Supplemental Project Notice

SF_6 ALTERNATIVES

EPRI's SF_6 Alternatives Research Laboratory that is allowing for rapid learning of new dielectrics in a safe and realistic venue.

PROJECT HIGHLIGHTS

- Guidance on the optimal application of SF_6 alternatives
- Answers to the significant questions regarding the safe and effective handling, operation, maintenance, and disposal of these new alternative approaches
- Understanding the tradeoffs and expectations utilities may experience when using the new technologies

Background, Objectives, and New Learnings

Sulfur hexafluoride (SF_6) has been used for decades in utility applications due to its excellent insulating and arc quenching capabilities. A drawback for SF_6 is that it has an extremely high global warming potential (GWP) and there is growing pressure to phase it out. This project aims to help guide and inform optimal strategies for adopting SF_6 Alternatives.

Several countries outside of the US, and a few states with-in the U.S., have implemented, or are considering, regulations to limit or fine utilities for loss of SF_6 above certain thresholds. These reasons have created a renewed interest in finding a suitable alternative to SF_6, whether by using other gases, vacuum technology, or some other approach.

Significant questions remain regarding effective handling, recycling, operation, maintenance, safety, and disposal of these new gas mixtures. Overlaid on the technical questions are the regulatory questions. This project aims to perform the studies and industry tracking to help inform utilities evaluating different SF_6 Alternative strategies.

Objective

The research objective us to guide the industry on optimal adoption strategies for SF_6 Alternatives. EPRI has a full-scale SF_6 alternatives laboratory that is expanded to include SF_6 Alternatives. The industry will benefit from the real-world understanding of the wide range of new technical challenges (handing, analysis, recycling, leak detection, and disposal). The full-scale laboratory environment allows for testing and experimentation in a safe yet flexlible environment, hence allowing for wide experimentation and rapid learning.

Approach

- Research regulatory and technology changes and share the critical insights in monthly calls.
- Acquire SF_6 Alternatives and use the EPRI laboratory to perform the practical tasks a utility would need to perform with these new alternatives (commissioning, analysis, leak detection, recycling, leak detection, disposal).
- Share the practical findings from the laboratory on the monthly update calls.
- The collaborative membership of the project will also allow for effective sharing of member experiences.

Benefits

Project participants will receive unbiased guidance on specification of emerging technologies for alternatives of SF_6. The guidance will be scientifically based and supported by the extensive laboratory testing. Participants will stay ahead of changes in both the technologies and the regulations.

Deliverables

The project deliverables will be as follows:

- Monthly insights on industry trends, technology development and regulatory advances.
- Practical guidance on what to expect from the adoption of SF_6 Alternatives. The guidance will result by the testing in the full-scale EPRI SF_6 Alternatives laboratory.
- Member insights from sharing of adoption experiences.
- Monthly webcast slides and published report.

Project Status and Schedule

The price to participate in this project is $120,000, ($60,000 per for two years) per company. This project schedule is 24 months.

Who Should Join

Owners and operators of equipment using SF_6 gas today, and/or considering transition to alternative technologies.

Contact Information

For more information, contact the EPRI Customer Assistance Center at 800.313.3774 (askepri@epri.com).

Technical Contact

Luke van der Zel at 704.595.2726 (lvanderz@epri.com)

To join: contact a Transmission and Substations Technical Advisor:

Northeast: Dan Tavani at 704.595.2714 (dtavani@epri.com)

Southeast: Brian Long at 704. 408.8139 (blong@epri.com)

Central: Jeff Hlavac at 972.556.6553 (jhlavac@epri.com)

West: David Welch at 650.855.1072 (dwelch@epri.com)

Product ID: 3002027651 **Project ID:** 1-117237 **May 2023**

EPRI
3420 Hillview Avenue, Palo Alto, California 94304-1338 USA • 800.313.3774 • 650.855.2121 • askepri@epri.com • www.epri.com