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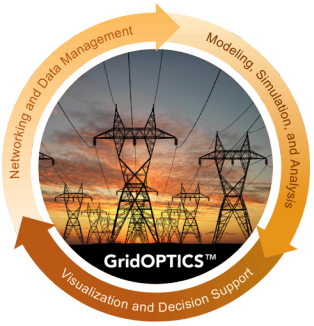

Decision Support for Future Power Grid Organizations

OBJECTIVE

This research addressed challenges in inter-organizational collaboration among power grid entities to improve system reliability, and contingency response and mitigation. The effort focused on the communicative aspect of inter-organizational collaboration:

- Understanding the impact of current communication practices on multi-organizational collaboration;
- Analyzing and characterizing operator communication styles and patterns through a simulated training session;
- Providing novel decision support capabilities to enable rapid and more accurate communication in real time to enhance situation awareness and decision performance.

APPROACH

The technical approach consisted of extensive field visits, communication data analysis, technology prototype design, and the initial tool deployment in an operator training session to address a specific communication and/or operational need. Actions included:

- Gaining an understanding of existing communication challenges by participating in North American Electric Reliability Corporation meetings and visiting grid organizations
- Analyzing communication data from a major grid organization to identify communicative characteristics in real system operations

The Electricity Infrastructure Operations Center (EIOC), where the CORE™ tool was deployed, is available to utilities, vendors, government agencies, and universities interested in research, development, or training. For more information, visit http://eioc.pnnl.gov

- Developing a web-based inter-organizational communication tool using the CORE™ technology to enable instant data capture
- Deploying the CORE™ grid communication tool in an operator training session at PNNL's Electricity Infrastructure Operations Center (EIOC) with positive feedback from operators.

U.S. DEPARTMENT OF
ENERGY

IMPACT

If deployed, the CORE™ grid communication tool would enable grid entities to participate in distributed trainings, equip them with capabilities to conduct more efficient communication audits, and help transition the industry into new communication practices for inter-personal and inter-organizational collaboration.

Since FY12, the project team has successfully:

- Obtained intellectual property rights for the CORE™ tool
- Been awarded follow-on funding from the Domestic Nuclear Detection Office to expand CORE™ technology to decision analysis in radiation detection
- Provided programmatic and outreach support to other Future Power Grid Initiative (FPGI) projects
- Demonstrated the value in developing decision-support tools for improving inter-organization communication and collaboration toward grid modernization.

ABOUT GRIDOPTICS™

The Grid Operation and Planning Technology Integrated Capabilities Suite (GridOPTICS™) is the core product of Pacific Northwest National Laboratory's Future Power Grid Initiative which concluded in 2015. GridOPTICS™ tools are designed to securely collect and manage data in real time, use data to drive modeling and simulation, and convert large volumes of data to actionable information. GridOPTICS™ concepts and tools show and analyze grid performance at an unprecedented speed, scale, and resolution and support operational and policy decision-making for the grid of the future. A key emphasis is on transitioning GridOPTICS™ tools to open-source status, supported in their future development and use by a "community" including PNNL, other national labs, academia, vendors, and utilities.

For more information, please visit the GridOPTICS™ website or contact:

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