Information and Communication Technology (ICT)

Program 161



RESEARCH VALUE

The value created by the ICT program helps guide the industry toward highly connected, interoperable future grid value streams in six coordinated project sets:

- Emerging Technologies and Technology Transfer (161A). Insights into emerging information and communication technologies and issues that could impact utility investments and enables technology transfer of results to all members of the program.
- Distributed Energy Resources (DER) Data and Connectivity (161D). Leading practices of ICT industry standards and development of digital tools and strategies for advancing automation and remote operations for DER/DR, while helping utilities prepare for a 2030 energy system.
- Enterprise Architecture and Integration (161E). Tools and techniques that will help enterprise architects better execute their work with leading practices on cloud integration and digital transformation.
- Advanced Metering Systems (161F). Provides information and tools to gain the full value of existing metering systems and data while also providing guidance to maximize the value of next-generation advanced metering systems while providing guidance toward device and system interoperability.

This program addresses technical and economic challenges of identifying, evaluating, and implementing enabling Information and Communication Technologies (ICT) for grid modernization and digital transformation efforts.

The ICT program addresses these challenges by conducting research in six project sets that cut across three functional research areas:

- Interoperability: Accelerating the industry's migration toward interoperability with technical contributions to standards, providing training, developing reference implementations, organizing interoperability tests, and collaborating with utilities to demonstrate and apply emerging standards in EPRI's laboratory and in field deployments.
- Telecommunications: Providing leadership in communications standards development, analysis of communications technologies, development of tools and techniques to plan and design communications networks and conducting laboratory and field tests to evaluate the performance of evolving and emerging communication technologies.
- Data-Centricity: Leading efforts towards an enterprise-wide extensible data model, understanding that specific applications will come and go while the data model remains constant. Data, not applications, are at the core of the enterprise and should deliver maximum business value, improve operational outcomes, and facilitate innovation through data-driven insights.

RESEARCH VALUE (CONTINUED)

- **Telecommunications (161G).** Insights, guidance, and tools to help utilities develop telecommunications strategies and apply emerging technologies and standards that play an increasingly critical role in the operation of the integrated grid.
- **Geospatial Informatics (GIS) (161H).** Leading practices for addressing GIS data quality and data management challenges, enabling the next-generation of GIS, including the support of immersive 3D environments.

Key Activities for 2023

RESEARCH PORTFOLIO

The ICT Program provides a robust portfolio of resources to achieve our goals and is available online here: https://www.epri.com/portfolio/programs/062333.

Here is a summary of the goals of each project set of the program:

Emerging Technologies and Technology Transfer (161A)
- Provides insights into emerging information and communication technologies and issues that could impact utility investments.
- Enables technology transfer to the utility personnel who can use and benefit from them.

Distributed Energy Resources (DER) Data and Connectivity (161D)
- Provides insights and leading practices on DER industry standards, issues, and solutions that can streamline the integration of DER and reduce costs for operation and maintenance.
- Develops digital tools and strategies for advancing automation and remote operations for DER/DR.

Enterprise Architecture and Integration (161E)
- Provides tools and techniques that will help enterprise architects better execute their work.
- Provides leading practices on cloud integration and digital transformation.

Advanced Metering Systems (161F)
- Provides information and tools for the deployment of next-generation advanced metering systems.
- Leads the industry toward interoperability between advanced metering systems.

Telecommunications (161G)
- Provides insights into the technology risks and opportunities resulting from regulatory rulings.
- Provides leading practices for transitioning the wide area network to packet technologies and for developing best-in-class telecom network management, visualization, and control systems while maintaining reliability, resilience, and cyber security.

Geospatial Informatics (GIS) (161H)
- Provides leading practices for addressing GIS data quality and data management challenges.
- Enables the next-generation of GIS, including the support of immersive 3D environments and the requirements to support advanced distribution planning and modeling applications.

SUPPLEMENTAL PROJECTS

Opportunities beyond the annual research portfolio include:

- Applied Grid Model Data Management (GMDM) for Distribution
- Applied Grid Model Data Management (GMDM) for Transmission
- Assessing the Use of Voice Assistants for Industry
- Business Capability-Based Investment Optimization (BCM Phase II)
- Enterprise Architecture Maturity Assessment
- Evaluation and Economic Feasibility Analysis of Commercial DER Gateways
- Field Asset Unique Identification System
- Grid Modernization Strategic Roadmapping
- Long-Term Evolution (LTE) Security
- Next Generation Metering – Distributed Intelligence
- Next Generation Wireless Local Area Network (WLAN)
- System Development Kit for CTA-2045
- Utility Digital Worker Initiative

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