



+ Building a sustainable vegetation management approach by applying AI

AN OVERSTORY CASE STUDY

While more and more decisions around climate change involve vegetation, decision-makers don't have:



Accurate, real-time vegetation data at scale



Analysis of what that data means



Trustworthy predictions for the future

Overstory demonstrates how more sustainable vegetation management practices can be implemented efficiently with a data-driven approach. New methods in remote sensing make measuring vegetation less laborious, allowing Overstory to help decision-makers better understand how trees and plants are critical to not only mitigate climate change but also to adapt to it, specifically around wildfire risk and power outages.

"Our mission is really to help solve the climate crisis by providing real-time information about the climate's vegetation. The availability of the combination of Planetscope and Skysat images makes it a perfect fit for us and how we envision the future to have more data to analyze and improve decision-making. It has the frequency, level of detail, and scalability we need.

INDRA DEN BAKKER

CEO and Co-Founder of Overstory

About Overstory

Overstory aims to help solve the climate crisis by providing real-time intelligence about the planet's vegetation powered by AI and satellite data. Today, Overstory helps electric utilities to mitigate wildfires and power outages by improving the safety and reliability of the transmission and distribution system and reducing grid operation costs.

About Planet Labs

Planet is the leading provider of global, near-daily satellite imagery data and insights. Planet is driven by a mission to image all of Earth's landmass every day, and make global change visible, accessible and actionable. Founded in 2010 by three NASA scientists, Planet designs, builds, and operates the largest earth observation fleet of satellites, and provides the online software, tools and analytics needed to deliver data to users.

To learn more visit www.planet.com and follow us on Twitter at [@planetlabs](https://twitter.com/planetlabs)

CHALLENGE

A GROWING ISSUE

Climate change is the biggest existential crisis the world has ever faced. As a result, real-time insights into the Earth's forests, trees, and natural ecosystems are needed to make better decisions about nature, mitigate climate change and protect the biodiversity of the planet.

One piece of the climate crisis that has garnered attention in the past few years is wildfires. Every year, wildfires consume millions of acres of land around the globe. Such fires triggered by a combination of electrical networks and extreme weather include the 100,277-hectare Lutz Creek fire in British Columbia, "Black Saturday" in Victoria, Australia, and the Camp Fire in California in November 2018 which destroyed over 150,000 acres, 13,972 residences, 528 commercial structures, and 4,293 other buildings, and took the lives of 86 people.

Malfunctioning power lines near Pulga, California sparked the Camp Fire, one of the state's most destructive. This SkySat image shows the area near the ignition site on November 9, 2018.

Camp Fire in California, SkySat
November 9, 2018



While a variety of factors contribute to wildfire ignition, the increasing climate crisis coupled with electric assets has led to some of the most damaging wildfires globally. Moreover, wildfires are also damaging to electric utilities, leading to financial distress. With one of the tools to combat wildfire ignitions being preventative power shutoffs, especially in high-risk weather conditions to mitigate the chance of electrical equipment wildfire ignition, these preventative blackouts can have significant impacts on health, safety, and economic repercussions.

Understanding the magnitude of this problem, Overstory serves electric utilities mostly in Europe and the US, including large investor-owned utilities, cooperatives, and municipally-owned utilities, which all need to keep their grids safe and reliable. With their network spanning over vast amounts of land, including forests and other vegetative areas, it is imperative to prevent vegetation from touching the lines. These companies need up-to-date information about the vegetation, their growth, change, and predicted growth, to be able to direct their trimming and pruning efforts to the most high-risk areas.

Current vegetation management is limited by outdated information about the status of vegetation. As vegetation is continuously changing, growing, and impacted by weather, utility companies need current and accurate information to plan and manage their resources more in advance, to anticipate future risks, and a means of verification to confirm if the work by third-party contractors has been completed successfully. Without proper verification, the work may not be completed, creating greater wildfire risk.

The costly economic and human toll necessitates the immediate need for vegetation management around utility to mitigate wildfire risk, especially in fire-prone areas. To reduce the risk of power outages and wildfire risks, predictive insights and up-to-date information about vegetation is needed for proactive vegetation management.

“We want to play our part in creating a more sustainable planet, with a quantified impact on forest and climate. With Planet data we can improve decision-making and expand our reach.

INDRA DEN BAKKER
CEO and Co-Founder of
Overstory



The PlanetScope images (square) were collected on April 3 and May 3, 2020; and the SkySat scene (rectangular) was collected on February 13, 2021. • Distribution line(s) in Southern Europe

SOLUTION

A SUSTAINABLE APPROACH

Overstory uses machine learning to interpret satellite imagery and climate data. By extracting insights from Planet data, Overstory is able to provide real-time information to its utility customers based on high spatial and temporal resolution satellite data, including multi- and hyperspectral imagery, SAR, and video. Moreover, by applying AI algorithms specialized in trees and vegetation, Overstory helps customers to predict grow-in and fall-in risks based on species, growth, weather, climate, and vitality. By facilitating predictive planning, tracking and verifying trimming cycles by contractors, and offering timely reports on vegetation management KPIs, customers can make informed decisions and take action.



Overstory's approach fuses data from multiple sensors to determine the risk to power lines from the surrounding vegetation. This screenshot from the Overstory platform shows a map of different types of vegetation on top of Planet imagery.

The fusion of diverse spatial, spectral and temporal resolution powered by Planet imagery allows for realtime and predictive insights for informed vegetation management. This information is fed into algorithms that provide insights that are accessed securely via the Overstory platform or can be easily integrated into existing tools and utility workflows through the risk tracker.

The risk tracker identifies fall-in risks and grow-in risks that are prioritized based on estimated likelihood and potential consequences. This information can then be integrated into informed trimming schedules. Overall, the technology offers utility companies data to help understanding negation features, tree height, how close they are to power lines, proximity, tree species, verification of trimming, tree health, and damage.



False-color (near infrared, red, and green) SkySat image collected on March 3, 2021 • Overhead power line(s) on the Iberian Peninsula

“Having PlanetScope images available and then being able to task a SkySat anytime we want allows our customers flexibility. This leads to monetary savings for our customers because of the targeted and more timely information.

INDRA DEN BAKKER
CEO and Co-Founder of
Overstory

RESULTS

AN EXPANDING IMPACT

Overstory helps utility companies to act on real-time encroachment insights, plan ahead with predicted risks and track and verify trimming work. It is overall less costly, more reliable, and reduces risks. To date, Overstory has analyzed 500M hectares of land in 64 countries, and has analyzed 155 cities.

Learn more about Overstory

Visit overstory.ai and follow Overstory on Twitter [@overstoryai](https://twitter.com/overstoryai) and [LinkedIn](https://www.linkedin.com/company/overstoryai)

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