Demand Management Programs – Light-Duty Electric Vehicles

Role of Electric Utilities in Electric Vehicle Deployment

Quick Take

As electric vehicle (EV) adoption grows, electric utilities need to find ways to manage increased EV charging load on the grid to ensure system reliability. Demand management programs, which incentivize customers to charge during off-peak hours, save customers money and allow utilities to more effectively manage load and make infrastructure investment decisions. Grid reliability improves due to reduced grid stress during periods of high demand, resulting in lower costs and more reliable service for all rate payers. Con Edison and Eversource[1] offer two innovative programs to manage load associated with EV charging.

Con Edison SmartCharge New York

SmartCharge New York is an incentive program, administered by Con Edison but open to non-Con Edison customers, that uses an innovative tracking system to reward EV drivers for off-peak charging. Participants who charge in the Con Edison service territory receive $150 for installing and activating the FleetCarma monitoring device, $5/month for continuing to charge in the service territory and a bonus $20/month for avoiding summer-peak charging weekdays between the hours of 2 PM to 6 PM and $0.10/kWh for charging between midnight and 8 AM year-round. Additionally, participants can receive bonus payments for installing their device within one week, submitting feedback through annual surveys, and referring additional customers. Participants can earn up to $1,000 per year.

Unlike Time of Use (TOU) rates, SmartCharge New York is an off-bill, non-tariff program that monitors charging through a FleetCarma device connected to the on-board diagnostic port in the vehicle rather than a smart meter. Non-fleet participants receive their incentive on a monthly basis through PayPal and fleet participants receive rewards by check. By using a FleetCarma device, customers have access to lower EV charging costs without the expense of a dedicated meter. The device allows Con Edison to access the location, duration, and energy consumed during each charging session. In addition, customers can access their data through an online portal, monitor the health of their battery, track rewards, and share their stats with others through social media. Participants prefer the SmartCharge program to the stand alone EV TOU rate as it does not require a second meter on their home, which typically costs the customer around $1,000 to hire an electrician to install a second meter pan and electric panel, in addition to paying a second monthly customer charge on their electric bill.

Goals and Process

Both programs are designed with the goal of reducing peak load from increased EV charging. Each program, however, addresses this issue using a slightly different approach.

SmartCharge New York is designed to increase customer engagement with EV load management by providing an incentive structure that is easy for customers to track and understand. This enables greater customer program enrollment, ultimately reducing peak demand.

Eversource's ConnectedSolutions program is designed to manage EV charging load by monitoring and, if needed, controlling customer's charging capabilities.

These programs serve to manage peak demand, which benefits ratepayers through lower infrastructure costs and greater grid stability.

SmartCharge New York Implementation Process

1. Customer applies to program
2. FleetCarma tracking device is mailed
3. Customer installs tracking device or has vendor install
4. Con Edison tracks monthly rewards and applies credit to customer card of choice

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[1] Additional information on Con Edison's SmartCharge can be found at https://www.coned.com/en/save-money/rebates-incentives-tax-credits/rebates-incentives-tax-credits-for-residential-customers/electric-vehicle-rewards, https://www.fleetcarma.com/smartchargenewyork/, and http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7BAB8AB91B-ECE6-41CB-94E1-3915DF3B4025%7D. Additional information for Eversource's ConnectedSolutions can be found at https://www.eversource.com/content/ema-c/residential/save-money-energy/explore-alternatives/electric-vehicles/ev-charger-demand-response.

Additionally, Con Edison rewards dealerships $200 for each customer they refer to the program – incentivizing essential partners in the EV adoption process.

SmartCharge New York was developed to research the impact that the growing number of EVs in New York City and Westchester County would have on the electrical delivery system. The program received approval in 2017 for $6 million in funding through 2019 and has successfully grown to 3,000 light-duty EVs (LDEVs). Con Edison expanded the program in January 2020, with $12.9 million in funding through 2022, to include three categories: SC1 Rate I, SC1 Rate II, and a medium- and heavy-duty vehicles rate, which includes buses. These categories vary by monthly and per kWh incentives by vehicle type. For example, medium- and heavy-duty customers can receive $250 per month from June through September compared to the $20 per month during the same period for LDEVs. By measuring peak system reduction (in MW), Con Edison is able to apply program savings to its greater energy efficiency peak reduction targets.

> Demand managment programs are becoming increasingly important as EV adoption grows and charging demand increases. The creation of utility managed charging programs maintains a reliable grid and will serve as a vital tool to creating a dynamic electricity system in the future.

Eversource ConnectedSolutions

Eversource began offering incentives for managed EV charging as a pilot in Massachusetts under its ConnectedSolutions demand response program in 2019 in order to explore best practices to cost-effectively mitigate the peak demand impacts associated with the growth of EVs. Through the program, customers with eligible WiFi-enabled home chargers receive rewards by allowing Eversource to adjust the charging rate and timing of EV charging. Eversource's adjustments decrease charger energy use during a charging session, creating more manageable and efficient charging for the grid. If the customer needs to control charging, however, they have the ability to override adjustments and can set the charger back to normal settings.

Customers are eligible to earn up to $300 and can receive that funding in two different ways depending on whether they have already purchased their charger. Customers who have not purchased a charger are eligible to receive $300 upon signing a three year contract with Eversource when they install an eligible charger. Customers who have already installed a charger are eligible to receive $150 at sign up and receive the remainder of the $300 in $50 increments per year for three years.

Eversource is offering ConnectedSolutions as part of its 2019-2021 Massachusetts Joint Statewide Three-Year Electric & Gas Energy Efficiency Plan. The program's total budget is approximately $1 million over three years with over 108 residential customers signed up to date.

Next Steps

With 3,000 LDEVs, 14 electric buses, and six medium-duty trucks enrolled to date, Con Edison hopes to reach 4,200 LDEVs and 25 buses by the end of 2020. After successful results from a three-month pilot in the fall of 2019, Con Edison will launch a new program in the spring of 2020 with Honda PHEV owners using the onboard telematics on the Honda Clarity to monitor charging behavior. Con Edison anticipates 200 participants by year end – 86 participated in the pilot.

While Eversource's ConnectedSolutions program is currently only implemented in Massachusetts, Eversource received approval from the Connecticut Public Utilities Regulatory Authority to implement the program in Connecticut in 2020 and plans to seek approval in New Hampshire as well. While ChargePoint is currently the only eligible brand of home chargers, Eversource plans to expand the offering to include other manufacturers. Eversource also plans to take learnings from 2019 and 2020 to refine the incentives it will offer to customers in the full version of the program.

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