

Dear ICCS Members and Stakeholders,

As we are getting close to the end of, well... an interesting year, there are several items I'd like to highlight. First, we are wrapping up the 2nd year of the 3-year *Cyber Security Strategic Initiative* and have completed a series of engagements and interviews with more than 20 executives to assess our progress on over \$4 Million of investments focused on strengthening our cyber security capabilities and resources as well as gaining an executive perspective on emerging OT Cyber Security issues. The top 5 emerging issues are:

1. Automating Cyber Security Capabilities
2. Supply Chain Risks for Procurement and Installed Equipment
3. Quantifiable Data to Support Risk Model and Decision-Making
4. Cloud Security for Real-Time Systems – Potential Opportunities
5. Cyber Security for Distributed Energy Resources (DER)

Numerous insights and first-hand perspectives were captured. Be sure to download the report [*Cyber Security for the Electric Grid – R&D Progress and Emerging Priorities*](#) to gain insight on the details.

Next, I wanted to let you know there were over 90 Technology Transfer Award Nominations in the Power Delivery and Utilization (PDU) Sector. Nine are in the ICCS area representing 17 utility members – that's pretty impressive! The review process is underway with the EPRI leadership team and Sector Council – always a very competitive process. I have reviewed the 9 ICCS nominations and they are all fantastic! During the Winter Advisory meetings, we will have utility representatives from all the ICCS nominations present how they applied and benefited from EPRI R&D and recognize those accomplishments during a joint ICT, Cyber Security and ICCS Council session March 3rd.

I also want to highlight that EPRI has released the results of a three-year study on the impacts of High-Altitude Electromagnetic Pulse (HEMP) on the bulk power system. We have been

collaborating with utilities on a number of pilot projects to assess specific substation designs and test and evaluate HEMP mitigation measures. Additional work is also ongoing to assess the impacts of HEMP on telecommunication systems, generating facilities, and defense critical infrastructure. [This interim update](#) addresses the status of the pilot projects, provides high-level details on advancements related to HEMP assessment and mitigation, and describes next steps related to EPRI's HEMP R&D. We plan to publish a summary of our findings upon completion of these projects.

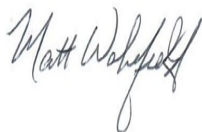
Another item I want to bring to your attention is the growing opportunity for advancing R&D related to digital workers. I'm coordinating with the Transmission and Distribution program areas and members to identify priorities that will shape a joint strategy on the next generation of digital worker R&D projects. On December 9th we held the [Transmission and Distribution Digital Worker Workshop](#). Follow the link for a recording of the event.

My final highlight, EPRI's Grid Model Data Management (GMDM) Vendor Forum launched! For nearly three years, the EPRI Distribution GIS & Grid Model Data Management project has been working collaboratively with eleven utilities on developing an industry approach to the management of grid model data inside the distribution utility. The information architecture resulting from that work is now being vetted, refined and interoperability tested in the recently launched GMDM Vendor Forum project. Software companies participating in the vendor-funded project include Bentley, ESRI, IPS-Energy, Oracle, Safe Software, and Survalent. The goal of the combined projects is an information architecture that can guide utilities in designing effective, enterprise-wide grid model management solutions that can be implemented with interoperable vendor products.

Please continue reading for numerous other highlights from the Information and Communication Technology (ICT) Program (161) and Cyber Security Program (183)

Together... Shaping the Future of Electricity

Sincerely,

A handwritten signature in black ink, appearing to read "Matt Wahjfeld". The signature is fluid and cursive, with the first name "Matt" being more prominent.

Director, ICCS



Information and Communication Technology (ICT) (P161)

EPRI Task Forces: Identifying, Creating and Transferring Value

The Information and Communication Technology program (P161) has launched a new advisory structure going into 2020. In addition to the ICCS Sector council and ICT Advisors group the program is adding project set Task Forces to the advisory structure.

[Learn more](#)



Recent ICT Videos on R&D and Result Summaries

[Resilient Communications Demonstration Project](#)

[Modeling Cyber Security Risks and Controls in ArchiMate](#)

[Supplemental Launch Advancing the CTA 2045 Standards](#)



New Supplemental Project Announcements

[Assessing the Use of Voice Assistants for Industry](#)

[FERC Order 2222 Phase 1: Collaborative Forum, Gap Assessment, and Implementation Roadmap](#)



Recent Research Results

3002018703—[Standing Up the Real Digital Twin](#)

- 3002018509—[Teleprotection Over Packet Guidebook: 2020 Edition](#)
- 3002018510—[FAN Capacity Offload: Selective Use of Higher-band Spectrum](#)
- 3002018636—[Library of Enterprise Architecture Patterns: LEAPworx, 2nd Edition](#)
- 3002018640—[Architectural Impacts of Disruptive Technology](#)
- 3002018639—[Cloud Integration Guidebook, 5th Edition: A Guide for Enterprise Architects](#)
- 3002018516—[Telecommunication Standards Guidebook V2 2020](#)
- 3002018635—[Utility Enterprise Architecture Guidebook, 5th Edition](#)
- 3002018638—[Digital Transformation: Information Technology – Operational Technology Convergence Guidebook: Third Edition](#)
- 3002018508—[6 GHz Interference: Field Test Report](#)
- 3002019705—[Unlicensed Use of the 6 GHz Band – Fixed Service Incumbent : Protection Excerpts and Analysis of FCC Report & Order](#)
- 3002019977—[Private Long-Term Evolution Guidebook: Second Edition 2020](#)
- 3002018992—[Enhanced Grid Modeling Data for Planning and Operations](#)
- 3002019291—[Geospatial Informatics Guidebook](#)
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Follow link to view a list of all currently planned ICT [webcast events](#).

Access ICT webcast presentations and recordings through the EPRI [member center](#).



Cyber Security (P183)

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Recent Cyber Security Videos on R&D and Result Summaries

[Cyber-Physical-Security-Demo for Recloser Control Enclosures](#)

[The Integrated Security Operations Center \(ISOC\) Deliverable](#)

[Cyber Security Analysis of Electric Vehicle Extreme Fast Charging Infrastructure](#)

[Cyber Security for DER Systems](#)

EPRI's Cyber Security Strategic Initiative in partnership with the University of Illinois – Urbana/Champaign and Old Dominion University developed 2 open source software tools, Melody and Urma, targeted to utility OT cyber security needs.

Melody aids in the evaluation of IDS solutions based on utility production environments. Melody provides a tool to emulate utility cyber and power networks and study how an attack scenario plays out in specific OT environments. The output is a dataset that can be used to test different IDS products. That dataset generates an IDS accuracy report tailored to unique OT environments instead of a generalized score reported by vendors. Here is a [brief video](#) that explains more about Melody. Download the tool at this [GitHub link](#).

Utility Risk Mapping and Analysis (URMA). URMA maps potential vulnerabilities and attack paths to a utility's critical OT assets. This tool can be augmented with additional data to deliver analyses that help prioritize vulnerabilities for mitigation and investment plans. URMA supports development of utility remediation plans based on security policies and budgets, operational resilience and cyber risk thresholds. You can watch a [brief video](#) that explains more about this important risk analysis tool for OT cyber security. Download the tool at this [GitHub link](#). Questions about these tools or the Cyber Security Strategic Initiative's work with academic partners, please contact

Christine Hertzog, Principal Technical Leader, Cyber Security Strategic Initiative,
chertzog@epri.com, or 650-314-8111.



New Supplemental Project Announcements

[Metrics Advisory Council \(MAC\)](#)

[Power Delivery Cyber Security Program Assessment](#)



Recent Research Results

3002019056—[Forensics Field Guide: SEL-3530-4 Real-Time Automation Controller](#)

3002018643—[The Integrated Security Operations Center \(ISOC\) Video](#)

3002019733—[Implementing Intrusion Detection/Prevention Systems for Power Delivery Systems: Advanced Techniques](#)

3002018546—[Threat Automation Use Cases](#)

3002019252—[Cybersecurity Architecture for Microgrid Integration: Security Architecture Recommendations for Utility and Customer-owned Microgrid Systems](#)

3002019559—[Smart Inverter Hardware Security: Utilizing Trusted Platform Module \(TPM\) for Secure Communication](#)

3002019558—[Smart Inverter Hardware Security: Utility Procurement Guide](#)



Cyber Security Webcast Dates January - December 2020

Follow link to view a list of all currently planned [webcast events](#)

Access webcast presentations and recordings through the EPRI [P183 member center](#)

Program 183: Cyber Security for Power Delivery and Utilization Training Courses



[Cyber Security Fundamentals for Procurement Professionals –Role-based Training](#)

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