



Grid Distribution Monitoring for Superior Wildfire Mitigation

For residents across the western United States, wildfires are a significant concern. The combination of high winds, dry foliage and a single spark can lead to devastation. In 2019 alone, California had 7,860 wildfires which burned an estimated 259,823 acres of land. This was actually an improvement over 2018, when fires ravaged nearly [two million acres and thousands of homes were lost](#).

It's critical for utilities to take a more holistic approach to their distribution system. All it takes is one spark to inflict billions of dollars in damage. By combining sensors with advanced monitoring and control technology, utilities are able to strategically mitigate wildfire risk and improve system reliability.

A Proactive Approach for Mitigating Wildfire Risks

With stringent wildfire regulatory requirements and a decentralized grid that is increasingly more complex, having a clear picture of your distribution system is critical. Often a distribution planner or network operators greatest challenge is isolating the problem with minimal or incomplete data sets. Usually in these situations, the default action is to dispatch a line crew—costing the utility valuable resources with varying results.

Having a complete picture of your distribution system is a key component of addressing wildfires. This challenge can be solved by leveraging the following three components:

1. Placing sensors strategically across your system
2. Injecting intelligence into traditional distribution equipment such as reclosers and capacitor banks
3. Providing utility engineers with an easily digestible, real-time view of the grid to isolate issues and identify anomalies.

This high visibility and proactive approach allows utilities to address problems before disaster strikes. Line crews can be dispatched to address the problem area with higher confidence producing a safer and more resilient grid.

Sensus gives utilities the tools needed to identify potential wildfire risks and address critical distribution problems. By combining intelligent grid edge devices with an intuitive software platform, Sensus delivers a solution that provides deep insight to mitigate wildfire risks. This real-time monitoring of system health enables utilities to prevent potential ignition threats that can cause a wildfire.



Emerging Technologies and Strategies

Fault Detection

Faults can be difficult to detect with traditional overcurrent relays. However, by strategically placing Sensus communication endpoints and Fault Circuit Indicators (FCIs) across the distribution system, utility operators are given the tools necessary to detect faults and take action. Vital information such as location, phase, duration and magnitude are transmitted in real-time helping to precisely pinpoint the problem.

Adaptive Reclosing

Faults can be difficult to detect with traditional overcurrent relays. However, recloser technology advancements are helping utilities efficiently tune and automate their distribution system. In a decentralized environment, adaptive reclosing allows the recloser to operate based on the sophisticated power quality conditions that it sees. The recloser determines the nature of the fault, duration, and provides grid edge intelligence to optimally operate and automatically restore power in the shortest amount of time. Sensus' interoperable solution connects to hundreds of distribution devices via DNP3 or Modbus. This integration flexibility allows utilities to scale, manage devices and provide communication to these vital distribution assets.

Open Phase Detection

An open phase event and the resulting voltage imbalances creates a dangerous condition for utilities and their customers. When a loss-of-phase condition occurs, utilities need to address the problem quickly. By integrating fault circuit indicators and communication endpoints, the Sensus solution provides utilities with actionable intelligence at the grid edge. Operators are alerted to open-phase problems in real-time and can look at the underlying analytics to make an informed decision on the next steps. Reliability engineers can perform deep analysis and study patterns to not only determine the issue, but prevent it from occurring again.

Sensus Wildfire Mitigation Solution

With enhanced monitoring and control of the distribution system, utilities are provided the visibility and insight to take action before the spark occurs."

Grid Edge Automation

- Interoperable solution to communicate and control reclosers, fixed or switched capacitor banks, faulted circuit indicators and more
- Provides intelligence to grid edge devices at scale
- Pinpoint momentary faults reducing the possibility of sparks
- Isolate faults resulting in less total arcing duration
- Provide deep insight into fault data; magnitude, momentary vs permanent, phase, location, fault counters, and more
- Identify vegetation problems, obstructions, downed power lines and more
- Enable islanding through real-time coordination of distribution system
- Volt-VAR optimization (VVO) to keep system operating within an acceptable and safe voltage range



AutomationControl™ Software Platform

- Provides real-time insights into potential grid distribution problems, recognizing abnormal events and alerting operators to potential risks
- Intuitive interface giving operators snapshots of system performance with historical analysis, dashboard visualization and advanced graphing functions
- A central management system to manage all FCI types, reclosers, capacitor banks and more
- Natively integrates to existing SCADA systems
- Identify under voltage, overvoltage, outage, under-current, over-current conditions across the entire service territory



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