

2018 UAA Vegetation Managers Summit

Reliability Based Vegetation Management

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A new approach was taken this June at the UAA Vegetation Managers Summit in Denver, Colorado. The purpose for the change was to better align with the summit's mission of being an effective mechanism for bringing experienced utility vegetation management (UVM) professionals together to thoroughly address current industry challenges and identify solutions. The committee focused on one primary agenda topic selected. Deep exploration into one subject allowed participants to uncover multiple facets of a topic, and provided a comprehensive understanding that would empower them to take meaningful action upon their return. With almost 1,000 years of utility experience represented at this year's summit, you can be assured the discussion was thorough.

The topic chosen for this year's summit was Reliability Based Vegetation Management (RVBM). Last year, during the 2017 Trees & Utilities Conference in Kansas City, a workshop was held to review findings from the 2017 UAA Benchmark Survey. Attendees realized very quickly that depending on your level of experience and exposure within the industry the work, reliability can be interpreted in a variety of ways. In order to establish a baseline of understanding, the committee created a comprehensive pre-summit survey specific to reliability in which more than 30 utilities participated.

The theme of Reliability Based Vegetation Management (RVBM) offered three primary objectives:

1. Define reliability-based VM
2. Explore strategies for capturing viable reliability statistics
3. Build effective management strategies to address and monitor reliability performance

After much dialogue and debate during the first day of the summit, participants ultimately agreed that: *Reliability Based Vegetation Management (RVBM) utilizes comprehensive outage and tree failure data to determine where and how actions can be taken to improve reliability performance, independent of growth related maintenance cycles.*

Using data analytics from the pre-summit survey results, participants explored the variety of ways their peers across the industry were or were not collecting and categorizing outage data. One of the most

interesting findings was how vegetation-related outage cause codes were being categorized. One third of the participating utilities used only two cause codes, and they were primarily centered on whether programs goals were being met or not. Examples include in-or-out of rights of way (ROW), in- or outside program, and storm or non-storm. Of these utilities, half did not have a formal outage investigation process integrated into their programs and they consequently reported some of the worst SAIFI metrics during the 2017 UAA Benchmark.

The majority of utilities instead focused on modes of failure and had between three and seven vegetation-related outage cause codes which distinguished how the vegetation caused the failure. Examples of mode of failure cause codes included grow-into, trunk failure, limb drop, or uproot. As utilities expanded the variety of cause codes, they would pinpoint specific types of failures local to their region, such as interference with vines, palm fronds, and decline due to emerald ash borer (*Agilus planipennis*).

Ultimately, attendees determined that to even start considering strategies for RBVM, it is essential for their utility to have a clear understanding of the underlying causes, by performing post-outage investigations and creating a database of findings to evaluate trends. Trends identified through post-outage investigation could be used to identify the most effective strategies for improvement and ultimately support a strong business case internally for the program. Understanding that a successful RBVM program would only be as good as the quality of data obtained, participants shared key strategies for ensuring they had the most accurate data possible:

- Limit the initial pick list for outage cause codes to three to six selections
- Perform post-outage investigations by qualified VM staff

- Create a standardized form to collect consistent outage investigation data
- Create a feedback loop for data correction

Creating a feedback loop for data correction is an important strategy for all utilities to consider. One utility shared that after performing post-outage investigations, they were able to identify a 21 percent error rate in the cause codes selection made by the first responder. Of those, 41 percent were changed from vegetation-caused to non-vegetation related. Just the simple action of conducting a post-outage investigation and providing feedback improved their vegetation reliability metrics by almost 10 percent.

Once utilities have developed a historical backlog of data, they can begin to create a targeted, data-driven reliability program. Presenting managers demonstrated how they were able to determine criteria for work prioritization based on numbers of sustained vegetation outages, customer minutes, and total outage duration. Using data gathered from post-outage investigations, they were able to analyze trends in the tree failure data allowing them to prioritize projects and craft species-specific prescriptions based on their findings. One utility was able to narrow down its efforts by recognizing that just half of their events accounted for more than 80 percent of their customer interruption. Another utility was able to narrow its scope of work by determining that individual species larger than a certain size class posed the greatest reliability impact, thus limiting the scale of work that would be required in order to realize improvements to performance.

By setting challenging, yet achievable performance targets around SAIDI, SAIFI, CAIDI, and outage frequency, utilities were able to demonstrate a positive shift in performance, ultimately justifying the benefits of their program within the

company. One of the presenting utilities was able to demonstrate a 50 percent reduction in their average vegetation failure rate after the completion of a targeted reliability project. Managers stressed the importance of remaining flexible and realizing as time went on the program and the criteria that drives it can and should change as programs and environments change. They also emphasized the importance of partnering with other departments within your organization such as system health, who can help prioritize and set appropriate targets, as well as customer outreach, who can help develop and deliver challenging messages with a change in work scope.

As a presenter and a participant in this year's summit, I was able to walk away with a greater appreciation of the diversity within our industry. Even those individuals who seem to have it figured out are still continuing to learn, and others are just beginning to take a leap in a new direction.

Interwoven throughout the summit, discussions drove home that there is much more to reliability than metrics, that the decisions we make have direct impact on safety. That poor reliability performance resulting in wire-down outages pose a significant risk to our customers and communities we serve, and to our line clearance crews who are responsible for pruning trees in close proximity to the lines and restoring power during adverse conditions.

We cannot allow ourselves as managers to only see figures, but rather recognize why a reliable system is important to the well-being of those around us and acknowledge the good that happens every day in the decisions we make. As leaders in the industry, it is important that we personally internalize our commitment to safety and reliability rather than simply focusing on achieving the numbers. Attending the summit was another step forward in a positive direction.