A Northeastern utility implements a data-driven vegetation management solution

Data science case study
July 1, 2024

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Key takeaways

- A Northeastern electric utility needed to implement an intelligent vegetation management solution in a new jurisdiction.
- E Source's AI-powered solution improved the utility's System Average Interruption Frequency Index (SAIFI) by 14%.
- The solution also helped the utility develop targeted risk management plans through predictive modeling and scenario planning.

The challenge

A Northeastern electric utility needed to reduce its power outages and improve service reliability. When traditional cadence-based vegetation management had proven inefficient, the utility wanted to use an intelligent and dynamic condition-based solution. However, most solutions on the market used a limited range of datasets and didn't include the utility's system data, offering insights that were often not actionable.

Having used E Source's data-driven vegetation management solution in other territories, the client had seen the benefits of blending data, AI, and machine learning to predict risk across the grid and accurately price that risk.

Are you ready to improve your vegetation management process?

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

The solution

The first step was to ingest and clean the utility's system data to ensure a successful implementation. Then, to help prioritize mitigation efforts and capital improvements based on financial, safety, or reliability benefits, E Source implemented a three-pronged approach:

1. Developing a tree-presence model
2. Compiling utility-specific outage data
3. Modeling and predicted outage risk

Each step in the approach helped the utility replace its traditional cadence-based approaches with dynamic condition-based strategies, shifting perspective from hindsight to foresight.

E Source also supplied vegetation outage risk scores as granular as the individual street level, all visualized through interactive tools and delivered as files for geographic information system integration. By integrating this data with the utility's system data, E Source's vegetation management insights were actionable and accurately estimated the risk impact for the client.

The results

E Source's predictive models helped the utility understand that less than 1% of its service territory accounted for the top 5% of the risk, informing the creation of a targeted and data-driven vegetation management effort.

The utility observed a 14% improvement in its SAIFI and anticipates continued success.

Additionally, E Source's solution created a digital twin of the client's system, allowing the operations team to implement scenario planning to understand the impact of management decisions in seconds, not weeks or months.

With E Source's support for solution adoption and scale, the utility can now assess and address high-risk areas in all its operating companies, allowing it to optimize its annual budget and minimize risk.

Deploy risk-based vegetation management for better outage prediction

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