How utilities can save the day with data science and AMI data

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In a world where people charge cars and data tells stories in the language of kilowatt-hours on virtual machines, utilities are the good guys. Fighting high-energy bills and overloaded transformers with the help of their trusted sidekick, E Source, utilities are proof that not all heroes wear capes.

Imagine …

What if you could tell customers that their HVAC system had a problem before it stopped working on the hottest day?

What if you had the power to know everyone who owned an EV charger and could plan for those chargers' impact on the grid?

Does this sound like a movie from the far-off future beyond anything you've seen? Well fortunately the future is here, and these capabilities exist today, leveraging your advanced metering infrastructure (AMI) data.

This is a far cry from a few years ago when most of what you would hear about AMI data was something like "I've got all this AMI data. Now what do I do with it?" Those days are gone, however, as legit use cases for utilities powered by AMI data and data science have taken off, benefiting the utilities we partner with and their customers.

It's a bird … It's a plane … It's data science

So what is all this gold hidden inside AMI data, and how do you mine it?

It can be pretty much anything related to a customer's energy-usage behavior that you care about as the utility—or in the name of good customer service. As long as you have some number of known cases of what the "it" is, data science can learn what to look for in AMI data to find that behavior in a whole bunch of other customers.

Using a deep understanding of each individual customer derived from AMI data, E Source OneInform®

revolutionizes the way utilities manage and develop the next generation of customer programs.

Let's dive into a couple examples.

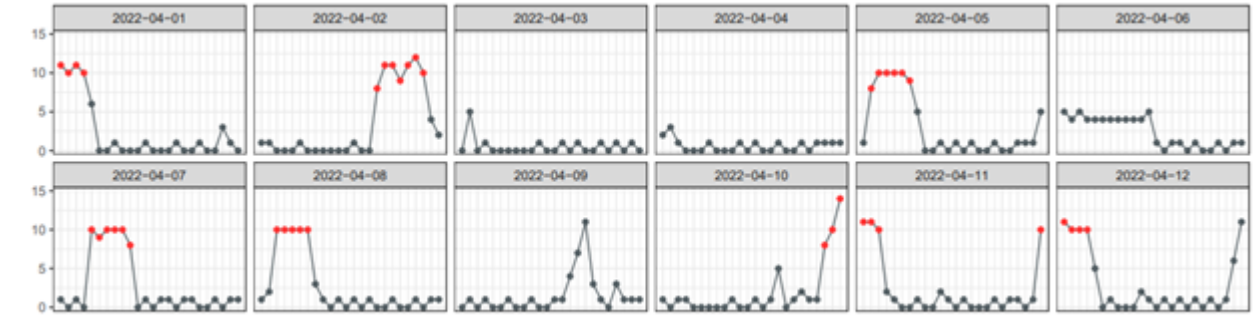
Level 2 EV charger detection for the win

EVs are on the rise and, with them, Level 2 chargers. Although most standard 110-volt outlets can add about 5 miles of range in an hour, 240-volt Level 2 chargers can add 20–30 miles of range per hour. This is a win for EV owners, but it's less of a win if you're managing the electric distribution system and you have a big cluster of Level 2 chargers downstream of assets with capacity constraints. This could bring high risk of power reliability issues.

Have no fear, data science is here! Our OneInform models use AMI data to find customers whose usage scream, "Hi there! I have an Level 2 charger!" and feeds the results into distribution asset risk models (**figure 1**).

Figure 1: Level 2 charger usage

These graphs show Level 2 charger usage detected within one service address using one-hour interval AMI data (kilowatt-hours on the y-axis, hours on the x-axis).



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This tees up heroic opportunities for proactively offering an EV rate option for the customer, which is favorable for both the utility and the customer.

If you're looking for even more gallant opportunities for EV customers, check out our on-demand webinar Rev up your mobility strategy.

Clandestine detection of HVAC equipment issues

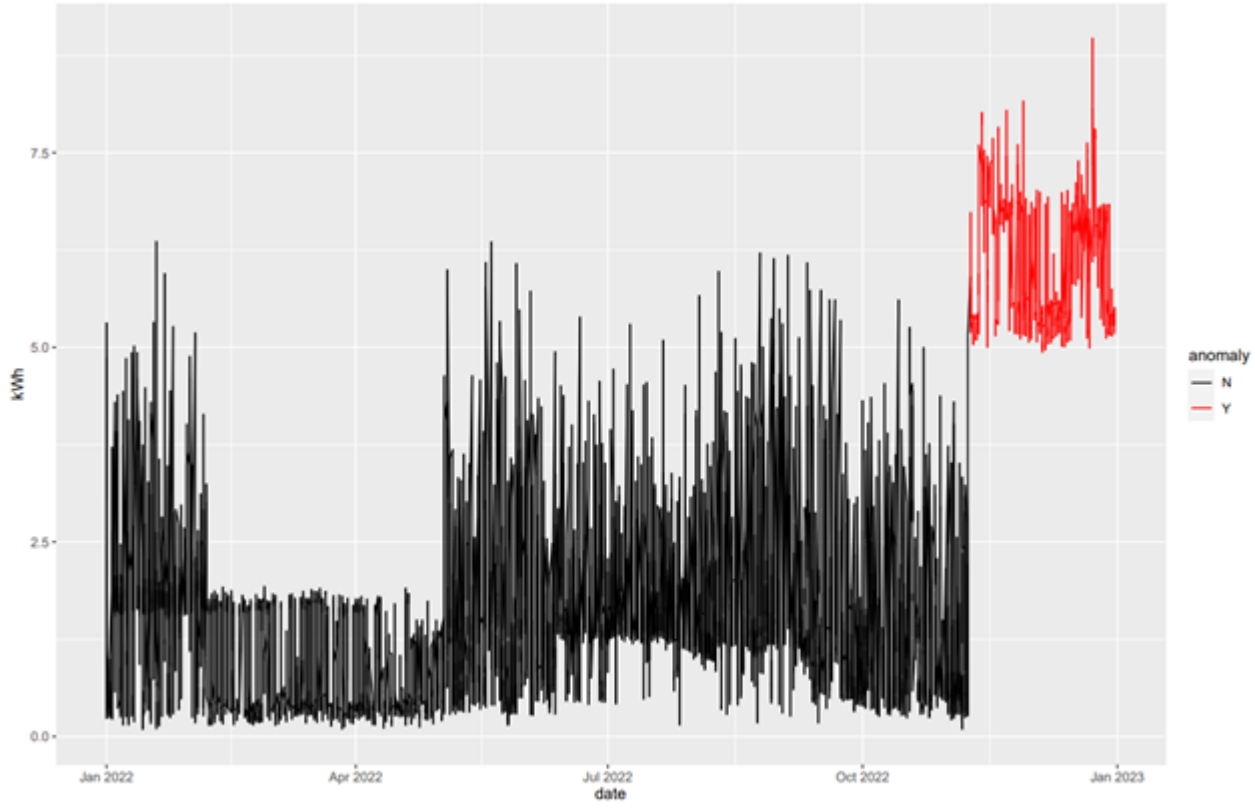
Your customer service representatives work hard to provide impeccable service to every customer who has the pleasure of calling in to ask a few questions about their bill. Your service is so superior, the customer's only dissatisfaction is that they're limited to five stars when they complete the postcall survey. What a nice thought, right?

But then a customer calls and is upset and concerned that their bill is so much higher than previous bills, and you can't find anything that looks off in how the bills were generated versus the energy consumed. They hang up with their problem unresolved. A couple weeks go by, and they call back to report their HVAC system went down and had to be replaced.

We recently helped a utility in this exact situation by configuring our OneInform models to detect situations like this in the AMI data available (**figure 2**).

Figure 2: Anomaly in energy usage

The figure shows an example of a sudden jump in usage for over a month in late-2022 due to an HVAC issue.



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Rather than have a frustrated customer calling in after the nightmare of replacing their HVAC, you can now be the hero and proactively let them know of a concern and suggest they call a service technician to take a look. Doing this will completely change the sentiment from “Why couldn’t you help me more?” to “My utility is my hero!”

For another example of how data science can help you better understand customers’ HVAC usage, read Letting data do the work to better understand customers and their energy needs.

If you’re ready to come to the rescue and are interested in how our OneInform models can help you get the most use out of your AMI data, contact our data science team today.

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