Grid Health 360

Prevent Tree Arcing

In the United States, the five-year average of power outages tripled from 2000 to 2014, and shows no sign of slowing[1]. Larger populations have combined with more extreme weather to produce a nightmare of utility maintenance efforts.

Tree arcing not only contribute to the growing number of outages, but can also start fires as well. This makes tree maintenance programs a top priority for utilities who value preventative measures.

While trimming trees may sound like an easy fix, utilities know better. Thousands and thousands of miles of power lines, plus differing growth rates for different varieties of trees, means it is difficult to schedule maintenances for power lines when they need it. Large utilities have maintenance cycles of two to five years, meaning a fast-growing tree can crowd a power line for months if not years before it is trimmed back.

In the past, sending a maintenance team on a pre-planned route was the best option utilities had. However, that was before the era of data.

Vegetation Health Analysis

Supplement your existing maintenance program with our Vegetation Health Analysis tool. Part of our Grid Health 360 Solution, this tool leverages LiDAR data to create a 3D map of vegetation.

Vegetation Health Analysis allows customers to view vegetation levels in an area of interest, complete with health rankings. In short, this tool utilizes LiDAR data and LasTools software to show customers:

- Where trees are located in proximity to power lines.
- How healthy trees are relative to the surrounding vegetation.

Our Vegetation Health Analysis tool produces a map that clearly displays canopy density and health, and flags high-risk areas such as potential fire hazards. For instance, a dead tree can be at greater risk of falling on a powerline or sparking a fire.

Our Vegetation Health Analysis tool creates a map of high-priority areas, such as fire hazards.

How it Works

LiDAR data is paired with LasTools software and infrared imagery (RGBI or 4-band), and is used to create a 'vegetation index.' Within this index, our algorithms rank the amount of photosynthetic production, which allows us to identify where vegetation is located as well as how healthy trees are, relatively.

These vegetation details appear on a virtual map, complete with flagged, high-priority areas. In addition to populating on a virtual map, our Vegetation Health Analysis tool can integrate with third party reporting dashboards via SOAP or Rest API's. This integration means our Vegetation Health Analysis can be displayed as alerts in a third-party tools such as Tableau, keeping utilities aware of high-risk vegetation areas.

LiDAR Data Acquisition

The core our Transmission Pole Detection tool relies upon LiDAR data. Light Detection and Ranging (LiDAR) data is created by aerial sweeps. An airplane or helicopter will survey the area of interest with a pulsed laser, collecting data on the variable distances of different objects. Combined with other data, this information creates a 3D picture of the area of interest.

Our TPD tool combines this data with our software and algorithms in order to create a virtual map that provides accurate, detailed information about each power pole.

If a customer wants to bring their own LiDAR data to the project, we can leverage that data to produce a virtual map output that analyzes our customer's specific area of interest.

If a customer does not have their own LiDAR data, or their LiDAR data is out-of-date, we will work with them to gather the necessary information. We have a variety of partners that excel in LiDAR data acquisition. In these circumstances, our LiDAR data acquisition partners can work with our customers to gather up-to-date LiDAR data that will be leveraged by our TPD tool.

1) http://insideenergy.org/2014/08/18/power-outages-on-the-rise-across-the-u-s/