Storm season is coming

How data science can predict outages and help you keep customers informed
By Jesse Woods, Melanie Wemple
March 29, 2023

Storm season is coming

Power outages have a huge impact on utilities and their customers. They're not only inconvenient but they also cause discomfort, health and safety risks, and financial losses.

Utilities can mitigate some of these stressors through their customer communications and restoration processes. But even with these efforts, outages still have a notable impact on customer satisfaction (CSAT) scores. Preventing outages is the best way to provide the optimal customer experience.

Thanks to the power of data science and predictive analytics, E Source has curated tools that help utilities better anticipate outages. With these tools, your utility can keep the lights on or work to restore service faster, while also:

- Improving CSAT
- Investing in the grid more impactfully
- Managing the workforce more effectively

Use data to paint a clearer picture of potential outages

Applying a machine learning approach allows utilities to analyze large amounts of data and identify patterns in storm severity, storm profiles, vegetation effects, infrastructure damage, and resultant outages. With this data, you can more-accurately predict where outages may occur, so you'll be better equipped to proactively address potential risks and reduce the likelihood of outages.

Preventing outages through data science

Our work in data science can empower your utility to assess and address high-risk vegetated areas more accurately, allowing you to remove risk before storm season hits. We do this by creating a tree-presence model to map vegetation surrounding your utility's specific infrastructure, and we compile it with your unique outage data and other important geospatial variables to model and predict outage risk across the system.

Check out our case study Deploying risk-based vegetation management for a northeastern utility to

learn how E Source's risk-based vegetation models helped deliver a 14% improvement in SAIFI (System Average Interruption Frequency Index) for one utility.

Understanding where storm outages will occur using AI

E Source also support utilities by analyzing data on past storm patterns to predict where outages are likely to occur during future storms, which can increase outage prediction accuracy by more than 20%.

The Storm Insight tool uses AI to process large volumes of historic outage data, system conditions including vegetation, and weather forecasts to understand how many outages will likely occur in each of a utility's operating areas (**figure 1**). Storm Insight enables utilities to visualize the forecasts, along with our risk predictions in a modern, scalable, and secure web application, empowering you to:

- Pan, zoom, and view aggregate information at varying resolutions and system levels
- Set predicted outage thresholds to automatically trigger notifications and visual warnings
- View outage prediction trends over forecast time windows (i.e., are outage forecasts getting worse or less severe as weather models change?)

Figure 1: Example of the E Source Storm Insight tool

Storm Insight provides accurate and prompt predictions for how, when, and where forecasted weather events will affect the distribution grid and guides your utility's decisions for a cost-effective response.

Storm Insight also gives your utility access to distribution system outage predictions up to five days before a storm, You can use this information to properly allocate restoration crews and take other proactive measures to reduce the impact of storms on the grid and improve restoration times.

If you're interested in hearing more about how these tools can predict outages in your utility's service territory, schedule a call with our data science team.

Communicate accurate outage updates

Coupled with resource and crew availability data, our storm management tools can help utilities improve the timing and accuracy of customer outage communications.

During outages, customers want timely, clear, and accurate updates, so they know what to expect with the outage. They don't want to be kept in the dark (pun very much intended), wondering when their power will be restored. It's crucial to keep them informed via channels they can conveniently access or receive updates through.

One way to make sure you're communicating with customers the way they want you to be is by offering an online preference center where they can choose the channels they want to receive outage updates through.

Another opportunity could be streamlining your internal systems, processes, and communications to give customers faster, more-accurate, and more-frequent updates during unplanned outages.

If you're interested in discussing how to improve your utility's outage communications, contact us to

connect with an E Source customer experience expert.

Case study: Ameren’s outage experience

Challenged to increase its J.D. Power ranking after a series of severe winter storms caused negative customer feedback regarding inconsistent outage notifications, Ameren Corp. focused on improving the unplanned outage experience as a key component of increasing overall CSAT.

Ameren partnered with E Source to develop and implement an updated outage strategy to improve the interactive voice response (IVR) system, resulting in:

- A 30% reduction in calls transferred from the IVR to a customer service representative
- A decrease in social media complaints related to changing restoration times
- Favorable feedback from customers—94% of customers in Illinois and 83% in Missouri who are part of the Potential Power Outage pilot find it valuable or highly valuable

Read case study

© 2008 - 2026 E Source Companies LLC. All rights reserved.
Distribution outside subscribing organizations limited by license.