

Dear ICCS Friends and Colleagues,

Thanks for your continued interest and collaboration in the many projects underway within Information, Communication, and Cyber Security at EPRI. Before you delve into the latest information in this update, there are two items I'd like to call to your attention:

First, a new report from the Vermont Law School Institute for Energy and the Environment called "[Improving the Cybersecurity of the Electric Distribution Grid](#)." Overall many good insights. Section 7 discusses Resiliency Metrics and part of the conclusion states, "The use of metrics to justify and evaluate cybersecurity investments is not currently a common practice. **It must become one ...**" A good point and illustrates the need for tools to enable that common practice. EPRI's Candace Suh-Lee is accelerating our efforts to operationalize our current cyber security framework to help utilities more easily implement the metrics even where there is a limited data set. We expect to start a new targeted project on this effort in the next month – stay tuned or reach out to me for more information.

Next, I would like to recognize our ICT distributed energy resources (DER) standards team (Chuck Thomas, Ben Ealey, Rish Ghatikar, Walt Johnson, and others) who have worked tirelessly to advance standards and protocols for grid edge devices. On Tuesday, April 16, ENERGY STAR released [a new product specification for residential water heaters](#) that includes connected requirements. This new specification requires demand response functions to be embedded into products (not proprietary cloud solutions) and accessed through either CTA-2045-A or OpenADR 2.0b (VEN). If the core requirements of this version are carried through to final, a new precedence for connected devices would be set and discourage the use of proprietary solutions. It's great to acknowledge the EPRI team as a majority of the ENERGY STAR requirements originated through EPRI research and our member guidance.

Sincerely,

Matt Wakefield
Director, ICCS

EPRI Unplugged Podcast

Hear directly from the people producing EPRI's research. [EPRI Unplugged](#) covers power industry news and research in cyber security and renewable energy to augmented reality and nuclear innovation.

Set Yourself Apart

Learn from EPRI|U's Industry-Renowned Experts [100+ Courses Offered Through EPRI|U](#). The ICT and Cyber Security teams are evaluating potential future training we might provide. We expect to send a survey out shortly, so when you see it, please review or forward to your teams so we can get your input.

Can Artificial Intelligence Transform the Power System?

Given the significant interest in the electric power industry, EPRI is already pursuing more than 20 initiatives to explore AI's potential and limitations. Two projects are investigating how AI can support

Upcoming Events

September 9-12

EPRI PDU Advisory and Sector Council Meetings
Nashville, TN

February 10-13, 2020

EPRI PDU Advisory and Sector Council Meetings
Dallas, TX

ICT Webcasts: follow this link to the 161 Cockpit

May 30

Project Set 161D Mid-Year Webcast

June 4

Project Set 161A Mid-Year Webcast

June 5

Technology Transfer Webcast: Assessment of Integrated Energy Technologies Research for DER Value

June 6

Project Set 161C Mid-Year Webcast

June 11

Project Set 161E Mid-Year Webcast

June 12

Interoperability Webcast: DLMS/COSEM

June 20

Project Set 161F Mid-Year Webcast

June 26

Project Set 161G Mid-Year Webcast

July 9

Technology Transfer Webcast: Adaptive Substation Architecture

August 13

Interoperability Webcast: OpenADR

August 15

Technology Transfer

the use of drones for inspecting transmission and distribution infrastructure. Drones can capture far more images of conductors, insulators, and structures than a person on foot or traveling in a truck—especially across rough, roadless terrain. EPRI is evaluating and enabling AI algorithms that can be trained to recognize malfunctioning equipment and examine thousands of images to pinpoint problems requiring repairs—with limited human intervention. Read the entire article in the [current EPRI Journal](#).



Information and Communication Technology (ICT) (P161)



2019 Portfolio and 2018 Annual ICT (P161) Program Review

This 2019 Research Portfolio and 2018 Annual Review provides 2019 research plans and 2018 key research results for the Information and Communication Technology (ICT) Program 161.

For each project set the following information is provided:

- 2018 key deliverables and major accomplishments
- 2019 research emphasis
- A success story specific to that project set
- Listing of all program 161 deliverables from 2018 back to 2014 by
- An updated staff directory

You can download the complete PDF [3002015439](#) or go to the top of the 161-cockpit page

Deliverables:

- 3002015195 [Utility Cloud Integration Guidebook, 4th Edition: A Guide for Enterprise Architects](#)
- 3002016061 [Top Ten Indicators of Enterprise Architecture \(EA\) Maturity - 2018 Results](#)
- 3002016144 [Test Procedure for Validating DNP Application Note AN2018-001 in Distributed Energy Resources: Example Test Procedure for Evaluating Conformance to DNP Application Note AN2018-001 – "DNP3 Profile for Communications with Distributed Energy Resources"](#)
- 3002016335 [Enhancing Grid Resiliency Through Improving Capabilities to Manage Communicating Energy Storage and Solar Systems: Expanding Standards and Developing Tools to Enable DNP3 Support of Storage Use Cases](#)
- 3002008054 [Communication Protocol Mapping Guide 1.0, OpenADR 2.0 to ANSI/CTA-2045-A: Requirements for Exchanging Information Between OpenADR 2.0 Clients and ANSI/CTA-2045 Technologies](#)
- 3002016145 [IEC 61968-5 Distributed Energy Optimization to Open Field Message Bus \(OpenFMB\) Mapping](#)
- 3002016527 [DER Attributes & Representation in Systems of Record: First Edition](#)
- 3002012735 [The Integrated Grid Demonstrations Initiative: 2018 Annual Report](#)

Webcast: Data Analytics for AMI Data

September 19

Interoperability
Webcast: DER Standards Update

November 5

Interoperability
Webcast: CIM Updates

December 17

Interoperability
Webcast: IEC 61850
Interoperability Test

Cyber Security webcasts: follow this [link](#) to the 183 Cockpit

Check it Out

Power Technology Magazine article discusses [EPRI's work](#) on AR with large utilities around the United States as well as other major developments in the space.

An EPRI [white paper](#) was featured in a **Forbes** article on the [limitations of 5G networks for utilities](#). Tim Godfrey is quoted in the article.

The latest edition of the **EPRI Journal** featuring articles on [Machine Learning and Synchrophasor Data](#); [Augmented Reality making people faster at their jobs](#); [How a revised national standard for DER could change the power system](#).

Grid Model Data Management

EPRI's Grid Model Data Management project is helping our utility partners solve the challenges of increasingly complex grid conditions by developing a new architecture for managing distribution network data. This architecture provides an industry answer for the many different and evolving business capabilities required for a fast-changing electric grid.

- 3002014305 [New York Power Authority Integrated Network Model Management Project](#)
- 3002016452 [Common Information Model Primer: 4th Edition \(Spanish Translation\)](#)
- 3002014851 [EPRI Enterprise Architecture Workshop Proceedings: Atlanta, GA Sept. 2018](#)
- 3002015505 [Common Information Model Activities Report: 2018 Results](#)
- 3002013400 [Next Generation Advanced Metering Infrastructure \(AMI\) System Design and Utilization: Case Studies in Utility Innovation](#)
- 3002015355 [Open Source Implementation of a DNP3 Outstation for Distributed Energy Resources: Reference Implementation of a DER Outstation using DNP3 Application Note AN2018-001 \(DOSTAN18\) v1.0](#)



Cyber Security Program (P183)



Cyber Security: Physically Unclonable Functions

This video provides an overview of Physically Unclonable Functions or PUF. These digital fingerprints for electronic devices are used as unique identifiers to authenticate and secure devices. See the complete video on [EPRI YouTube](#).

2019 Portfolio and 2018 Annual CS (P183) Program Review Now Available

The 2019 Research Portfolio and 2018 Annual Review provides 2019 research plans and 2018 key research results for the Cyber Security Program.

Program Overview covering the following:

- Industry Updates
- Integrated Security Operations Center (ISOC)
- Cyber Security Forensics for Industrial Control Systems
- Threat Management
- Passive and Safe Active Identification of Substation Devices
- Cyber Security Compliance
- Security Architecture
- Risk Management – Cyber Security Implications for an Integrated Grid
- Cyber Security Metrics

Download the [complete PDF 3002015440](#) or go to the top of the Program 183cockpit page.

DNP3 SAV6 Research Project Collaboration Site

There is a new collaboration area on the P183 cockpit for the *Dnp3 Sav6* Research Project, containing several guidelines from the DNP User Group. The collaboration site is available for viewing by all Program 183 Cyber Security members.

Click here [DNP3 SAV6 Research Project Collaboration](#) to go to the site or open the Collaboration menu item on the 183 cockpit home page.

See the [video on EPRI's YouTube channel](#).

Greentech Media: Tying Together the Technology Standards Behind DER-Grid Integration

Ben Ealey was quoted in a Greentech Media article focused on how EPRI's new open-source software and standard communications tools are filling interoperability gaps for utilities, smart inverter vendors, and DER aggregators. Read more at [Greentech Media](#).

Unlocking the Benefits of Interoperable Standards

Summit for electric industry stakeholders on advances in smart energy technology. The meeting, held at the Electric Power Research Institute's (EPRI) lab in Charlotte, North Carolina, U.S., featured discussions concerning distribution network model data management, visualizing community energy data, and technical solutions to common problems using interoperable geospatial standards to inform effective future standards development. Read the complete article at [T&D World](#).

Deliverables:

3002016738 [Modernization of the Cybersecurity Program and Implementation of the Integrated Security Operations Center at the Tokyo Electric Power Corporation](#)

3002010607 [DNP3 Secure Authentication](#)

3002015657 [Program on Technology Innovation: Managing Cloud Storage and BES Cyber System Information](#)

Supplemental Project Announcements

3002016796 [EPRI Cyber Security Metrics Operationalization and Benchmarking Pilot](#)

3002016546 [Timing Security Assessment and Solutions: Phase II](#)



Distribution and Transmission Modernization on Data Analytics

3002015828 [IREQ Approach to Smart Meter Data Management and Use Case Investigation](#)



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