

AT A GLANCE



Gas Insulated Substations and Lines

Program 37.108

Research Value

- Guidance on SF₆ Alternatives
- Insights into developing regulations
- Reduced SF₆ emissions through improved leak detection
- Lowered maintenance cost of GIS and GIL through improved diagnostics

Member Benefits

- Improved reliability of electric service through better reliability and availability
- Improved decision making on new and complex emerging technologies
- 3rd party independent assessments based on well-defined test protocols

Gas-Insulated Substations (GIS) and Gas-Insulated Lines (GIL) offer many benefits including compact size, modularity, physical security and protection from pollution and harsh environments. They also present unique challenges in how to reduce SF₆ emissions and effectively detect and locate defects. EPRI research is addressing this need through laboratory tests in representative defects.

The value provided will be practical and well-informed guidance on GIS and GIL application, use, and management. The GIS and GIL research is focused on two key areas: SF₆ alternatives and condition monitoring of GIS/GIL systems.

Laboratory testing on GIS to help in the specification and interpretation of GIS and GIL condition monitoring technologies and SF₆ leak detection solutions. The well-defined test protocols provide valuable and repeatable results. The full-scale GIS laboratory provides the freedom to introduce defects and rapidly learn in a safe and controllable environment.

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Research Highlights



EPRI Guidebook on GIS and GIL – 2024 Update

In 2024 EPRI will utilize its GIS laboratory to introduce typical defects and assess technologies to reliably detect these defects while the GIS is live. The findings will help the industry in specification and interpretation.



SF₆ Alternatives: Update on EPRI Research and Industry Trends

In 2024 in depth and valuable insights will be provided on this important topic of alternatives. The findings will guide the industry on how to best respond to the ever-increasing pressures to reduce SF₆ emissions and usage.



SF₆ Leak Detection

It's often difficult to pinpoint SF₆ leaks at height without an outage and scaffolding. 2024 research will explore the opportunities and challenges UAVs offer in taking a leak detection payload safely to heights while a substation is energized.

For more information, contact:

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