



CASE STUDY

PROACTIVE VEGETATION MANAGEMENT

How CATALYST implemented condition-based vegetation analysis to enhance monitoring and emergency response preparedness.

FOCUS ON VEGETATION ENCROACHMENT MONITORING



The Project

CATALYST partnered with a leader in the regulated gas and electric utility industry in North America to monitor their transmission network across Canada's Prince Edward Island – an area vulnerable to hurricanes, blizzards, flooding and ice storms.

With much of the infrastructure traversing remote, isolated landscape, the risk to the network's security from climate and weather events posed significant strategic and operational challenges, not least responding to major events to prevent significant outages.

The project sought to map the entirety of the network and then measure the proximity of pylons and power lines to surrounding forestry, which would highlight risk of falling trees and wildfire spreading along the power corridor.



CATALYST Solution

Thanks to CATALYST's multi-sensor capabilities, the team were able to quickly and accurately map the entire transmission network and isolate the forested areas from the surrounding landscape. High-resolution optical satellite imagery was used to develop a clear picture of the current size, proximity, and health of the vegetation near the powerlines along the length of the rail corridor.

Once complete, LiDAR analysis of canopy heights and structures meant it was then possible to differentiate between vegetation types - agricultural plant life (low risk) and forestry (high risk). Any potential decline in forestry health – another major risk factor – was also ascertained by comparing current health data with historical averages.

The result is an intuitive, informative dashboard with precision analysis for decision-makers to accurately assess vegetation risk in proximity to power lines and identify proactive measures to enhance responsive measures for a more resilient network.



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CATALYST Analysis



Transmission power network mapped across Prince Edward Island.



Network categorized by proximity to vegetation, with red highlights indicating high risk areas with Right-of-Way or ROW proximity less than 50m from power lines.

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CATALYST Analysis



Dark green polygons indicate densely forested areas, with colour indexed markers identifying risk level to power lines.



Close up of a stretch of the transmission network span, with indications of at-risk locations posed by vegetation in close proximity to power lines. These span analytics indicate an action for proactive risk mitigation.

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The Results

Implementing satellite vegetation analysis enabled decision-makers within the organization to quickly, easily, and regularly monitor their network's risk in the event of extreme weather incidents.

Tangible benefits from the solution include:

Increased Community and Contractor Safety:

Complete oversight of vegetation risk across the network, in particular high-risk locations, that can be handled proactively to avoid a potential outage or incident.

Improved Grid Resilience & OPEX Cost:

More precise data means more effective budget allocation and spend, while also lowering risks to the network.

Enhance Contractor Work Planning:

With more precise information and specifics of task requirements, teams can bid for work more accurately, successfully remove tree hazards and maximize the marginal operational value.

Improved Contractor Management:

Greater oversight of assets maximizes the efficiency of maintenance and enables a validation process to ensure proper and accurate field work and risk mitigation.



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