4/6/2020

VIA EMAIL

Wildfire Safety Division
Attn: Ms. Caroline Thomas Jacobs
California Public Utilities Commission
505 Van Ness Avenue San Francisco, CA 94102

Re: CPUC invitation to the members of the public to submit comments on utility plans to Wildfire Safety Division electronically by Apr 7th, 2020

According to the 2020 Wildfire Mitigation Plan (WMP) submitted by PG&E on February 7, 2020, it seems the utility is reducing its inspection activities from 2019 to 2020. Namely, there is no current plan to execute a comprehensive LiDAR survey in 2020. This omission will create substantial risk to the ratepayers and the state of California. PG&E had a very challenging operating environment in 2019 and the operationalization of 2019 LiDAR data for the benefit of wildfire safety is still in progress, specifically with respect to the data analysis. **Omitting collection of the crucial LiDAR data in 2020 would create a clear and present threat to wildfire safety.**

LiDAR is the only technology which can objectively and accurately measure, detect, and document the distances between electric utility lines and vegetation. This information is mandatory to assess the risks to the wildfire ignitions caused by conflicts between trees and overhead powerlines. The need to ensure proper clearances is so important that both federal and state regulators have established mandatory requirements for such clearances, such as GO 95 Rule 35, PRC 4293 & FAC 003-4.

Typically, the assessment of compliance against these requirements is subjective and dependent on the experience and background of the inspector. This leads to misclassifications, omissions, and errors. The measurement of distances between the lines and trees when done in the field using a traditional laser range finder by the field crews can lead in the best case to an accuracy of 1-2 feet even with near perfection operation and equipment. This level of achievable accuracy is not good enough to reliably validate and document the compliance with the applicable requirements.

Many of the tree-related risks develop rapidly, within months, weeks, or even days. Using LiDAR data, which is collected in 2019 or before, does not contain likely tens of thousands of problems that have developed since the collection of the data. A decision to use only old data which is already obsolete is incomprehensible and inacceptable.

A decision to use obsolete data, or no data at all, may lead to a situation where this decision causes a wildfire event that could have been mitigated if more current data would have been used. Should a catastrophic wildfire happen under such circumstances, it is not far-fetched to predict the involved parties may face civil claims and legal enforcement actions concerning negligence, or worse.

In 2020, under the unprecedented situation of the spreading coronavirus pandemic, we must remain vigilant to other dangers to the nation's safety. Wildfires continue to threaten lives, homes and infrastructure. Avoiding catastrophic wildfires will also protect the already stressed public health and medical care system from further burden. The safety of IOU employees, contractors, rate payers and all Californians must go first, and all reasonable means must be used to mitigate the wildfire risks.

We request CPUC to use its enforcement competence to ensure:

1. IOUs are **required to use the most up-to-date data** in their decision-making and processes;
2. IOUs are required to **implement processes to continuously collect accurate and precise data of vegetation (and other) risks and threats to their assets**, at least yearly in high wildfire areas, and 2-4 times per year in extreme wildfire areas; and
3. IOUs are required to **deploy technologies which can automatically analyze LiDAR data in near-real-time**, so that the data collected becomes analyzed, available and actionable by the end of the same day it is collected, and informs the work, priorities, and crew safety the following day.

Please feel free to contact me (tero@ai4.com) if you have any questions or concerns.

Respectfully submitted,

Tero Heinonen
San Francisco, CA

Attachment 1: Background about Utility Vegetation Management

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Utility Vegetation Management (UVM) activities are one of the single largest maintenance expenses at utility companies across North America, and for good reasons. Industry wide, tree and power line conflicts represent the single largest cause of sustained outages, and are an all-too-common source of tragic catastrophic incidents including deadly multi-billion-dollar wildland fires.

In recent years, California utilities have been particularly impacted by wildland fires. The environment and requirements for vegetation management and wildfire safety are at unprecedented levels, and the cost of risk-mitigating actions is soaring and there is a shortage of qualified personnel for the required actions. The situation has gained well-deserved attention from the Governor, California Assembly, and California Public Utility Commission (CPUC).

To address all these challenges, North American utility companies perform routine inspections of tree and power line conditions based on a traditional cycle. These inspections can be performed by patrolling lines on foot or in a vehicle, aerial inspections from helicopters, and through sensing technologies like LiDAR and imaging.

The frequency of these inspections varies from state to state with California having the strictest requirements. The combination of California's unique legal and regulatory standards (GO 95 Rule 35, PRC 4293, & FAC 003-4) create the requirement for a more frequent (targeted risk and conditions based) tree and power line inspection. A part of Californian utilities has adopted inspection protocols where high-risk areas are patrolled multiple times a year.

The principal intent of these inspections is to pre-identify measurable changes in the relationship between trees and powerlines. Have trees grown close to the power lines or encroached within minimum mandated distances mandated by GO 95 Rule 35,PRC 4293 & FAC 003-4? Are there any visibly hazardous trees adjacent to the lines which could fall into the electric facilities? Is there a new building or structure near overhead lines? Have people planted new incompatible trees directly underneath existing power lines? During these annual patrols, other obvious hazards are looked for such as damaged electric facilities/equipment or other threats capable of either causing an outage, a fire, or presenting a risk to public or worker safety.

While the approach of annual (or bi-annual) patrols are consistent with current traditional practices, the frequency of inspections is inadequate. Tree growth is dynamic and often unpredictable, and it is also species-specific (leading to unplanned encroachments). Further, trees can often weaken and fail in between the annual inspection cycles. For example, trees infected by Sudden Oak Death can succumb in shorter periods of time than a one full year inspection cycle anticipates.

In addition to the length of time between inspections, there are a myriad of challenges associated with the effectiveness of current inspection practices. It is very hard to determine actual distances between trees and power lines in the field due to access and perspective. Often the canopy of adjacent trees, or restricted access, will obscure actual clearances. In these cases, the inspector will (hopefully) spend the appropriate amount of time trying to determine actual conditions. Many trees tall enough to hit the lines may not be visible from the road or right-of-way and are thereby often missed during traditional boots-on-the-ground routine inspections. Measurement and documentation accuracy using a

traditional hand-held laser range finder by the field crews and inspectors can lead in the best case to an accuracy of 1-2 feet even with near perfect operation and equipment. This accuracy is often not good enough to reliably validate and document the compliance with the applicable regulatory requirements.

The way forward for a more safe and secure wildfire management involves using more remote sensing, introducing stationary sensors, and automated processes to continuously analyze the data in real-time. These technologies allow for detecting clearances even on a daily basis with 1-inch accuracy. This monitoring can be implemented from helicopters, drones, trucks and other ground vehicles, or installing stationary sensors to poles and towers.

The utilities can work towards the future where they can monitor the distances between the conductors and trees (and other objects) with increasing frequency and cost-efficiency, eventually allowing daily monitoring of every asset across the whole service area.