A GROWING PROBLEM:

THE PERILS OF VEGETATION MANAGEMENT

SAFEGUARD SAFETY PAPERS: VEGETATION MANAGEMENT

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Over the course of the last decade, utility and telecom enterprises have directed heightened attention towards the meticulous oversight of vegetation. The evolving climate dynamics, coupled with a surge in wildfires and stringent federal regulations[1], have propelled a concerted effort to eliminate dense foliage encroaching upon powerlines and utility poles.

This intensified scrutiny has placed utility workers and clearance personnel at heightened risk, as they labor to pare back the encroachments upon these indispensable infrastructures. Consequently, corporations are actively exploring strategies to safeguard the well-being of these essential workers, mitigating potential hazards inherent in their duties.

The Growing Problem

Vegetation Management is the largest operating expenditure for most utility networks[2]. It was not always like this however, notably, this escalated focus can be traced back to the largest power outage that has ever afflicted North America[3]. The 2003 event, centered in northern Ohio, was precipitated by the **encroachment of overgrown trees upon power lines**. According to an article by IBM,

> ***"It cost upwards of USD 6 billion and left 50 million people without power for up to two days." However, this is not an isolated incident, and "in some regions, vegetation causes up to half of the power outages in the U.S."*** [8]

This type of outage is not uncommon. According to a new study, "**nearly a quarter of outages were attributed to vegetation**." [4] What has always been an everyday problem is now a full-time commitment as severe conditions amplify the already burgeoning issue.

"While constructing power lines in hard to access areas is already a difficult task, maintaining them and the immediate surrounding area becomes equally as hard." [5] It's not just about clearing the lines one time, it's a constant battle of overgrowth and keeping crews safe. Companies have had to adopt new technology over the past 20 years with **increased visibility and advanced analytics** at the forefront of helping to minimize risk.

In addition to stopping power outages, vegetation management with the proper safety equipment can help utility companies and customers save money. "Power outages and other power disturbances cost the U.S. economy nearly **$120 billion every year.** This is mainly due to power outages triggered by overgrown vegetation. **Utility companies can be fined $1 million per day for each outage**." [6]

According to GE, creating a safe, effective, and long-term vegetation management plan can reduce workplace accidents, reduce utility line damage, and keep customer revenue coming in. "Updating traditional approaches to asset inspection and vegetation management," companies can see a 30% reduction in outages, and a 74.1% return on investment. [7]

Why Now?

The focus on vegetation management has intensified due to several critical factors:

Changing Weather Patterns: The surge in extreme weather phenomena in recent years has heightened the urgency of vegetation management for utility companies. Deloitte reports a marked increase in weather-related events, **with 3,165 extreme weather incidents globally during the 2010s, compared to 711 in the 1970s,**[9] emphasizing the need for robust vegetation management strategies.

This is crucial not only for wildfire prevention but also for mitigating the effects of heat waves, deep freezes, and wind events on power lines. As severe storms increasingly damage utility systems, placing crews at risk before and after disasters, companies are investing in **advanced safety tools** and equipment to ensure the efficiency and protection of their workers. According to Forbes, despite efforts to fortify systems and minimize tree-related outages, the frequency of destructive storms remains a nearly year-round challenge, necessitating **long-term commitment** to vegetation management.

Federal Oversight: The U.S. Department of Agriculture Forest Service recently recognized the dangers associated with vegetation and utility lines and issued an order to clear **18,000 miles of powerline corridors** that cross federal land. They are working with utility companies to create a long-term plan, and they will even allow for emergency action to be taken then vegetation "must be removed to avoid the disruption of electrical service or to eliminate an immediate fire or safety hazard." [10]

In Puerto Rico, the local utility, **LUMA Energy,** and the Federal Emergency Management Agency **(FEMA),** are taking a proactive approach to vegetation management. LUMA services 1.5 million customers on the island, and they have started a multi-year program to clear vegetation from lines with help from the federal government. "The utility has cleared **3,900 miles of power lines since June of 2021**, and by the end of 2026, it expects to clear 16,000 miles of power lines – **achieving a 35-34% reduction in outages**." [11]

Increased Wildfire Risk: The devastating impact of wildfires is underscored by the staggering statistic that over **7.5 million acres of U.S. land were consumed by fire in 2022 alone**.[12] Notably, the proliferation of overgrown vegetation not only serves as a catalyst for some of these fires but also imperils neighboring electrical grids as flames propagate, highlighting the urgent need for comprehensive vegetation management strategies.

Vegetation management can help clear emergency pathways in forested areas, even timberland, so crews can help stop wildfires faster. "By collaborating with these industry partners, vegetation managers can enhance **wildfire mitigation**." [13]

With utility lines oftentimes crossing through rural, wildfire-prone areas, companies are constantly improving safety and technology to make sure they can locate their workers in an emergency and get them out. Safety tools are critical when working in these isolated regions.

Technological Advancements: As noted by Iliana Rentz, Head of Vegetation Management at Florida Power & Light, "Utilities can leverage tech to make smart decisions and help prepare their systems to be more resilient. Utilizing technology eliminates wasted time. Machines and algorithms tell us the when, what, and the where. **When you're in the right place at the right time, you're avoiding future outages** and providing better customer service."[14]

These advancements, as emphasized by Rentz, underscore the significance of leveraging technology to enhance operational efficiency and resilience within the utility sector. Innovations such as LiDAR (Light Detection and Ranging) technology and unmanned aerial vehicles (UAVs) equipped with high-resolution cameras enable utility companies to conduct comprehensive surveys of vegetation encroachment with unprecedented precision and efficiency.

By leveraging **cutting-edge technology**, utility companies can proactively mitigate the risk of vegetation-related outages and safeguard critical infrastructure, thereby **enhancing resilience in the face of increasingly unpredictable weather patterns.**

Keeping Your Team Safe

The demand for vegetation management workers has surged in correlation to the **escalating need.** The utility and telecom sectors have witnessed **substantial growth** in the number of professionals dedicated to maintaining and clearing vegetation around power lines. This expansion is driven by the critical need to prevent outages and mitigate the risk of wildfires, which have become more frequent and severe. Advances in technology, such as the use of LiDAR and UAVs, have also created new roles requiring **specialized skills to operate and analyze data** from these tools. A rapid expansion of the workforce also means that there is a large portion of the workers that are relatively inexperienced. Oftentimes, new workers are learning to identify the dangers and risks associated with the job they are performing – or at the very least learning the best course of preventive action. **Even with the best training, workers are still at risk.**

Vegetation management workers face a **myriad of dangers** while performing their critical duties. Working in proximity to high-voltage power lines presents a constant risk of electrical hazards, including **electrocution**. These workers often operate in **challenging and unpredictable environments**, such as dense forests and rugged terrain, which increases the likelihood of slips, trips, and falls. Additionally, they are exposed to harsh weather conditions, ranging from extreme heat to severe cold, which can lead to heatstroke, hypothermia, and other weather-related health issues.

Energized limbs pose a significant and often underestimated danger to vegetation management workers. When tree branches encounter live power lines, they can become **electrically charged**, creating a severe risk of electrocution for anyone who touches them. This hidden hazard is particularly perilous during vegetation management efforts when workers are working to clear debris. The unpredictability of these energized limbs requires workers to exercise **extreme caution** and employ specialized equipment to safely manage and remove the threat.

The use of heavy machinery and sharp tools further elevates the risk of serious injuries. Furthermore, the threat of wildfires poses a significant danger, as rapid changes in wind direction and fire behavior can trap workers unexpectedly. Ensuring the **safety of vegetation management workers** requires comprehensive training, strict adherence to safety protocols, and the **use of advanced protective equipment.**

The sobering truth is that, according to the Bureau of Labor Statistics, **tree workers are injured over 3 times the national average of work-related injuries** – and **fatal accidents happen at 30 times the national all-industry rate.**[15] These numbers highlight the need for an even greater emphasis on safety.

Solution: Add COMPASS Pro to Your PPE.

Even with adding new technology, "many electric utilities still rely on conventional vegetation management methods such as scoping for hazard trees with helicopter or foot patrols"[16] This means **more workers are going out to check lines and clear brush, which means more workers are at risk.** They need to make sure they have the best tools in PPE. When walking through heavy vegetation, personal voltage and current detectors (PVCDs) can be the first and only line of defense when it comes to making sure a line is energized or not.

Safeguard Equipment is on the front line of designing and creating these important devices. PVCDs allow workers to finish work faster and safer than ever before.

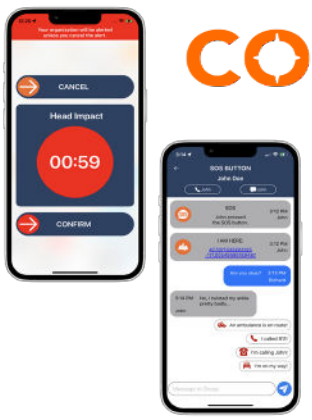
The **COMPASS Pro** by Safeguard is the newest tool in our line of PPE. This device attaches to the hardhat to warn workers of an energized line. COMPASS Pro is equipped to detect a range of **critical events, including arc flashes, falls, head impacts, and no movement – in addition to current and voltage.** When any of these events occur, it immediately triggers text message and in-app notifications that – when paired with the innate live location detection, team chat functionality and emergency prompts -- ensures a rapid response in critical situations. When coupled with the **WebApp** - a comprehensive cloud-based platform designed to streamline team management and safety protocols for companies operating in dynamic and hazardous environments - The Safeguard Solution Suite provides the holistic safety solution for your team.

In high-risk industries such as utility, oil and gas, construction, and vegetation management, where workers face the constant threat of injury or even fatality, rapid emergency response is paramount. Every minute counts, and the requisite for an efficient, reliable, and holistic safety solution has never been more apparent.

What would you do to keep your team safe?

Contact Safeguard today to find out how you can protect your workers with the COMPASS Pro.

Contact Us Today:
Safeguard Equipment
208-773-9263
SafeguardEquipment.com
Sales@SafeguardEquipment.com



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