Vegetation management solution

Data science case study
September 13, 2021

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Key takeaways

- E Source data science has helped utilities optimize and streamline their vegetation management operations
- We calculate vegetation risk scores across our clients' transmission lines, allowing them to cut costs, improve system reliability, and optimize crew work plans and schedules
- By targeting only the highest-risk areas, one utility, reduced its targeted trim miles by 80%

The challenge

Managing vegetation and tree growth around power lines is an important utility responsibility. It plays a critical role in mitigating fire hazard and ensuring the reliability of the grid, but it's a costly process.

Historically, utilities have approached vegetation management using a cyclical, time-based approach—inspecting and trimming the areas around their lines on a set schedule. This approach has worked well enough for decades, but there are obvious inefficiencies to treating all areas of the grid as equal in terms of vegetation management risk. Advances in predictive data science and new technologies provide an opportunity for you to reevaluate existing processes to achieve operational efficiencies and save money.

Up your vegetation management game

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

The solution

If you're pursuing operational enhancements to your vegetation management processes, you'll reap transmission and distribution benefits from granular data analysis. This is where the E Source data science team can help. Our vegetation management module shows you a view from above, representing

individual trees mapped onto the grid.

Combining methodologies from environmental science, forestry, statistics, and computer science with historical utility data such as outage records, asset types, maintenance and inspection records, and lidar scans (if available), our artificial intelligence and machine learning models calculate a vegetation risk score. You can then use the risk scores to prioritize areas to focus on, reducing operating costs while maintaining reliability.

Budget planners can also use our risk scores and propensity models to forecast the effects of initiatives like spraying a certain herbicide or deferring the removal of hazard trees in certain areas.

The results

The E Source vegetation management solution typically saves utilities 10% to 20%, with no negative effects on safety or reliability. Our approach will help you dramatically reduce the amount you spend on expensive data-collection methods such as lidar. For example, one utility fully funded its data-science-based optimizations with the money it saved on lidar scans.

Another utility was planning to do midcycle tree-trimming work when our analysis revealed that 28% of the predicted outage duration was being created by only 4% of the utility's high-risk areas. By targeting only the highest-risk areas, the utility optimized vegetation management, reducing its targeted trim miles by 80%—from 800 to 180 circuit miles—while simultaneously improving overall grid reliability.

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