



Unlimited EV Charging Rate

How GMP is optimizing the grid while creating customer value.


Overview

Green Mountain Power (GMP) in Colchester, VT set out to create a pilot program to incentivize Electric Vehicles (EV) adoption while encouraging customers to share access to their residential vehicle chargers, providing GMP the opportunity to optimize charging patterns in response to price, demand, and customer use preferences. The popular pilot program is now full.

The Challenge

Promoting EV charger control often faces two key problems:

1. Without visibility to wholesale cost, customers alone cannot, and do not want to, react to peak rates and avoid charging when energy is most expensive. This problem is often addressed through Time-of-Use (TOU) rates.
2. TOU rates are typically more complex than fixed retail rates. This creates work for customers, can makes marketing challenging, and keeps adoption rates low.



\$29.99 EV Unlimited Plan

Right now, GMP offers unlimited off-peak charging for just \$29.99 per month. Charge one EV as much and as often as you'd like during off-peak hours and pay just one low, monthly price. Imagine paying just \$29.99 a month for gas!

Off-peak hours are outside of any window when GMP schedules a peak event. Peak events occur about 5-10 times per month for about 2-6 hours at a time. Customers can still charge during a peak event, but it will cost \$0.60/kWh during this time.

The Approach

Participants in GMP's EV Unlimited pilot program receive a free Level-2 charger with the purchase of a new electric vehicle. For a flat rate of \$29.99/month customers can charge their car as much and as often as needed. In exchange, GMP limits charging during peak events in response to grid conditions. GMP gives customers the ability to opt-out of these events, but each kWh consumed during the event as a result of an opt-out will cost

\$0.60/kWh. This flat rate charging pilot is now full. GMP is preparing to launch an enhanced flat rate charging pilot program soon.



Additionally, ChargePoint Level-2 and Flo Level-2 chargers provide meter-grade data. This allows GMP to separate out EV charging consumption from household energy consumption and bill the customer separately for their EV charging. The ability to run such a program without a second meter represents a significant avoided cost that helps make the program viable.

Benefits

Aside from receiving a free charger, smart charging helps customers save on “fuel” costs and provides certainty to the cost of operating their vehicle. No matter how much a customer charges, they pay one fixed monthly payment – it’s like paying \$29.99 per month for gas, no matter how far you drive.

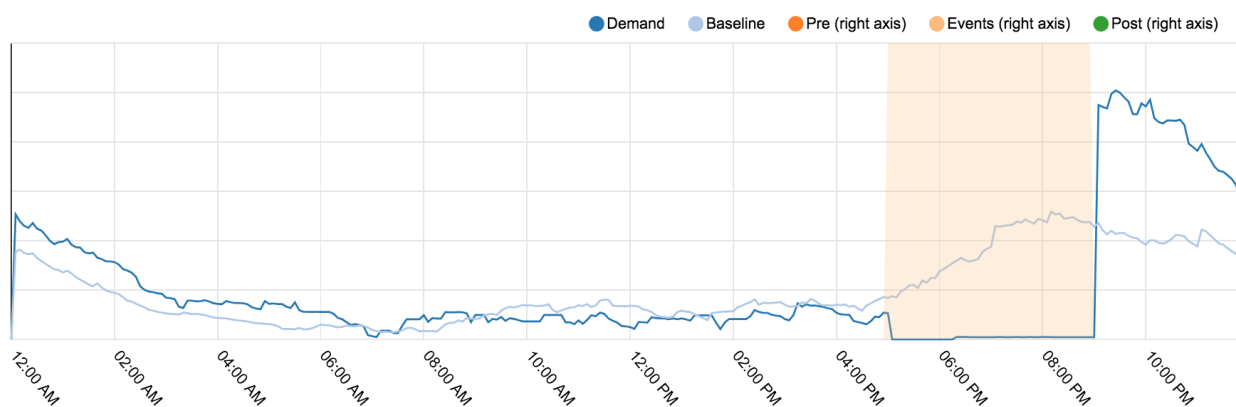
For GMP, this arrangement provides the primary benefit of shifting load to off-peak hours, while being more convenient for the customer’s lifestyle than typical TOU rates. GMP is not only future-proofing their grid services to accommodate the rise in EV adoption, it’s leveraging EVs to benefit all GMP customers.

Participating Customer Benefits	All GMP Customer Benefits
Certainty around cost	Ability to move charging off-peak
Understandable charging rate	Predictable revenue and target for cost control
Personal, direct contribution to limit impact of rising demand from EVs	Engage with customers on their energy use

Signals of Success

Between June 2018 and January 2019, GMP called a total of 28 events on their fleet of EV chargers. The chart below shows the impact of the program on the load profile of those enrolled chargers. In collaboration with Virtual Peaker, GMP established a baseline for those chargers in the program.

EV Charging Behavior During DR event vs. Baseline in Mid-October 2018



Source: Virtual Peaker, provided with permission from Green Mountain Power

Another sign of program success has been its low event opt-out rates. One could reasonably use opt-out rates as a measure of the program's disruption on a customer's normal charging behavior. Smart charging in general raises questions about how customers will react if their car is not being charged during peak periods. But the data have proved promising. **Between the months of October of 2018 and mid-January of 2019, the average event opt-out rate was roughly 1.1%.**

Conclusion

GMP's approach to encouraging EV adoption is a simplified TOU rate designed for customer convenience and reframed as a tailored product offering. The structure of this shared-use agreement guarantees that charging is pushed off-peak, while unlimited charging at a fixed cost provides cost-savings for both the participating customers and all other GMP customers. This structure allows device control to be price-responsive for GMP and balances this objective with an understandable program that brings delight and value to GMP's customers.