

Technology Innovation Project



Project Brief

TIP 23b: EPRI Daytime (UV Imaging) Discharge Inspection Interest Group

Context

The technology for viewing corona and arcing discharges in full daylight has been around for a number of years. Many utilities now possess this technology and are using it for operation and maintenance of power lines. One of the difficulties in fully applying it is the interpretation of the data or visual images. This is because arcing is often interpreted as corona and vice versa, and the location of the discharges and their effect are sometimes misdiagnosed. That failure may lead either to unnecessary intervention or to equipment failure.

Description

The Daytime Discharge Inspection Interest Group (DDIIG) was initiated in 2007 to help the industry maximize the use of Daylight UV camera technology for inspection and maintenance of the power network. An ongoing challenge is the improved understanding and diagnosis of the visual images. Over the years this project has developed a number of products, including videos, training modules and inspector standards, provided training workshops, and undertaken fundamental research.

This project will focus on the establishment of a DDIIG that will act as the forum by which utilities can maximize the benefit of using this technology. In essence, the DDIIG will allow participants to share information, including vendor and utility experience, and have access to field guides, training, and a bulletin board for queries and advice. It will also provide the framework for setting inspector requirements.

The project also caters to those wishing to limit their participation to User Group meetings. It allows participants to share utility experience, keep abreast of vendor technologies, and facilitate user needs.

The Interest Group will be non-vendor specific, encompassing all optical daytime corona inspection technologies currently available. Its mission will be to provide unbiased, technically sound, current information.

Why It Matters

This research meets EPRI's criteria for the use of tailored collaboration funding in the following way: Daytime ultraviolet (UV) and infrared (IR) inspection of substation components is unknown. There is limited to no experience in the practice so there will be substantial learning.

The knowledge developed by this project will result in field guides, reports, training and training material that will be made available to the public through normal EPRI channels. The results will also be incorporated in the EPRI Inspection and Assessment Methods Guideline (Project 35.001). Meetings and training session will be open to members of the public for a prescribed fee.

By being able to identify high-risk components prior to failure using daytime UV technology, unscheduled outages will be reduced, increasing the quality of supply to the public. Consistent inspection standards will be better assured.

Goals and Objectives

The objectives of this project are to move this technology forward as follows:

- Developing training material and updating existing material with new research findings.
- Undertaking fundamental research on ultraviolet (UV) and infrared (IR) inspection of substation components.
- Providing a hands-on workshop and training.

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Reports & References (Optional)

Links (Optional)

Participating Organizations

EPRI
Eskom
First Energy
WAPA
Southern Company
AEP
Nam Power
Dominion
Powerlink
SDG&E

Funding

Total Project Cost:	\$90,000
BPA Share:	\$5,000
External Share:	\$85,000
BPA FY2013 Budget:	\$5,000

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