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’s Industry-Renowned Experts
100+ Courses Offered Through EPRIU. 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 a project set
- An updated staff directory

You can download the complete PDF 3002015439 or go to the top of the 161-cockpit page

Deliverables:

- 3002016061 Top Ten Indicators of Enterprise Architecture (EA) Maturity - 2018 Results
- 3002016144 Test Procedure for Validating DNP Application Notes 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 ANS/CEA-2045-A: Requirements for Exchanging Information Between OpenADR 2.0 Clients and ANSI/CEA-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.
<table>
<thead>
<tr>
<th>Document Code</th>
<th>Title</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>3002014305</td>
<td>New York Power Authority Integrated Network Model Management Project</td>
<td></td>
</tr>
<tr>
<td>3002016452</td>
<td>Common Information Model Primer: 4th Edition (Spanish Translation)</td>
<td></td>
</tr>
<tr>
<td>3002014851</td>
<td>EPRI Enterprise Architecture Workshop Proceedings: Atlanta, GA Sept. 2018</td>
<td></td>
</tr>
<tr>
<td>3002015505</td>
<td>Common Information Model Activities Report: 2018 Results</td>
<td></td>
</tr>
<tr>
<td>3002013400</td>
<td>Next Generation Advanced Metering Infrastructure (AMI) System Design and Utilization: Case Studies in Utility Innovation</td>
<td></td>
</tr>
<tr>
<td>3002015355</td>
<td>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</td>
<td></td>
</tr>
</tbody>
</table>

**Cyber Security Program (P183)**

**Cyber Security: Physically Unclone Functions**
This video provides an overview of Physically Unclone 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 183 cockpit 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.

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

3002015646 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

You are receiving this email due to your expressed interest in receiving news from EPRI. If you do not wish to receive electronic news from EPRI in the future, please respond to this message with your request. If you wish to update your contact information or manage your TIP program selections, visit EPRI’s website. If you do not have a username and password or are not sure, you may also request an account.