

overstory

Proactive, Predictive, Proven: The ROI of Smarter Grid Management

April 2025

Contents

Introduction 3

Results at a glance 4

Canadian Muni Improves Grid Reliability and Reduces Costs 5

Southern IOU Streamlines Operational Resources to Bolster Grid Resilience for Extreme Weather 8

US Transmission Co-op Maximizes ROI Through Data-Driven Vegetation Management 11

About Overstory 15

Introduction

As the energy landscape grows more complex, utilities must balance reliability, efficiency, resilience, and safety—four deeply interconnected priorities.

Some utilities are transforming their operations by integrating advanced intelligence into their grid management strategies. By replacing guesswork with AI-powered intelligence, utilities are:

Preventing outages before they happen: delivering measurable improvements in reliability.

Maximizing every dollar and crew hour: transforming operational efficiency.

Hardening their grid against storms and disruptions: strengthening long-term resilience.

Keeping people and infrastructure safer: reducing risk while improving service.

Utilities face increasing challenges from extreme weather, aging infrastructure, and growing regulatory pressures. But the traditional approaches to managing the risks that vegetation pose to infrastructure—reactive, manual, and resource-intensive—are no longer viable. The key to long-term success isn't just working harder, but in using data, technology, and operational practices to work smarter.

The utilities featured in this report aren't just adapting to change. **They're engineering resilience with smarter, predictive decision-making.** And the results speak for themselves.

Results at a glance

	CANADIAN MUNICIPAL UTILITY	US TRANSMISSION CO-OP	SOUTHERN IOU
Reliability	Tracked 48% fewer tree-caused outages from 2023 to 2024	Currently targeting high-risk spans that are 30-40x more likely to cause outages	Targeting SAIDI improvement of 41% in 2025 with the same amount of work
Resilience	Identified and addressed more than 15% of hazard trees in one year	Reduced hotspot occurrences, strengthening grid resilience	Reduced pre-inspection scope by 94%
Operational Efficiency	Saw 27% increase in clear spans from 2023 to 2024	Drove 64% increase in vegetation cleared within budget, 13x ROI, elimination of unnecessary dispatches	Made all operational improvements without increasing budget
Safety	Reduced truck rolls, lower GHG emissions and windshield time	Minimized unnecessary field visits, reducing employee exposure to risk	Lowered windshield time, validating and checking customer call-ins from the office

Canadian Muni Improves Grid Reliability and Reduces Costs

SERVICE TERRITORY

340,000+ customers in Ontario, Canada

CHALLENGES

Increasing outages across network caused by out-of-cycle hazard trees

RESULTS

48% reduction in tree-related outages and improved vegetation management efficiency

THE CHALLENGE

Managing Reliability Amid Increasing Environmental Risks

A municipally owned Canadian electric distribution utility faced increasing challenges to grid reliability due to severe weather events, including floods, windstorms, and heatwaves. These natural events frequently led to tree contact with power lines—their leading cause of weather-related power outages.

Recognizing a growing risk to reliability, they sought a scalable, data-driven solution to enhance its existing vegetation management cycles and reduce tree-related outages more effectively.

In 2022, the utility partnered with Overstory to pilot its AI-powered vegetation intelligence platform. They aimed to use actionable insights on vegetation health and encroachment risks to prioritize critical vegetation management work.

THE SOLUTION

Using Vegetation Intelligence to Reduce Tree-Caused Outages and Improve Grid Resilience

After operationalizing Overstory's vegetation intelligence, the utility gained a full network view of risk across their territory, identifying hazard trees without needing to send inspectors to hard-to-reach areas.

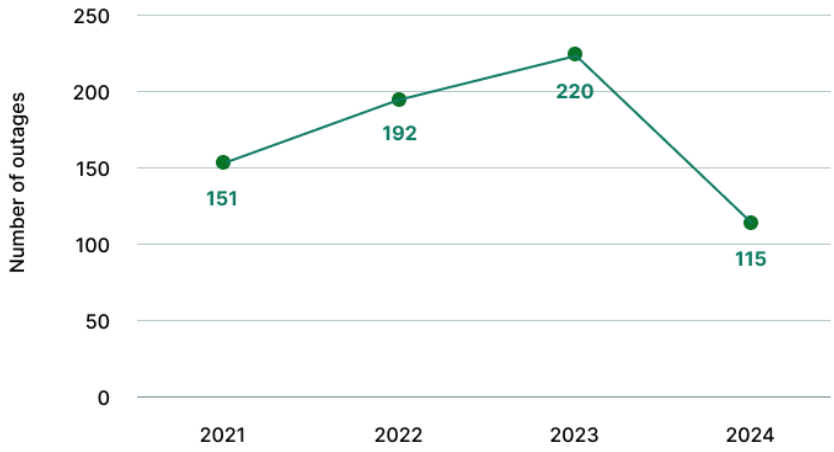
During their initial pilot in 2022, following a devastating derecho with winds of up to 190 km/h—which left over 180,000 of their customers without power—they relied on Overstory's data to prioritize post-storm vegetation trimming, enabling a more targeted response and faster restoration.

In 2024, they saw a **48% year-over-year reduction in tree-contact-related outages year over year.**

Reducing annual outage events with the help of Overstory, this Canadian muni has been able to save thousands of dollars they may have otherwise spent responding to outage events and restoring service to their customers.

Results - Reliability Insights

Tree Contact Related Outages



Data from Overstory has been used to execute proactive spot trimming that include:

- Spans of vegetation with high encroachment risk.
- Spans of vegetation with high priority risk.
- High encroachment risk spans on circuits that have been historically and recently impacted by tree contact related outages.
- Risky spans on circuits that are on the worst-performing feeder list.

Note: Data anonymized but scaled proportionately to reflect actual trends.

How they are using the Overstory platform

VEGETATION RISK HEATMAPS

Quickly identify and prioritize vegetation risks across the entire service territory using high-resolution heatmaps.

HAZARD TREE DETECTION

Automatically detect, prioritize, and track hazard trees and their health changes over time.

AUTOMATED COMPLIANCE REPORTING

Streamline contractor audits and regulatory compliance through automated, data-driven reports.

> ***" With Overstory's intelligence, we can see our entire service territory at a glance and target our resources where they're needed most. This data-driven approach has transformed how we manage vegetation and protect reliability."***
>
> ***- Manager, Contractor Management***

Southern IOU Streamlines Operational Resources to Bolster Grid Resilience for Extreme Weather

SERVICE TERRITORY

900,000 customers across 30,000 miles in the south

CHALLENGES

Limited ability to prepare network for incoming storms

RESULTS

Reduced scope of emergency pre-storm inspection by 94%

THE CHALLENGE

Improving Storm Resilience with Limited Resources

One large US IOU faced significant challenges ensuring network resilience against severe storms. Their traditional approach relied on manual pre-storm inspections, which was:

- **Time-intensive:** Requiring managers to manually review outage logs and performance data
- **Resource-heavy:** Dispatching work planners to inspect entire laterals and zones
- **Inefficient:** Requiring approximately 30 minutes per span inspection due to access issues and backyard terrain

With team members retiring (along with their institutional knowledge) and new storm risks growing, their traditional approach fell short of their needs.

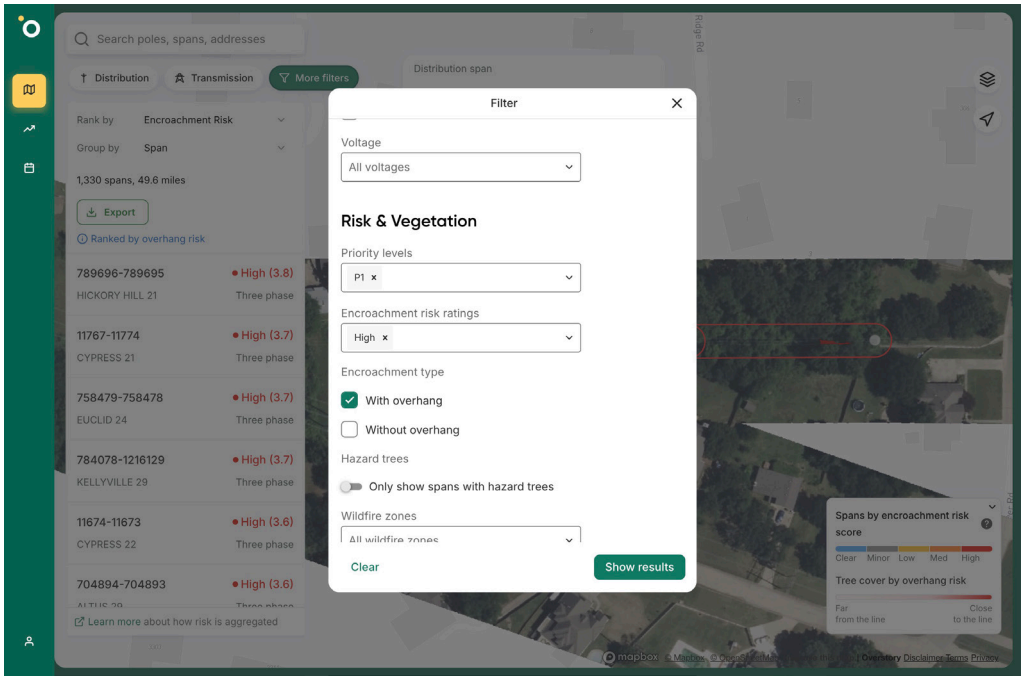
In October of 2020, a catastrophic ice storm left half of their customers without power—some for up to three weeks—highlighting this critical inefficiency. With limited time and resources, the utility urgently needed a more efficient, targeted approach to proactively manage vegetation risks ahead of extreme weather.

THE SOLUTION

Using Data to Maximize Pre-Storm Operational Impact

Facing an incoming ice storm, this IOU turned to Overstory's vegetation intelligence to identify 96 miles of lines needing inspection—a process that typically required over 240 labor hours. With only two days before impact, they were able to use platform data to swiftly pinpoint spans most at risk under icy conditions.

With just 30 minutes of training, field planners reduced inspection and planning time from 30 minutes to about 10 minutes per span. Overstory helped them narrow their inspection scope by 94%, highlighting the 188 spans most vulnerable to ice loading. Inspectors assessed 122 high-risk locations in a day and a half, and tree crews proactively managed 83% of these, dramatically enhancing their storm preparedness.



Southern IOU used Overstory to quickly filter and pinpoint exactly which spans were most likely to strike a line and cause an outage under icy conditions

Beyond this storm, Overstory continually updates intelligence across their full network, enabling rapid, effective planning ahead of future severe weather events.

How they are using the Overstory platform

CYCLE OPTIMIZATION

Identify breaker zones and laterals that will most effectively reduce outages and SAIDI.

ENHANCED GEOGRAPHIC ACCURACY

Improve operational precision using pole and line locations realigned to satellite imagery.

PREDICTIVE CAPABILITIES

Detect declining trees with strike potential and proactively identify critical vegetation areas, enhancing storm preparedness.

FLEXIBLE AND TARGETED PLANNING

Defer lower-risk circuits and dynamically prioritize high-risk spans, replacing fixed-cycle vegetation management with targeted, data-driven maintenance.

US Transmission Co-op Maximizes ROI Through Data-Driven Vegetation Management

SERVICE TERRITORY

More than 1,800 miles of transmission lines, 150 member delivery points in the midwest

CHALLENGES

Excessive costs from dispatching crews to sites requiring minimal trimming

RESULTS

64% increase in vegetation cleared within same budget, 13x return on investment

THE CHALLENGE

Maintaining Reliability while Optimizing Efficiency

The team at this midwestern co-op faced a complex challenge in maintaining the reliability of its extensive 1,800-mile network while optimizing operational efficiency. Their traditional approach to vegetation and infrastructure inspections relied on:

- **Multiple manual methods:** Crews conducted aerial flights, foot patrols, drive-by inspections, and responded to citizen reports.
- **High operational costs:** Deploying teams to investigate reported issues was resource-intensive.
- **Frequent false positives:** Many inspections revealed areas that did not require immediate maintenance, leading to unnecessary expenses.
- **Limited trimming capacity:** With an annual budget to address only 7% of their network, selecting the most critical spans for side-trimming was essential.
- **Prioritization challenges:** Without advanced insights, determining which portions of the network needed urgent attention was a difficult and time-consuming process.

They needed a solution that would allow them to streamline inspections, reduce unnecessary dispatches, and maximize the impact of their annual maintenance budget.

THE SOLUTION

Data-Driven Maintenance to Optimize Resources and Reduce Risk

This US transmission cooperative implemented Overstory's vegetation intelligence platform to transform their inspection and maintenance strategy, bringing a data-driven approach to vegetation management. By leveraging advanced AI-powered analysis, they moved away from reliance on labor-intensive manual inspections and towards a more efficient, targeted maintenance strategy that optimizes their resources and minimizes risk.

By integrating Overstory into their operations, they have gained the ability

to plan and execute vegetation management with greater efficiency, reducing unnecessary dispatches while ensuring that maintenance efforts are focused where they matter most.

How they are using the Overstory platform

COMPREHENSIVE AI ANALYSIS

Gain situational awareness across the entire 1,800-mile network for a complete and accurate picture of vegetation risk.

PRECISION TARGETING

Pinpoint the highest-priority spans requiring immediate hot spot trimming—just 0.8% of spans—maximizing impact.

OPTIMIZED SIDE-TRIMMING STRATEGY

Allocate bulk of their maintenance budget toward the highest-risk line segments in the designated maintenance zones, ensuring that preventative efforts deliver the greatest reliability benefits.

AI TRAINED ON LOCAL FIELD EXPERTISE

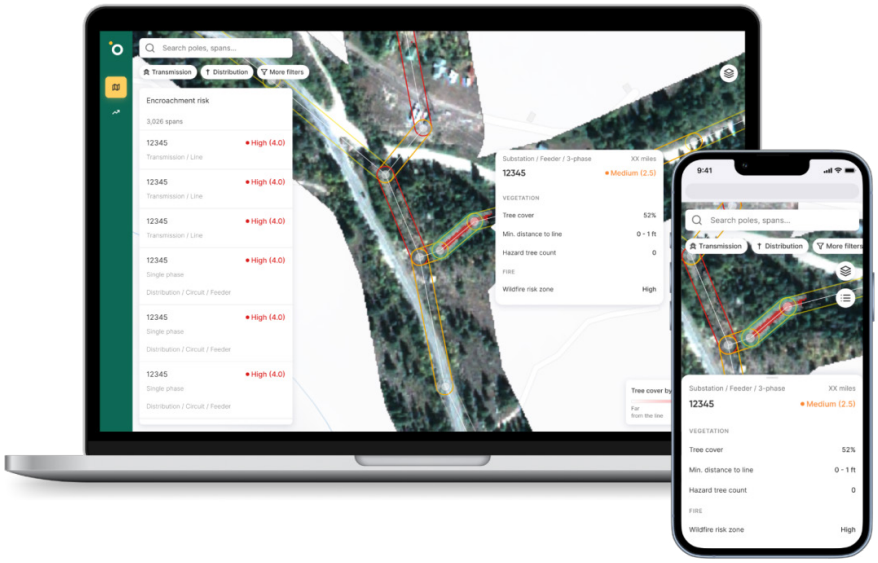
Crews validate and refine data-driven insights with on-the-ground experience.

> ***" With these results, presenting the value of Overstory to the Board of Directors is much easier. The cost savings of work being performed far outweighs the cost of the AI data."***
>
> ***- Construction Engineering and Operations Director***

Utilities that integrate Overstory's vegetation intelligence can tangibly improve reliability, resilience, operational efficiency, and safety within existing budgets.

By transitioning from reactive methods to proactive, data-driven decision-making, utilities not only optimize resources but also protect communities and crews from unnecessary risks.

Overstory delivers measurable value, empowering utilities to confidently manage today's evolving energy landscape.



About Overstory

Overstory offers actionable vegetation intelligence for safer, more reliable power. By combining remote sensing data with AI, we help utilities make smarter, data-driven decisions about the vegetation around their transmission and distribution corridors.

1. **Optimize resources**
   Maximize time and money by prioritizing impactful vegetation management work, reducing spend in clearer areas to focus time and budget where they're needed most.

2. **Mitigate risk**
   Address risk from encroachment, hazard trees, and wildfire before it materializes by shifting to proactive, data-driven vegetation management.

3. **Future-proof operations**
   Build resilience and predictability into your program to adapt to changing weather and market trends. Codify your decision-making so you're prepared for any circumstance.

Leading investor-owned utilities, municipalities, and cooperatives alike are partnering with Overstory to provide safer, more reliable power.

Find out how actionable vegetation intelligence can support your team's goals. Book a demo or learn more **overstory.com/solutions**.

overstory