

INFORMATION, COMMUNICATION & CYBER SECURITY NEWSLETTER

Dear ICCS Advisors and Stakeholders,

Happy New Year! I hope 2015 has begun well for you. Here at EPRI, 2015 has started with a great deal of positive energy (pun intended) and we are looking forward to an exciting and productive year. Before we jump into 2015, I would like to reflect on the accomplishments of 2014. We have a strong member collaborative with over 60 utilities around the world participating in our research. Highlights and updates from those collaborations have just been published in our Annual Reviews for both the Information & Communication Technology (ICT) and Cyber Security Research programs.

January 2015

In this Newsletter

[ICT Program \(161\)](#)

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The 2014 Annual Reviews highlight over 30 deliverables, Success Stories with Members applying EPRI's Research at their utility, and updates to projects and related references.



ICT Annual Review - Success Stories:

- Utility Immersion into Enterprise Architecture Optimizes Business Efficiency
- Improving Transmission Network Model Management
- Common Information Model Unites the Language of the Utility Industry
- Utilities Leverage the CEA-2045 Standard to Carry Out Demand Response Trials



Cyber Security Annual Review - Success Stories:

- Cyber Security Working Group – Risk Mitigation and Business Cases
- Cyber Security Technologies – DNP3 Secure Authentication
- Risk Management in Practice



We will have a strong contingency of EPRI staff at [DistribuTECH](#), (Booth #4217) and will also be well represented with a rich set of EPRI presentations for various conference tracks.

Example EPRI Presentations include (and there are many more...):

Tuesday February 3rd:

- [Wearable Computing: Fundamentally Altering How Utility Work is Accomplished](#). Gerald Gray, PhD, EPRI
- [GIS as a Wide-Area Situational Awareness Platform](#). John Simmins PhD, EPRI
- [Integrated Network, System and Security Management for Operations Systems](#). Ralph King, EPRI

Wednesday February 4th:

- [Renewables, Transmission and Policy Track: Utility Cornerstone: Next-Generation Planning and Operations Network Model Management](#). Pat Brown, EPRI
- [Smart Distribution Management Track: Determining the Benefits of Volt-VAR Optimization Projects: Case Studies of Different Methods Available](#). Jared Green, EPRI

Thursday February 5th:

- [Demand Response and Energy Efficiency Track: Creating Demand Response-Ready Products for Mass Market](#). Brian Seal, EPRI
- [Defending the Grid Track: Standards Update from IEEE Substations Committee on Cyber and Physical Security](#). Scott Sternfeld, EPRI

We look forward to seeing you in San Diego in a few weeks!

Keep reading for additional updates from each of the program areas - news articles, recent deliverables and upcoming events.

I look forward to your continued engagement next year striving to achieve EPRI's vision
"Together.....Shaping the Future of Electricity"

Sincerely,

A handwritten signature in blue ink that reads "Matthew P. Wakefield". The signature is written in a cursive style.

Matt Wakefield
Director, Information, Communication and Cyber Security Research



Recent Articles with Contributions from EPRI Staff

[NYPA Pilots Advanced Power System Protection](#) – Setting-less protection moves away from prior pattern-recognition to dynamic representation of the protection zone. Transmission and Distribution World – January 2015 Article, Co-authored by Paul Myrda, EPRI



[Mobile Workforce Using Augmented Reality – Plugging Workers into Data Analytics and Information Technologies](#) Energy Today Magazine, December 2014, by John Simmins, Ph.D, EPRI

CIOReview

[An Integrated Grid at the Intersection of IT and OT](#)
CIO Review Magazine, January 2015 by Matt Wakefield, EPRI

Deliverable Highlights

Common Information Model (CIM) for Network Analysis Data Management

A second guide in the *CIM Primer* series is now available to the public on the EPRI website, www.epri.com. EPRI report 3002002587, [Using the Common Information Model for Network Analysis Data Management](#), provides a comprehensive introduction to the Common Information Model (CIM) approach to managing high-quality network analysis models.

Today, smarter operation of the power grid means greater dependence on network analysis at the bulk power level for planning, reliable operation, and energy markets and at the distribution level for engineering and distribution operations. The number of network analysis cases being run is skyrocketing, and the challenge of supplying accurate models on a timely basis is daunting. This latest *CIM Primer* guide explains how the International Electrotechnical Commission (IEC) 61970 CIM standard builds a solid and flexible foundation for the effective creation, maintenance, and exchange of network model information to support the needs of network analysis applications.

The guide explores the characteristics of network model information and discusses a reference architecture for model management. The use of CIM classes, attributes, and relationships for the

creation, maintenance, and sharing of model parts is reviewed in detail, illustrated by Unified Modeling Language (UML) model diagrams. Finally, the guide describes the design of CIM-based frameworks to aid in the assembly of model parts into cases tailored for specific study needs and examines a typical grid framework.

Written primarily for power system engineers who maintain network models or use network analysis, the guide is intended to provide utilities with a sense of what CIM technology can accomplish to improve network analysis. The guide complements an earlier guide, the [IntelliGrid Common Information Model Primer](#) (EPRI report 3002001040, published October 2013).

New EPRI Open-Source OpenADR Library Released

EPRI has released a new Open Automated Demand Response (OpenADR) open-source software library that may be used to build demand response clients for embedded systems conforming to the OpenADR 2.0b specification. Written in C++, the toolkit is available for download from SourceForge.com at <http://sourceforge.net/projects/openadrvnclibrary/>. For more information contact Walt Johnson (hwjohnson@epri.com) or Chuck Thomas (cthomas@epri.com).

Upcoming Webcasts

(Details are available in the [Member Center](#) under the ICT Cockpits)

20-Jan-2015 ICT Program Project Set 161A End of Year Webcast
23-Jan-2015 ICT Project Set 161B End of Year Webcast
27-Jan-2015 ICT Program Project Set 161E Webcast
28-Jan-2015 ICT Program Project Set 161F Webcast
29-Jan-2015 ICT Program Project Set 161C End of Year Webcast

Recent ICT / IntelliGrid (161) and Related Demonstration Deliverables

Title	Published
DER Enterprise Integration: Interoperability Workshop Results	31-Dec-14
Guidebook for Advanced Metering Infrastructure Prognostics and Health Management	23-Dec-14
Demand Response-Ready Heat Pump Water Heater Specification: Preliminary Requirements for CEA-2045 Field Demonstration	22-Dec-14
The Economics of DR-Ready Products	22-Dec-14
The Impact of EPRI's Automated Demand Response Collaborative on Advancing OpenADR Standards	18-Dec-14



Recent Articles with Contributions from EPRI Staff

[From Research to Action: Integrated Security Operations Centers: Advanced Security Monitoring and Threat Management](#)

Electric Energy T&D Magazine, Ralph King, EPRI



Recent Cyber Security (183) Program Demonstration Deliverables

Title	Published
Network System Management: Implementations and Applications of the IEC 62351-7 Standard	23-Dec-2014
Guidelines for Integrating Control Center Systems Into an Integrated Security Operations Center	23-Dec-2014
DNP3 (IEEE Std 1815TM) Secure Authentication: Implementation and Migration Guide and Demonstration Report	22-Dec-2014
Guidelines for Justifying Risk-Based Cyber Security Control Projects for Utility Business Units	22-Dec-2014
Lemnos Implementation Guide for IPsec: Device Configuration Examples	16-Dec-2014



Recent Deliverables from the Smart Grid Demonstration Initiative

Name	Published
Cross-Utilization: Managing Multiple Technologies and Applications on a Distribution System	31-Dec-2014
A Case Study on Deferring Asset Investment with Distributed Energy Resources: Ergon Energy Smart Grid Demonstration	31-Dec-2014
Analysis of Alabama Power Conservation Voltage Reduction (CVR) Tests: Southern Company Smart Grid Demonstration	31-Dec-2014
A Case Study on the Power Quality Impact During Peak-Time Voltage Reduction at Georgia Power – A Southern Company	31-Dec-2014
A Case Study on Self-Healing Networks at Southern Company: EPRI Smart Grid Demonstration Initiative	31-Dec-2014
Case Study on the Revenue Protection Software: Sacramento Municipal Utility District Smart Grid Demonstration	31-Dec-2014
A Case Study on Evaluating the Protection Impacts Associated with the Integration of a Wind Park on the Distribution System at Hydro-Québec: Hydro-Québec Smart Grid Demonstration	19-Dec-2014
A Case Study on Evaluation of Solutions for Limiting Transformer In-rush Currents of a Distribution Connected Wind Park: Hydro-Québec Smart Grid Demonstration	18-Dec-2014

Upcoming Events	Dates
DistribuTECH, EPRI Booth #4217, San Diego, CA	Feb 3-5
EPRI Power Delivery and Utilization Advisory Meetings, Phoenix, AZ	March 2-4
EPRI Power Delivery and Utilization Sector Council Meetings, Phoenix, AZ	March 4-5
EPRI ICCS European Engagement Summit, Madrid Spain (Save the Date)	April 28-29
EPRI Smart Distribution & Power Quality Conference and Expo, Columbus, OH	June 22-24

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