

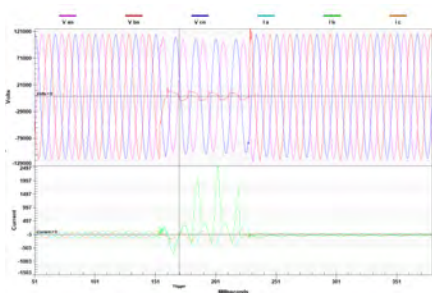
Reducing Wildfire Risk on the Grid

IDAHO NATIONAL LABORATORY (INL)

Leading at-scale research for wildfire risk reduction

Wildfire Fault Testing

- Dedicated site fire department
- Expert UAV pilots for material drop tests
- Fault initiation on 12kV–34.5kV distribution and 138kV transmission lines
- Advanced power metering and protection algorithm testing



Fault signature showing lightning arrest or failure, a potential wildfire causing fault event.

CESER/OE-funded research at INL's CITRC site

[Click Here to Learn More](#)
Grid Event Signature Library

The Sheep Fire at INL began on July 22, 2019, due to a lightning strike and quickly grew to over 112,000 acres.



Transmission and distribution lines at the Critical Infrastructure Test Range Complex at INL.

The Sheep Fire at INL posed challenges due to dry conditions and unpredictable winds.



Fault Types Studied

- Conductor slapping
- Ground contact
- Tree branch/material contact
- Pole insulator failure
- Lightning arrester failure

Grid Event Signature Library (GESL)

A comprehensive fault data repository for wildfire risk reduction

- OE-funded initiative
- Real-world fault signatures for AI, utilities, and research
- INL wildfire fault data added in 2026/27
- Contributions welcome (anonymized)