



Wildfire and Public Safety April 2026 Update

Preparing for Climate Change and Extreme Weather

A graphic featuring a blue rounded rectangle with a white border. Inside the rectangle, the top half shows a grayscale image of a wildfire with thick smoke and flames. The bottom half is a solid blue area containing the text "Transmission & Distribution Infrastructure" in white.

Transmission &
Distribution
Infrastructure

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Summary of Recent EPRI Projects

<https://www.epri.com/research/products/000000003002030430>

EPRI'S EFFORTS	RESEARCH CATEGORIES Identified by EEI							
	1	2	3	4	5	6	7	8
Wildfire Consideration in Bulk System Planning	X							
Inventory and Assessment of Wildfire Hazard Data Products	X							
Identification and Piloting of Wildfire Detection & Monitoring Technologies		X						
Fuel Removal for Wildfire Management			X					
Vegetation Management Efficacy Database			X					
Testing of Protection and Downed Conductor Detection Systems				X				
Public Safety Power Shutoffs (PSPS) as a Last Resort for Extreme Fire Risk Conditions					X			
Wildfire Impacts on Air Quality and Human Health and Safety						X		
Normalized Difference Vegetation Indices (NDVI) Health Analytics						X		
Evaluation of Insulation and Fault Protective Coverings and Components							X	
Full Scale Overhead System Design Testing							X	
Conductor Slap Modeling and Data Mining for Incident Identification and Avoidance							X	
Undergrounding to Reduce Ignition Incident Risk							X	

RESEARCH CATEGORIES

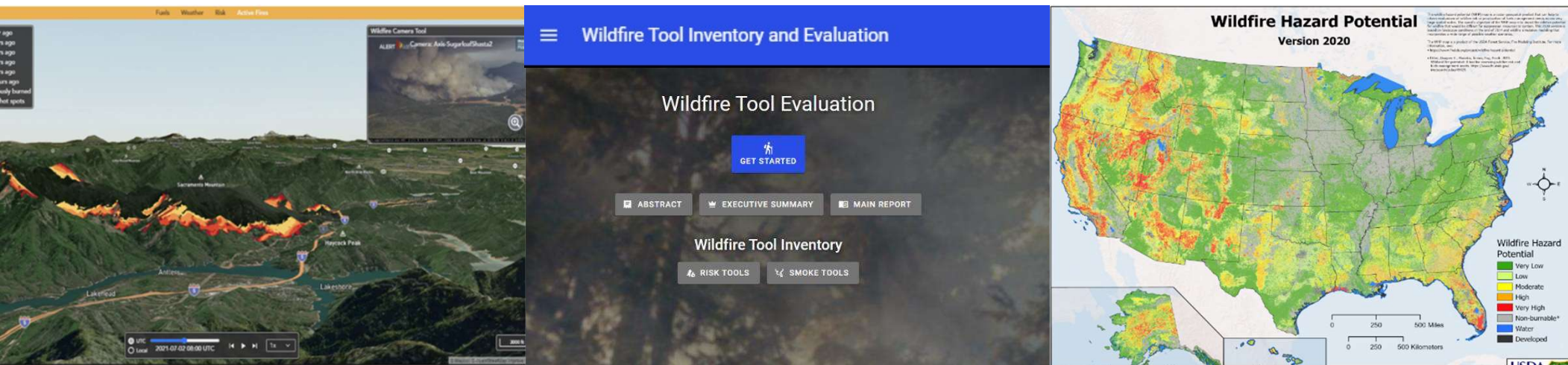
Identified by EEI

All Categories

1. Wildfire Risk Assessment
2. Situational Awareness
3. Vegetation Management
4. Protection & Control
5. Operational Practices & Training
6. Community Outreach
7. Grid Hardening
8. Utility Practices Capability Models

Wildfire Tool Inventory and Evaluation

Assisting companies with selecting the right wildfire tool for their needs



The Climate READi Wildfire Tool Inventory report reviews 39 wildfire risk and 13 wildfire smoke products:

<https://apps.epri.com/wildfire-tool-inventory/en/introduction.html>

A complementary website can be used to guide and spatially filter tool selection:

<https://apps.epri.com/wildfire-tool-inventory/en/>

Example EPRI Wildfire R&D Priorities for Distribution

Reduce Risk of Ignition

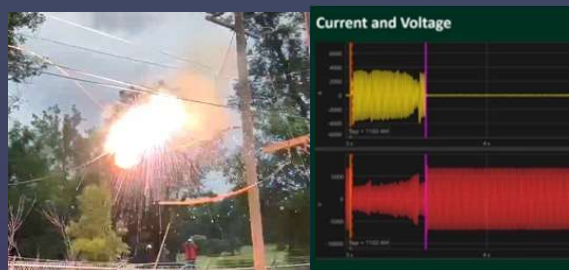


Simulate Ignition Scenarios

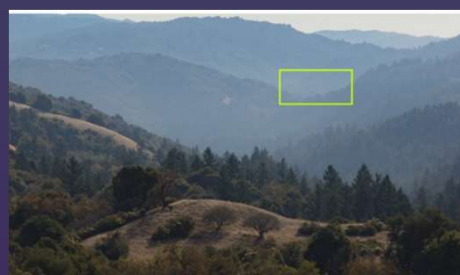


Future Climate Impacts & Vegetation Management

Evaluate Protection & Monitoring Technologies

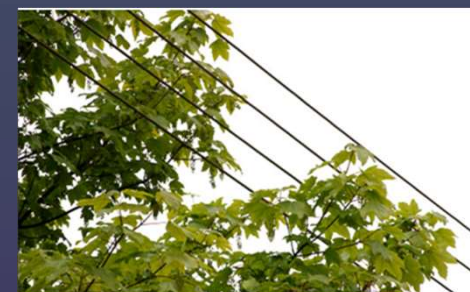


Protection Tech Evaluation



Monitoring Tech Identification & Evaluation

De-Risk Mitigation Options



Life Cycle of Covered Conductors



Identify & Evaluate New Advanced Undergrounding

<https://distribution.epri.com/ex-weather/>

Extreme Weather and Wildfire Events

RD&D to support wildfires avoidance, system hardening and situational awareness

Wildfires threaten electric companies' ability to provide reliable and affordable electricity to the customers and communities they serve. With climate change and the emergence of increased extreme weather events, the power delivery systems of the future must be more prepared for wildfire threats and other weather-related dangers. Technology developers, research organizations, and electric companies continue to dedicate significant resources to exploring innovations aimed at reducing this risk. This website and EPRI's associated RD&D aims to provide stakeholders with the technical basis with which to select and apply technologies and approaches to mitigate wildfire risk.

Project Manager: [Doug Dorr](#) 

Wildfire Mitigation Technologies Database

Database of Wildfire Mitigation Technologies

Technologies • Grid Safety • Resiliency • Extreme Weather • Wildfires

Emerging Innovation Opportunities

List of proposed follow-on demonstrations on wildfire

Technologies • Grid Safety • Resiliency • Extreme Weather • Wildfires



Overview

Introduction to improving grid safety & resilience during extreme weather events and wildfires.

Grid Safety • Resiliency • Extreme Weather • Wildfires



Industry Pubs & Web Resources

Compilation of industry publications and web resources on wildfire

Resources • Grid Safety • Resiliency • Extreme Weather • Wildfires



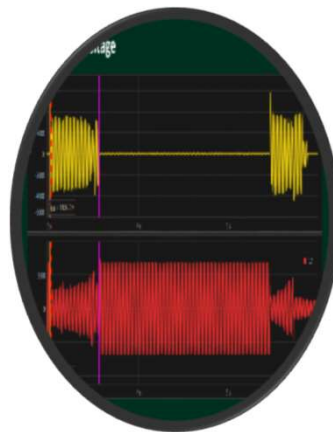
Test Results

Experimentation and test results for wildfire research from past and present projects

Supplemental Projects • Grid Safety • Resiliency • Extreme Weather • Wildfires

EPRI's Wildfire Engagements with U.S DOE and the National Labs

**EPRI - DOE Partnership 2023 to 2026:
Nine Face-to-Face Regional Wildfire
Advisory Group (WAG) Events with
Key Industry Leaders**



**Fault Event Signature
Repository - Joint effort
with EPRI, ORNL, INL,
Sandia, LLNL & PNNL**
<https://gesl.ornl.gov/>

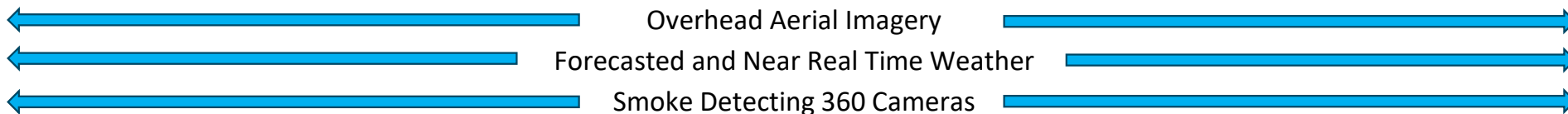


**WMP Database and
Standards & Metrics
for Operational Decisions -
Joint PNNL EPRI effort**
<https://wildfire.pnnl.gov/mitigationPlans/pages/landing>



**Wildfire Mitigation
Technologies Catalog**
<https://distribution.epri.com/wildfire/public/wildfire-tech-database/>

2030 Vision: Layering Electromagnetic Insights with Physical Risk Conditions



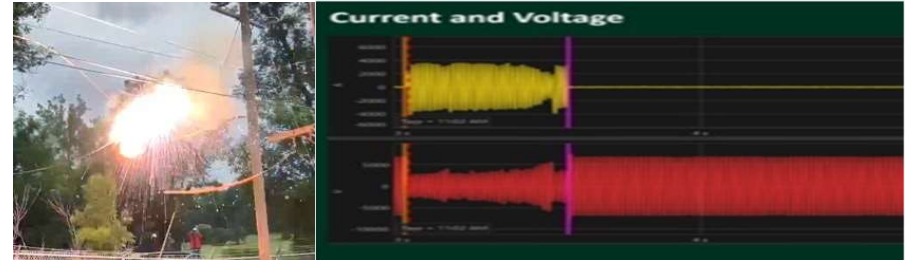
PNNL / EPRI Wildfire Resiliency Standards and Metrics

- Two Year Effort
 - Face-to-Face Regional Workshops
 - One-on-One Immersive Interviews
- Objectives:
 - Learn how power providers assess fire risks
 - Identify gaps and barriers in today's decision tools
 - Publish WMP leading practices for risk assessment
 - Test out new PNNL decision tool data layers
- If you - or your company is interested in participating in the WAG events: email ddorr@epri.com and ahenegar@epri.com



Joint EPRI/National Labs Fault Event Signature Library

- Two Year Effort
- Objectives:
 - Increment the available data for ignition incident analytics
 - Replicate real world fault scenarios at the EPRI Lenox HV Lab
 - Vegetation Contacts
 - Series Arcing
 - Live Downed Wires
 - Conductor Slap
- Need utility collaborators with data



<https://distribution.epri.com/wildfire/public/wildfire-tech-database/>

EPRI Distribution Projects Technology Insights Resources

Wildfire / Wildfire Technology DB

Wildfire Mitigation Technologies Database

Database of Wildfire Mitigation Technologies

Print

Asset Condition Monitoring

Environmental Monitoring

Fault Count and Frequency Reduction

Fault Energy Reduction

Fire Protective Materials

Grid Monitoring

Modeling and Simulation

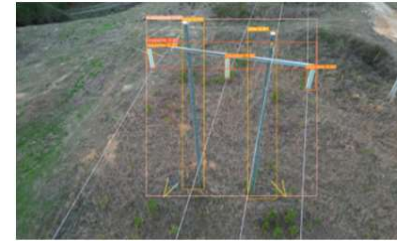


Figure credit [1]

The following list of manufacturers is the product of an Internet search using a general description of the technology as the search term. Sometimes more than one variation on the search term is used. The objective is to identify the most demonstration-ready products available in the category. Toward assessing demonstration readiness, the manufacturer websites typically provide useful information such as writeups of successful use cases or field demonstrations, number of deployments, or other indicators. Where lack of one to three frontrunners emerge as being most likely to sell to the United States, or, if emerging tech

Drone Docks

Skydio <https://www.skydio.com/>

DJI <https://enterprise.dji.com/dock>

Icaros <https://icarosgeospatial.com/sams/>

Hextronics

<https://www.hextronics.tech/the-atlas>

<https://www.hextronics.tech/the-universal>

Autel Robotics <https://www.autelrobotics.com/>

Strix Drones <https://www.strixdrones.com/>

Airobotics <https://www.airoboticsdrones.com/>

Each Tech Writeup Contains:

- Product Category
- Tech Description
- Tech Readiness Level
- Vendors
- Implementations / Deployments
- Innovations as of mid 2023
- Potential Enrichment Work Opportunity

Automated Visual Line Inspections

Risk Reduction Category

Asset Monitoring



Technology Description

Utilities commonly employ uncrewed aircraft systems (UAS) to capture imagery of

Wildfire / Wildfire Technology DB / Environmental Monitoring / Smoke Detection Cameras

Smoke Detection Cameras

Risk Reduction Category

Situational awareness, early warning of fire start

Technology Description

The technology consists of a network of long-range, geo-located cameras that are mounted to existing or dedicated towers and are coupled with image processing and AI to alert on early detection of smoke. This technology has been field-proven to alert fire responders before receiving the first 911 call. Rapid confirmation of fire, size approximation, and geolocation are additional benefits of the technology compared to eyewitness reports via 911.

Technical Readiness (Commercial Availability)

A few vendors are currently supplying equipment and/or software commercially with small-scale deployments. Two broad categories of vendors exist in this space: first, those who supply both the hardware and software, consisting of purpose-built camera/sensor systems, and gear that proprietary hardware with software including an AI engine, visualization, alerting system, and web portal. A second category of vendors provides the software components only, utilizing a camera-agnostic platform that can accept any standard source of video. These vendor platforms can utilize, for example, publicly available imagery from the ALERT Wildfire cameras.

Leaders in early fire detection can support the intake of additional data such as temperature, humidity, wind speed, etc. to improve the AI and to predict severity and spread of fire.

Figure 1 shows a typical view from a fixed, tower-mounted camera. If desired, panoramic views can be provided by an array of fixed cameras or by motorized PTZ (pan, tilt, zoom) cameras. Image processing and AI discern smoke from fog and clouds. Although the view is long range, the typical distance for accurate detection of small fires, measuring 3" x 3", is about 300 yards. With increasing distance, the fire must be larger to be detected. Accuracy of detection is expressed in terms of false positives and false negatives. These systems can detect smoke or flame during daylight hours and flame during periods of low light.

Use Case Examples: What Could we Expect from Wide-Area Residential Voltage Monitoring (RVM)?



Can RVM Detect Arcing Branch Contacts before a Fault? How Far Upstream?



Can RVM Detect the Outage on Phase A and the Temp Overvoltage on the Others?



Can RVM Detect Outage at Some customer Points, Voltage Sags at Other Points, and Support Fault Location?

Can RVM be given the logic for AMI based live downed wire awareness and provide that Insight back to an Ops Center?





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