



Targeting high-risk circuits to improve infrastructure reliability and reduce customer outages

Data science case study

May 5, 2023

Key takeaways

- A northeastern utility needed to minimize the frequency and duration of customer power outages while optimizing its costs to achieve reliability goals.
- The utility teamed up with E Source [Data Science](#) to quantify and predict system-wide, condition-based risk at the circuit level and investigate high-risk areas to target.
- E Source created an interactive dashboard to empower the utility with the information it needs to target higher-risk circuits and reduce outage frequency, duration, and impact.

The challenge

While electric distribution infrastructure is built to be resilient, [weather and device failures can cause power outages](#). Because of this, a northeastern electric utility hoped to find a way to minimize the frequency and duration of outages while optimizing its costs to achieve reliability goals.

Improve mitigation response like a pro

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The solution

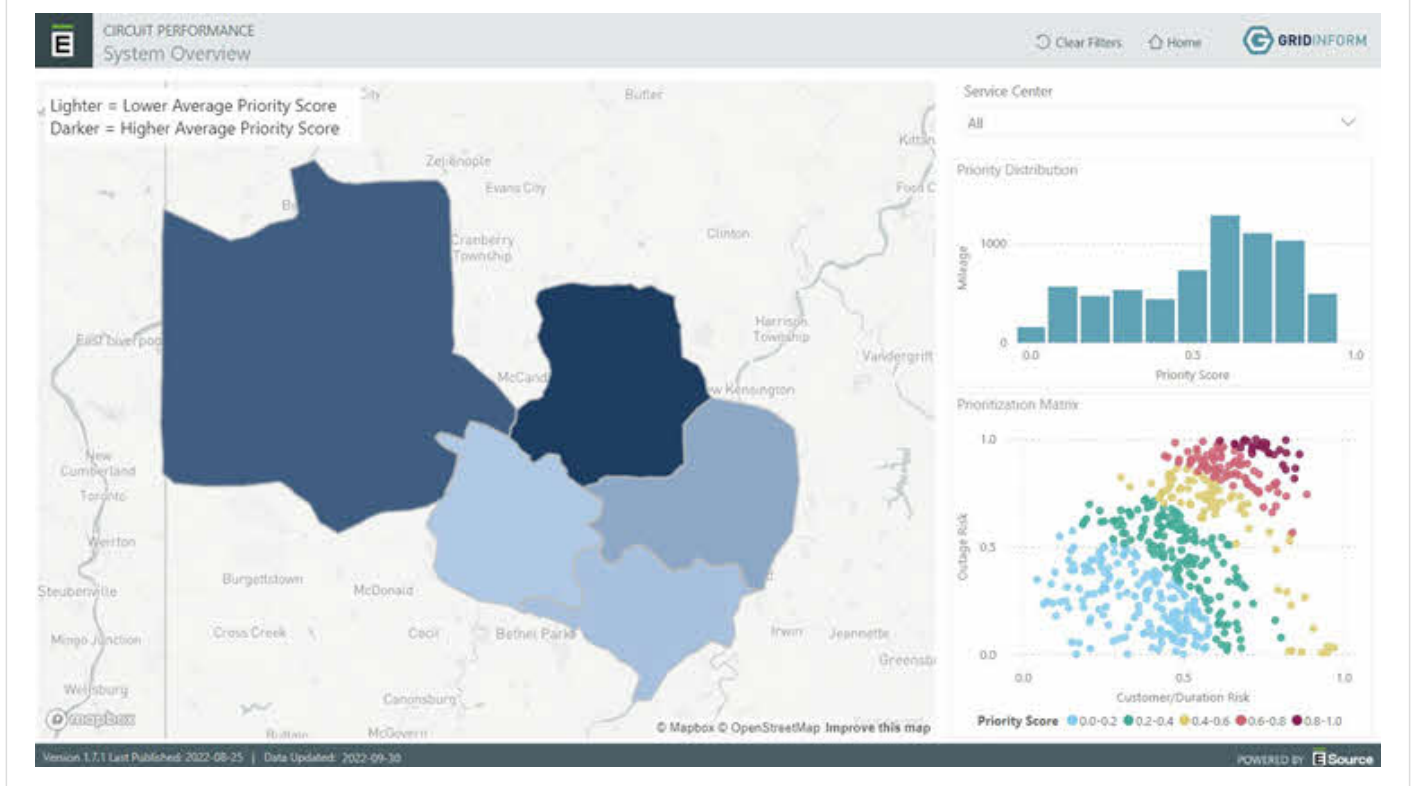
The utility teamed up with [E Source Data Science](#) to quantify and predict system-wide, condition-based risk at the circuit level, defined by:

- Outage frequency
- Outage duration
- Customer impact

To do this, E Source developed an interactive, user-friendly dashboard for the utility that shows a system overview, circuit risk heatmap, circuit risk detail, and performance monitoring (**figure 1**). The dashboard allows the utility to assess a variety of risk scenarios to see how different mitigation decisions could reduce overall risk and enhance the mitigation response.

Figure 1: E Source's interactive dashboard targets higher-risk circuits to reduce outage frequency, duration, and impact

Increase reliability and minimize customer outages by identifying areas in your territory to focus on.



The results

Using the interactive dashboard, the utility can identify high-risk circuits and take action to reduce outage frequency, duration, and customers impacted.

Moving forward, the utility will be able to more efficiently prioritize and plan work across its distribution infrastructure. As a result, the utility now has a tool that allows for data-driven decision-making to increase reliability, decrease costs by adjusting outage mitigation, and support grid modernization efforts.