

Co-op Participation Opportunity with Predictive Maintenance Tool

For immediate consideration: NRECA is seeking 5 co-op partners to advise and provide data for the development of the *Incipient Failure Identification for Common Grid Asset Classes (IFID)* project, which will initiate predictive and prescriptive maintenance tools for distribution utilities.

Research Opportunity Summary

Detecting the degradation of distribution feeder components is essential for ensuring reliable, resilient and continuous supply of power for consumers. Present approaches for monitoring and maintenance of the system are often reactive, but the preferred alternative would be a proactive system that identifies the potential causes for faults and recommends mitigation strategies. NRECA has partnered with Lawrence Livermore National Laboratory (LLNL) to operationalize a multi-tiered approach for advanced analytics and sensing integration to effectively predict health degradation and incipient failure. The project will develop tools to provide (1) imminent outage alerts through on-edge data processing, and (2) advanced notice of high-risk areas through centralized analysis of federated sensor data from the distribution network.

Requirements and Benefits of Participation

In support of this research effort:

1. NRECA Research is seeking 5 co-op partners (limit of 5) who will provide 12 months of historical data (see Appendix for requirements). Participating co-ops will also provide a subject matter expert to address questions about field maintenance and outages, and to potentially participate in project calls.
2. This project is a grant-funded effort from the Department of Energy's Grid Modernization Lab Consortium program. Utilities are not expected to provide any cost share other than the value of data.
3. Notification of interest is requested **by July 31, 2020**.

Electric cooperatives who participate directly in this project would be first-out users of the predictive maintenance platform, which would allow utilities to better plan and schedule maintenance, reduce the number and severity of outages, extend the lifetime of existing assets, reduce inventory costs, and increase the safety of line workers. Participating utilities would also help ensure that project tools are developed to meet the unique needs of rural cooperative utilities.

Project Team

NRECA has joined a project team that is led by the LLNL and includes partners at PG&E, EPB, OSISoft, EPRI, and Corning. The research is funded by the Department of Energy's Grid Modernization Lab Consortium program, "a strategic partnership between DOE and the national laboratories to bring together leading experts, technologies, and resources to collaborate on the goal of modernizing the nation's grid." Additional detail on the team and the project can be found at <https://gmlc.doe.gov/projects/3.3.3>.

Contact for More Information on How to Participate in the Pilot

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Appendix:

Data Requirements

The project requires participating utilities to provide at least 12 months of contiguous historical data with a focus on areas with a significant number and variety of outages, with data from multiple distribution feeders. Data surrounding significant weather events is of particular interest. Participating utilities are asked to have the following types of data available:

1. **Required:** outage records, including location information and timestamps of power loss and restoration.

2. **Preferred** (as many as available):
 - a. Detailed outage records, e.g. root cause analysis findings, meter-level outage locations, etc.
 - b. SCADA (or SCADA-like): Supervisory Control and Data Acquisition
 - c. AMI: Advanced Metering Infrastructure
 - d. Preventative and corrective maintenance reports, including part repair and replacement tracking
 - e. GIS / Asset locations: Geographic Information Systems
 - f. DGA: Dissolved Gas Analysis
 - g. PMU: Phase Measurement Unit
 - h. Any other diagnostic or device monitoring data sources