

Technology Innovation Project



Project Brief

TIP 25e: EPRI P35 Supplemental: Transmission Modernization Demonstration: *Data Management and Analytics to Support Transmission Operations, Planning, and Asset Management*

Context

In 2010, working closely with over 1,400 industry and public advisors, EPRI identified six overarching strategic issues that offer both opportunities and challenges to continued delivery of reliable, affordable and environmentally responsible electricity. One of the six strategic issues is development and implementation of the "Smart Grid".

A critical characteristic of the smart grid is the availability of a wide variety of data from advanced sensors and monitoring systems. The challenge is to actually take advantage of this data for a wide variety of applications to benefit the planning and operations of the grid.

Description

This multi-year collaborative demonstration project builds on EPRI's substations sensors, asset performance, grid operations and planning, and grid transformation projects (both base program research and related supplemental projects). The work will be coordinated directly with relevant EPRI research programs such as the Grid Operations and Planning (P39 & 40), Bulk Renewables Integration (P173), IntelliGrid Program (P161), and Transmission and Substation (P35, 36 & 37). The project is expected to employ "learning by doing" - demonstrating and assessing the value of new analytical applications of existing and new data streams and communications infrastructure.

The project includes the following tasks:

1. Develop background on transmission application priorities throughout the industry
2. Develop an overall demonstration plan for advanced transmission data analytics applications
3. Demonstration and assessment of data management and analytical tools and methods to benefit transmission operations and planning application
4. Technology transfer of useful interpretations of the results and synthesis of lessons learned across this demonstration project.

Why It Matters

The results of these efforts are expected to be a collection of data analytics of available operational data that may enable electric utilities to increase reliability while helping to manage cost, and keep electric rates affordable.

Goals and Objectives

It is the objective of this collaborative project to share their new learning and to accelerate their adoption across the electric power industry.

In addition, it is expected that new innovative approaches to data management, data analytics, and system integration will continue to be identified and this project may provide a framework for demonstrating and evaluating them in real-world utility applications

Deliverables

- Consolidated survey results from all Funders
- EPRI hosted Workshop(s) and associated Proceedings
- Catalogue of Transmission Application Data Requirements
- Individual Funder immersion/roadmap report
- Application and Architecture "Opportunity Matrix"
- Consolidated mini-roadmap report from all Funders
- An overall research prioritization plan that will include the Methods, Tools and Integration Approaches to be demonstrated
- Industry report on existing efforts, methods, tools and algorithms related to Transmission Modernization associated with data management and analytics to support grid operations, planning and asset management
- Library of data management structures, advanced data analytics, data integration approaches (e.g. CIM) and Algorithms, Methods and Tools
- Lab results resulting from evaluations in EPRI's Smart Grid Substation Lab

Deliverables (continued)

- Identify and select host sites for implementation of advanced transmission applications for data management, data analytics, and data integration.
- Research plans for each host site

- Cost Benefit Analysis results from Utility Demonstrations of Analytical Methods, Tools and Integration Approaches for Transmission Applications
- Publications and Articles
- Guidebook on Data Management and Analytics to Support Transmission Operations and Planning

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Project Start Date: October 1, 2014

Project End Date: December 31, 2017

Funding

BPA FY2016 Budget: \$19,829

Reports & References (Optional)

Links (Optional)

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Participating Organizations

Electric Power Research Institute (EPRI)

