



WILDFIRE RISK AND RESILIENCE

Wildfire Risk Management Solutions for Power Utilities

Wildfire risk management is continuing its escalation as a crucial mitigation measure for utilities prone to fire hazard in order to protect communities and the environment, safeguard their infrastructure, and ensure uninterrupted service to their customers.

Proactive measures, such as vegetation management and strategic infrastructure planning, can help mitigate the risk of wildfires. Effective management not only helps to protect lives and property but also helps to sustain the reliability of the electricity supply, crucial for communities and emergency services during and after wildfire events.

A data-driven, risk-based approach coupled with qualitative risk assessment are vital in understanding, preventing, and mitigating the devastating impact of wildfires. Furthermore, continuous wildfire risk management improves community preparedness, enabling timely response and minimizing the destruction caused by this hazard. With the ever-increasing threat of wildfires, particularly in wildland-urban interface (WUI) areas, utilities need to stay ahead of this risk to thrive. That's where our program comes in.

At Quanta Technology, our subject-matter experts bring the best industry practices, helping utilities enhance their resilience building process and operational capabilities in the face of wildfire risk. Our software, hardware, and subject-matter expert solutions can help reduce costs throughout the wildfire risk management and resilience building process and enhance utilities' operational response.

Quanta Technology offers a comprehensive set of solutions for wildfire risk diagnostics to assist utilities. Our specialized expertise encompasses wildfire risk analytics, focusing on critical aspects: quantifying risk exposure to and from utility assets, identifying risk drivers rooted in stakeholder concerns, hazard scenarios, and uncertainties.


We conduct a thorough analysis of human, climate, and grid asset risk drivers. Moreover, our assessment involves benchmarking against other utilities and similar environments for effective risk evaluation. Based on our data-driven wildfire risk assessment outcome, we can help utilities to design, improve, and implement their wildfire risk management program considering their risk exposure, organizational constraints, and resilience goals.

Overview

We have a comprehensive set of solutions to assist utilities addressing wildfire risk. Our services include wildfire risk analytics, failure analysis, delving into root cause analysis and failure modes, and aiming to identify and prevent potential triggers for future wildfires.

Our team brings extensive experience in engineering forensics, having led analyses on wildfires for a major power utility in the Western U.S. We can liaise coordinated responses, collaborating across legal, regulatory, and public affairs domains. Our expertise extends to designing and implementing proactive measures such as preemptive de-energization programs, decision-making processes, post-event inspections, and vegetation risk management strategies. This can be accompanied with forward-looking engineering analysis to inform post-wildfire response, crucial in recovery preparedness.

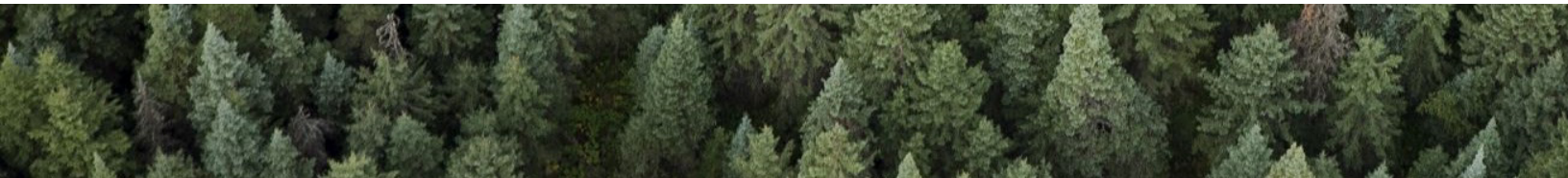
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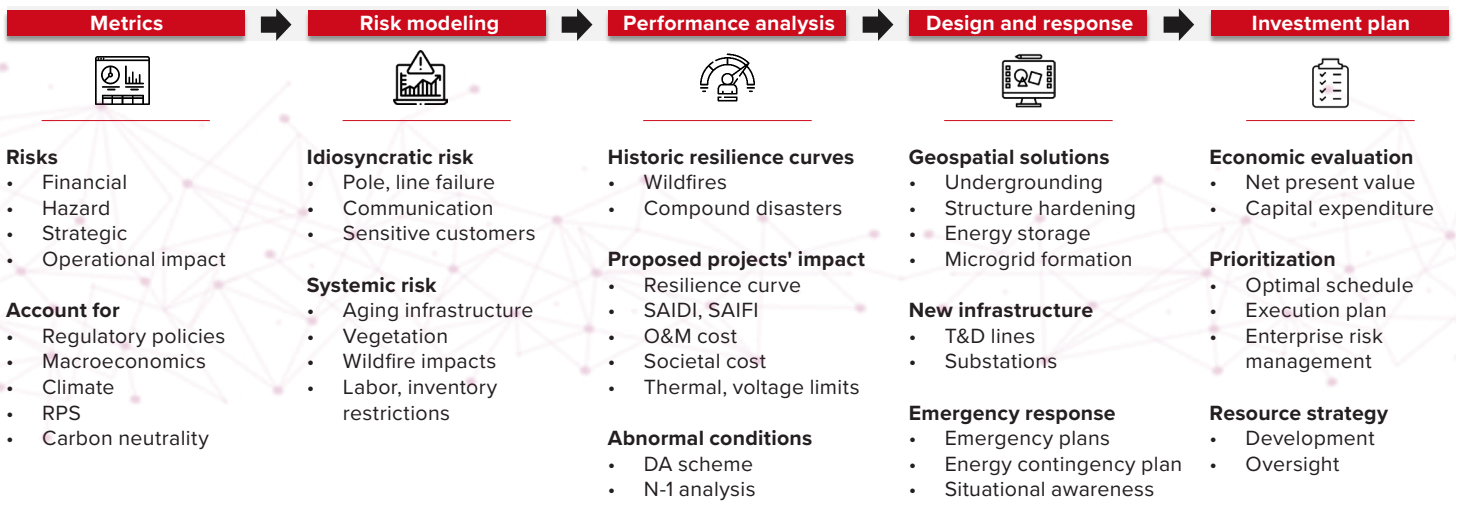
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Quanta Technology's Wildfire Resilience Building Process



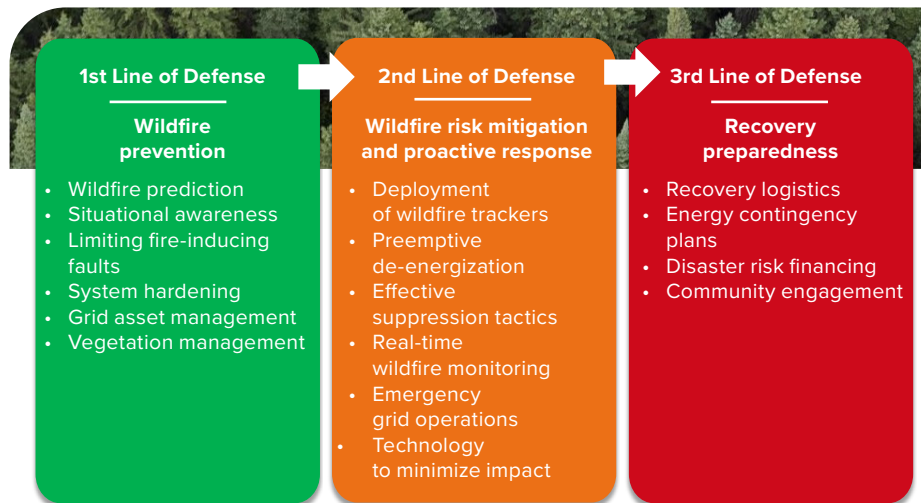
Efficient asset management plays a crucial role in averting fire-causing failure modes and faults within the power system. Our team specializes in aiding utilities in diverse aspects of asset management practices. From health indexing and criticality assessment to diagnostics and ongoing condition monitoring, we offer a comprehensive suite of services to optimize asset management strategies for enhanced wildfire resilience.

Our multidisciplinary team, comprising structural, electrical, environmental, industrial, and mechanical engineers, excels in designing and implementing system hardening mechanisms against wildfires.

This includes selecting fire-resistant structures, integrating advanced technologies for risk reduction, optimizing vegetation clearances, and strategically placing containment structures. Through our support, utilities have efficiently allocated billions in infrastructure investments, adopting a systematic, data-driven approach to manage financial resources and achieve their wildfire risk management goals. We assist in setting resilience-oriented infrastructure investment strategies, selecting suitable investment avenues, and continually monitoring and adjusting these strategies to align with the utility's evolving needs and constraints. We developed a three-lines-of-defense (3LD) methodology for an end-to-end wildfire risk management and resilience building framework for utilities.

The first line of defense focuses on strategies to prevent wildfires from occurring in the first place. Recognizing that the first line of defense may not always hold, the second line of defense is focused on mitigation strategies and proactive response to minimize hazardous impacts of wildfires on the power system and its surrounding natural and built environment, should a wildfire spark.

Finally, if a wildfire sparks and spreads despite all the defensive measures in the first two lines, utilities need a third line of defense that is focused on resilience-building measures and recovery preparedness so the system can bounce back to its pre-wildfire condition as quickly as possible without suffering devastating losses. Each of these lines plays a distinct role within the utility's wildfire risk governance structure. We can help utilities to address their wildfire risk management and resilience goals across all these three lines of defense.



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Document number: QTECH-FL-86-V1-11-24

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