Forecasting electric vehicle adoption and grid impacts

Data science case study
April 15, 2021

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Key takeaways

With the E Source OneInform solution, our client:

- Created a granular load-forecasting model using the tool's proprietary customer-attribute data, EV ownership data, and existing utility data that it could apply across its entire system
- Identified locations where EV growth would increase demand on the grid down to the transformer level
- Made data-driven decisions about grid investments and charging infrastructure

The challenge

A midwestern utility needed to identify areas where EV growth would strain the grid. The utility hoped to identify local grid hotspots in order to predict growth on specific feeders over time and effectively manage the large EV loads in existing households.

Traditional top-down macroeconometric modeling doesn't provide the granularity utilities need to manage a distributed energy grid. It also fails to consider the neighborhood effect—the idea that new-product adoption is influenced by one's neighbors.

Pinpoint areas where EV growth will strain the grid

Contact our team to learn more about our expertise and how we can help.

The solution

Our suite of artificial intelligence (AI)–powered solutions provided the utility with a bottoms-up model of

customer adoption propensity, taking into account hundreds of customer attributes, smart meter data, the neighborhood effect, and federal and state incentives. We ran multiple simulations to analyze adoption scenarios, providing granular load-forecasting models the utility can use across its service territories.

The results

Using our forecasts, the utility identified EV hotspots, allowing it to plan for grid investments and charging infrastructure. The granular models also allowed the utility to identify areas of exploration for new programs that could accelerate EV adoption.

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