

Your partner in wildfire mitigation

Wildfires are a serious concern for municipalities, utilities, regulatory agencies, and insurers. A wildfire always seems to be raging somewhere—in California threatening lives and property, in the Amazon destroying thousands of acres of deforested land. As populations grow, expanding into previously uninhabited areas, so does the threat of wildfire. Stakeholders need long-term mitigation strategies that cover education, wildfire prevention, crisis management planning, and preventive and protective technologies.

Siemens is making substantial R&D investments to develop a layered, holistic wildfire mitigation architecture that includes monitoring, power distribution, load balancing, and power backup. Solutions such as intelligent devices, data consolidation and control, and software and analysis serve as building blocks for a customizable architecture.

usa.siemens.com/wildfire-mitigation

What's increasing wildfire risks?

- As residential areas expand to accommodate population growth, new electrical infrastructure, such as **power lines, substations, and transformers**, are built.
- Overhead power lines are subject to **wind, fallen tree branches, and hits by vehicles**.
- Damaged infrastructure**, including downed power lines, can cause sparks that ignite dry vegetation, creating a wildfire.
- Poor equipment maintenance** contributes to the threat—a permanent fault in the power infrastructure can generate sparks.
- Poor or nonexistent maintenance of **vegetation around power lines** and substations generates fuel for wildfires.
- Rising temperatures** dry out vegetation, making it easier to ignite.

Wildfires are becoming more frequent, covering larger areas, and causing more damage

1.7 million
acres of land are lost to wildfires yearly.¹

Wildfire season lasts
78 days longer
now than in 1970 and burns twice as much acreage.²

9 out of 10
of the largest recorded California wildfires occurred after 2000.³

More than
4.5 million
U.S. homes are at high or extreme risk of experiencing a wildfire.⁴

Total exposure for single-family residences to wildfire damage in California is estimated at more than
\$240 billion.³

3,500 square miles
of Amazon rainforest burned in 2019.⁵

Stakeholders' wildfire mitigation responsibilities

Regulatory agencies

State and federal regulators need to address forest management, urban sprawl into fire-prone areas, and mitigation regulations.

Electric utilities

New regulations affect power system owners and operators, necessitating infrastructure upgrades.

Insurers and financing institutions

Funding agents need to minimize risk as they support municipalities and utilities in wildfire-prone zones.

Municipalities

Wildfires can threaten the grid, cutting power to critical services, such as hospitals, sewage treatment plants, traffic control systems, and law enforcement. Communities are looking to reduce their dependence on the grid.

Technology providers

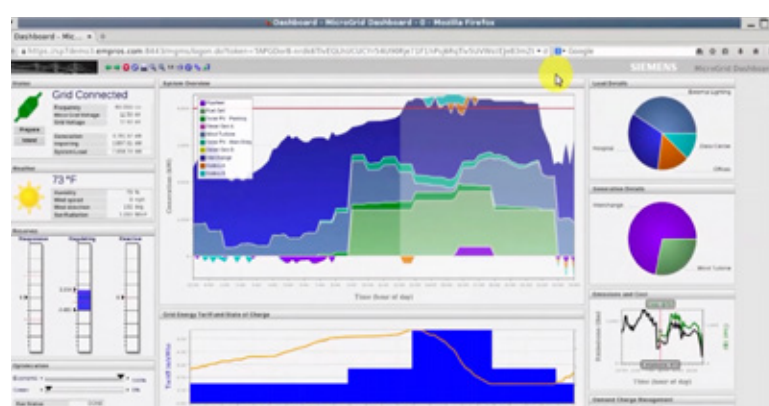
Research and development is under way to better address sparking dangers and how to effectively monitor power infrastructures to prevent wildfires.

Case study

Blue Lake Rancheria

Blue Lake Rancheria, a Native American reservation in Northern California, uses a low-carbon microgrid that powers government offices, businesses, and a Red Cross safety shelter. As wildfire threatens power to the community, the microgrid uses sensor data on system and environmental conditions to isolate from the main grid and continue operations uninterrupted.

[Learn more >](#)



Siemens solutions help mitigate wildfire risk

The wildfire threat calls for a collaborative approach to develop short-term tactics and long-term strategies for mitigation. Siemens technologies stand to play a central role in this approach, helping communities and utilities build effective customized mitigation architectures with these building blocks:

Data processing

Microgrid controllers, working in sync with SCADA systems, can ingest and process data from monitoring devices. Using machine learning, the data allows operators to anticipate equipment breakdowns and power needs in generation, distribution, and transmission equipment.

Contextual awareness

For instance, Siemens offers two solutions in this realm: Fusesaver and compact modular reclosers (CMR). Both solutions can serve as an alarm back to the control room when the device trips and opens because of a fault downstream. In case of wildfire risk, the control room can open and close the devices remotely.

Situational awareness

Remote capabilities make it possible to take into account current conditions to power down when necessary. Siemens Distributed Feeder Automation (SDFA) simplifies and automates the process of locating faults within substation networks. The system locates faults in milliseconds, then immediately isolates and closes in the adjacent feeder to let power continue to flow to unaffected line segments.

Predictive analytics

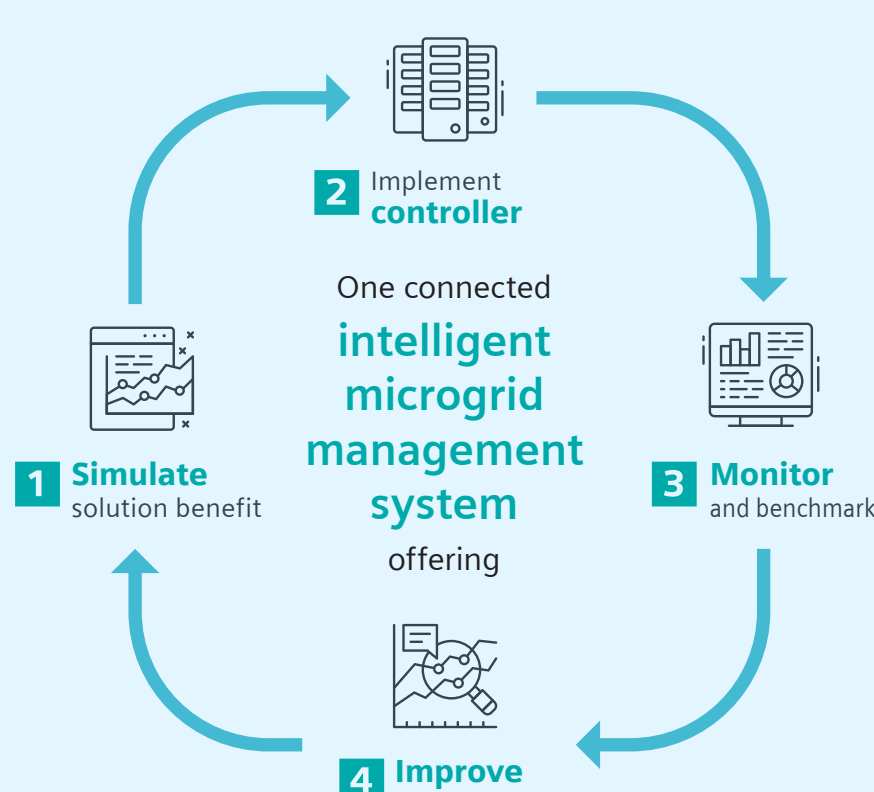
Data collected from monitoring devices across the power infrastructure also is useful to predict courses of action based on power system conditions. Supervisory control and data acquisition (SCADA) systems and feeder-automation solutions let operators remotely control and isolate power flows, making equipment maintenance and management more effective and safer.

Prescriptive analytics

In wildfire situations, power grid operations need a set of guidelines prescribing what actions to take, such as when to manage the generator or shed some load. Siemens technology can automate actions through a microgrid controller workflow that notifies the utility about microgrid issues.

Automated actions

With SCADA and intelligent microgrid controllers, actions can be automated both in normal operation and in emergency scenarios. If a wildfire is threatening a community, the system can automatically switch to island mode, disconnecting itself from the main grid to prevent an outage.



Siemens Industry Inc.
800 North Point Parkway
Alpharetta, GA 30005

Phone: +1 (800) 241-4453
E-mail: info.us@siemens.com

For more information, please contact our
Customer Support Center.
Phone: +1 (800) 241-4453

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