), 120V L1 or power-managed 240V L2 charging stations are appropriate. A L1 EV charging station requires only a dedicated 120V outlet and is the recommended option for simple needs coverage. The lower power output allows for the maximization of served parking spaces without requiring upgraded electrical infrastructure. Over an extended dwell time, such as overnight parking, L1 charging will cover a typical US commute (replenishing between 20 - 42 miles round-trip), which should be considered a minimum level of service. Some areas – particularly more suburban or rural areas – may have higher minimum daily travel distances. L2 charging stations, while offering a faster rate of charge, are significantly more expensive and place a larger demand on existing electrical capacity; therefore, fewer chargers can be installed without requiring upgrades. Section 216.5 of The Americans with Disabilities Act (ADA) stipulates that parking assigned to specific units does not need to be identified by signage. The conversion of assigned parking to shared-use L2 charging can trigger costly ADA considerations, and sustainable operation is reliant on the number of chargers consistently exceeding driver demand.

2. What are the likely pain points for MFH complex managers and unit owners?

MFH property owners and condo associations already face the expense of procuring their EV charging equipment. Upgrading transformers and panels -potentially even master panels- can be an enormously costly and often disruptive process that can turn away incentive applicants mid-process. PCE recommends two pathways to address this concern and these costs: provide charging while avoiding infrastructure upgrades entirely, or, if upgrades are inevitable, "go big or go home" by incentivizing a large project that maximizes the impact per dollar spent and future-proofs the site for when all vehicles are EVs. A site's best path forward can be determined by conducting modeling of future EV growth on existing and upgraded infrastructure scenarios to determine when demand is likely to exceed capacity. Utilities should make that modeling easy for property owners and managers to access – PCE uses their Technical Assistance Program to conduct static load calculations and propose parking layouts during onsite visits. As an alternative to static load calculations, load studies can be conducted by monitoring the site's consumption over a period of time to develop a full picture of the electrical flow to the site.

3. What are the likely pain points for EV drivers?

Of the issues encountered by EV drivers, port availability and reliability are perhaps the most pressing. In pursuit of port availability, utilities must walk a fine line. PCE encourages designing for an eventual future where each parking space has its own outlet or charger. Applicants should be encouraged to install as many ports as feasibly possible; however, utilities must discourage hosts that would simply 'use up' their existing electrical capacity with low-powered ports in first-come, first-served charging spaces to maximize rebate funds, without consideration for their residents' needs. Incentivizing the right speed of charging for the right charging configurations. Dedicated chargers can provide lower charging rates because users have exclusive access to the ports and certainty over when they have access; communal chargers do not provide such certainty without reservable features, which can add complexity as well. Providing an outlet or port for every parking space in a large property with mostly or entirely unassigned parking spaces is not recommended, particularly if the property is a retrofit. Communal chargers and some dedicated chargers will likely be needed. Reliability can be addressed by giving participants lists of vetted charging hardware and network service providers, clearly delineating a responsibility for charger maintenance, and building in additional incentives for hosts that maintain a certain level of charger uptime. For an example UL-certified product list, see EPRI's Vetted Product List.

Charging affordability is also a major consideration and a key driver of the effective use of incentive program funds. As discussed under the guiding principles, minimizing the chargers' cost-of-usage for EV drivers is crucial to ensuring that installed chargers are used as much as possible to return the expected benefits to the utility. Affordability can be improved by sizing chargers to reliably meet driver needs without triggering upgrades and wiring directly to customer meters, whenever possible.

4. How can infrastructure deployed by this program remain relevant and useful in the context of future EV adoption and utility planning?

The EV charging infrastructure market is continuing to evolve and change, improving charging speeds, energy management system optimization (load management capabilities), and hardware reliability regularly. PCE recommends preparing for EV demand to grow over time, conducting some simple modeling to understand how each site's load would change over the next 5-10 years, given local trajectories of EV adoption. Based on this model, utilities should encourage existing property owners to install charging ports to meet or exceed current demand without triggering utility infrastructure upgrades, and plan to invest in upgrading infrastructure to serve the anticipated demand within the 5-10 year horizon. Utility programs should ensure that incentives are not subsidizing the reactive installation of chargers after demand exceeds the supply of chargers. One possible pathway to avoid this is to require futureproofing measures to be taken each time incentives are claimed by a site, until a fully built-out charging plan is implemented or capacity limits have been reached.

Using this document as a framework and catalyst for beginning dialogues with utility staff, stakeholders, and your community's EV drivers will provide a solid starting point for the development of utility incentive programs for MFH EV infrastructure installation and maintenance.

Bibliography

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Acknowledgements

This document would not have been possible without the work of Kevin Wood and Derek Ichien from Energetics (a CLEAResult company). Whit Jamieson from Forth's Charge at Home program team provided significant editing and revising support.