EPRI | ELECTRIC POWER RESEARCH INSTITUTE

Information, Communication and Security Technology Newsletter

EPRI Update on ICT Research from the Cyber Security and IntelliGrid Programs and Related Demonstrations **May 2014**

About the Newsletter

Dear Information & Communication Technology (ICT) Stakeholders,

Welcome to the spring 2014 ICT newsletter. Our team has been engaged in a number of research activities, and in this newsletter, I primarily focus on updating where our team has been highlighted in the media, and how to access EPRI information.

Are you familiar with the EPRI Member Center and the Cockpits? If not, keep reading. This is your most valuable resource, enabling you to access EPRI reports, register for webcasts and get updates from each research program. Pages 2 & 3 provide an overview of the Member Center, including a list of the "Top Products" (the most frequently downloaded deliverables) and information on reports that have been recently published.

I also highlight our recent Smart Grid Demonstration Advisory meeting hosted by Hawaiian Electric Company and its subsidiary Maui Electric Company. Their Smart Grid Demonstration is an exciting project where they are "living" renewable integration, and we can all learn from their efforts.

Lastly, as we are all very busy, don't forget to review our "Key Dates" section on page 5 and register for any events you are interested in before hotel block rates expire.

That is all for now, I hope you enjoy!

Sincerely,

Matt Wakefield, Director, ICT
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Contents

IN THE NEWS…

Over the last couple months, the EPRI ICT team has contributed to publications or been interviewed on a variety of topics. Here are some highlights.

Cyber Security Related News

The Recent EPRI Report - "Guidelines for Planning an Integrated Security Operations Center," have resulted in a few articles. Download the report here.

METERING.COM

Galen Rasche, Senior Program Manager at EPRI talked with Metering.com about the report describing the process of developing and implementing an Integrated Security Operations Center (ISOC).

http://www.metering.com/how-utilities-can-fight-physical-and-cyber-attacks/

In addition, Electricity Energy Online and Smart Grid News published articles on this report Click on the icon to view articles.

Electric Energy ONLINE.com **SmartGridNews.com** — News & Analysis for the modernization and automation of electric power

The U.S. Department of Energy (DOE) has posted a joint EPRI-DOE report on energy.gov. The report is *Integrating Electricity Subsector Failure Scenarios into a Risk Assessment Methodology*. This technical update provides guidance to utilities on developing and implementing a risk-assessment process using the failure scenarios developed by the National Electric Sector Cybersecurity Organization Resource (NESCOR) program. NESCOR is a DOE-funded public-private partnership led by EPRI.

DOE also has released a new cyber security requirements document developed through government and industry collaboration, including EPRI. This is the first comprehensive cyber security requirements document published by DOE since 2009. The DOE press release and a link to the document, *Cybersecurity Procurement Language for Energy Delivery Systems*, are available on energy.gov.

Annabelle Lee, Senior Technical Executive, was interviewed on a variety of cyber security topics by E&E publishing, by Inside Cybersecurity, and by the San Francisco Chronicle.

From Research to Action – EPRI ICT Council Article Contributions

The EPRI ICT Council members, made up of utility CIO's and IT/Security leaders, are contributing to a series of articles in Electric Energy T&D Magazine. The most recent article Communication Research and Actions to Enable the Future Electric Power System was authored by Matt Wakefield, Director, EPRI, Joe Nowaczyk, Director, Salt River Project and Jason Handley, Director, Duke Energy.

IntelliGrid Related News

Brian Seal, Technical Executive, authored an article in Electricity Today on "Taking metering technologies to the next level."

ELECTRICITY Today — North American Policies and Technologies — Transmission & Distribution — Est 1986

intelligentutility® — WHERE THE SMART GRID MEETS BUSINESS AND REALITY

John Simmins, PhD, Technical Executive, Gerald Gray, PhD, Principal Technical Leader & Norm McCollough, Technical leader contributed to an article on Augmented reality: from eclectic history to today's electricity in Intelligent Utility magazine.

SmartGridNews.com wrote an article on Utilities: Why you may be negligent about your GIS (and a program that can help) – this article references the IntelliGrid work and coordination with DTE Energy.

Smart Grid Demonstrations Related News

Gerald Gray, PhD, wrote a commentary for Intelligent Utility about the Ergon Energy smart grid demonstration project focusing on efforts to address the challenges of integrating solar power into the grid – Ergon Energy meets challenges.

Matt Wakefield was interviewed by Utility Horizons Quarterly on The EPRI Smart Grid Demonstration Initiative: 5 Years and Counting….

EPRI "MEMBER CENTER" - THE "GO TO" PLACE FOR PROGRAM UPDATES

By Matt Wakefield

If you are relatively new to EPRI or if you just aren't sure where you go to find the latest information on EPRI including what programs you are participating in, the EPRI Member Center is the place to go. Each individual program also has its own "Cockpit" where you can get specific information about the status of each program area.

You can get to the cockpits from the public web page (www.epri.com) and follow the link for members [Go To Member Login]

From here you can subscribe to your favorite cockpits, learn what projects you are funding and subscribe to get weekly updates. Here are some of my favorite cockpits (but they are all good!).

I highly recommend you subscribe to your favorite updates since we are striving to have nearly all program updates communicated through the cockpits and it is a good way to get a weekly update in case you missed an email or two.

There are a number of features in the cockpits that are very helpful. One relatively new feature is the ability to see "Top Products." This enables you to see the most downloaded reports from each program area. Below is a list of some of the most frequently downloaded research reports from the ICT area.

Top Products – Most Frequently Downloaded

IntelliGrid Program

IntelliGrid Common Information Model Primer: Second Edition

Monetizing the Geospatial Information System (GIS): The Value of GIS Data Quality for Electric Utilities

Distributed Energy Resources and Management of Future Distribution

Cyber Security Program

Cyber Security Procurement Methodology for Power Delivery Systems

Intrusion Detection System for Advanced Metering Infrastructure

Advanced Metering Infrastructure Security Objects

Cyber Security Strategy Guidance for the Electric Sector

Smart Grid Demonstration Initiative

EPRI Smart Grid Demonstration Initiative 5-Year Update

Guidebook for Cost/Benefit Analysis of Smart Grid Demonstration Projects

Quantifying the Impacts of Time-Based Rates, Enabling Technology, and Other Treatments in Consumer Behavior Studies: Protocols and Guidelines
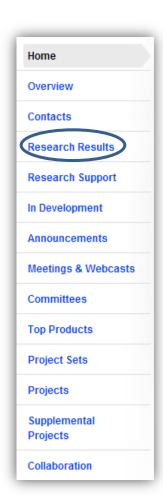
Estimating the Costs and Benefits of the Smart Grid

Automated Demand Response and Ancillary Services Demonstration

OpenADR 2.0b Open Source Virtual End Node - VEN v0.5.0

OpenADR 2.0 Open Source Virtual Top Node

OpenADR Technical Workshop DVD – 6.19.2013

Research Results – Quick Access to Recent Publications

In this newsletter, I frequently reference recent publications. The easiest place for me to get that information is also the easiest place for our members – In the cockpits under Research Results.

IntelliGrid Program

Performance Assessment of G3-PLC for Smart Grid Applications	23-Apr-2014
CIM Update for 2013	15-Apr-2014
IntelliGrid Newsletter, March 2014	31-Mar-2014
CEA-2045 Laboratory Device Testing: Duke Energy, EnergyWise Lab	21-Feb-2014
Common Functions for Smart Inverters, Version 3	21-Feb-2014

Cyber Security Program

Cyber Security Procurement Language for Energy Delivery Systems	29-Apr-2014
Cyber Security and Privacy Industry Tracking Newsletter: April 2014	15-Apr-2014
Cyber Security and Privacy Industry Tracking Newsletter: January 2014	14-Jan-2014
Integrating Electricity Subsector Failure Scenarios into a Risk Assessment Methodology	31-Dec-2013

Smart Grid Demonstration Initiative

Smart Grid Demonstration Newsletter Feb-Mar Edition	March 2014
Smart Grid Training #10 DVD - Cost Benefit Analysis for the Smart Grid	27-Feb-2014
A Case Study on the SMUD Residential Summer Solutions Pilot Project: Sacramento Municipal Utility District Smart Grid Demonstration	12-Feb-2014
Hydro-Quebec Smart Grid Host Site Progress Report: For the Period Ending October 2013	05-Feb-2014

Automated Demand Response and Ancillary Services Demonstration

OpenADR 2.0b Open Source Virtual End Node - VEN v0.5.0	19-Feb-2014
OpenADR 2.0 Open Source Virtual Top Node	19-Feb-2014

Distribution and Transmission Modernization Demonstrations on Data Analytics (DMD & TMD)

Note: The Cockpits for the DMD and TMD are under construction and will be available soon. Here are the most recent reports

Data Analytics Newsletter on DMD and TMD	April 2014
Data: The Most Valuable Asset that an Electric Service Provider Owns	17-MAR-2014
Transmission Modernization Demonstration: Catalog of Data Intensive Applications for Transmission Systems	20-Dec-2013
EPRI Big Data Survey Summary Report	05-Dec-2013
Data Governance and Utility Analytics Best Practices: ID 3002003006	Coming in May
Third-Party Applications for DMD: Catalog of External Sources for Distribution Systems: ID 3002002279	Coming in May
Risk Assessment Methodology for Data Analytics: ID 3002003171	Coming in May
Assessment of AMI Applications with High-Value: ID 3002003173	Coming in May

The EPRI Smart Grid Demonstration Initiative is a seven-year collaborative research effort focused on design, implementation, and assessment of prevalent challenges with integrating all types of distributed energy resources (DER). Additional information is available in www.smartgrid.epri.com or contact Gale Horst at ghorst@epri.com.

Hawaiian Electric Company (HECO) and Maui Electric Company (MECO) Host Spring Smart Grid Demonstration Advisory Meeting

There are 24 electric utilities from 6 countries participating in smart grid collaborative demonstration, and the spring advisory meeting was a fantastic opportunity to learn about one of those demonstrations in Hawaii. HECO and subsidiary MECO are living the realities of increasing penetration of renewable generation. As an example, in 2013, 18% of the energy used by the Hawaiian Electric Companies' customers came from renewable sources – twice as much as in 2008.

This was one of the final two meetings of the Initiative, with the final meeting scheduled for October 27-29th in Charlotte, NC. It will be coordinated with the U.S. Department of Energy to share lessons learned from smart grid projects around the world over the last seven years.

From an ICT perspective, some of the emerging challenges associated with integrating DER include having a supporting communications infrastructure that can securely and reliably communicate with resources, whether utility or customer owned. Some of the emerging successes are related to advances in standards and protocols that are now being applied for managing DER. Examples include OpenADR 2.0b, DNP3, IEC 61850, and the Common Information Model (CIM) among others. Although standards for DER have been advanced significantly in the last few years due in large part to NIST smart grid efforts, many early projects deployed prior to 2011 were not able to take advantage of them since they were under development. This is a very good connection to the IntelliGrid / Information & Communication Technology (ICT) Project set "D" "P161D – ICT for DER/DR." Related to that connection, Gale Horst will be managing this project set in 2015, which is a very good transition from his leadership in the Smart Grid Demonstration initiative, which is all about integrating DER.

As we identify common lessons among smart grid deployments from our research, we are working with the utility members to complete more than 20 additional case studies, adding to the 22 case studies documented in the Four-Year Update and the Five Year Update reports. Additional information on this project can be found here: http://smartgrid.epri.com/Demo.aspx or contact Gale Horst, the Smart Grid Demonstration Manager at ghorst@epri.com.

May 22-23, 2014, EPRI Data Analytics Spring Advisory Meeting, Charlotte, NC

Members of the EPRI Distribution and Transmission Modernization Demonstrations (DMD and TMD) and invited guests, please join us in Charlotte North Carolina for the Spring 2014 Data Analytics for Distribution and Transmission Modernization Advisory Meeting. The Advisory Council reviews the progress of ongoing research and demonstrations within this collaborative research area, identifies emerging areas of interest, and prioritizes the research efforts to meet the data and analytics related needs of the electric power industry. The meeting also provides an excellent opportunity to exchange information and experiences with your industry peers and to identify analytics and data related opportunities for your company.

Important note: The Coca Cola 600 is May 24th and 25th, so be sure to book your hotel room early!

Click here to register or for more information, contact Doug Dorr, Program Manager for the DMD (ddorr@epri.com) or Dr. Alberto Del Rosso, Senior Project Manager for the TMD (adelrosso@epri.com).

July 14-16, 2014, EPRI Smart Distribution and Power Quality Conference and Exhibition, Charlotte, NC

The Electric Power Research Institute (EPRI) and Duke Energy (Duke) invite you to the 2014 EPRI Smart Distribution and Power Quality Conference and Exhibition in Charlotte, North Carolina on July 14-16. The conference will focus on how utilities are defining the future of the grid by addressing the challenges of today. The conference will provide a forum for electric power end users, distribution engineers and project managers, reliability and power quality professionals, and related technology manufacturers to gather, share experiences, and learn from one another in a collaborative environment.

The week of events will also include pre-conference tutorials or EPRI lab tours. In addition, two post-conference tours of Duke facilities will be offered. The areas of focus for the 2014 conference include:

- Power quality
- Cyber security
- Distribution grid modernization
- Information and communications technology

Click here for more information and to register.

September 8-10, 2014, EPRI Power Delivery & Utilization (PDU) Advisors Meeting, Nashville, TN

The EPRI Power Delivery and Utilization Advisory Councils review the progress of ongoing research within their respective collaborative R&D programs. For ICT Stakeholders, the two key programs of interest are the Cyber Security and Privacy Program (P183) and the IntelliGrid Program (P161). Utility advisors are encouraged to participate in these twice-a-year meetings as a benefit of your EPRI membership. Click here for more information.

September 10-11, 2014, EPRI Power Delivery & Utilization (PDU) Sector Council Meeting, Nashville, TN

The Power Delivery and Utilization (PDU) Sector Council advises EPRI management and staff on the technical content, strategic planning and future direction of the Power Delivery & Utilization research portfolio. Sector Councils are comprised of 40-60 executives from member companies, usually at the Director or Vice President level. The Sector Council meetings follow the Program Advisory meetings, with meetings Wednesday afternoon and all day Thursday, including a welcome reception on Wednesday evening. . Membership is by invitation of the Sector Vice President with guidance from the Power Delivery & Utilization Sector Executive Committee. To be eligible, companies must be broadly engaged in EPRI's Power Delivery & Utilization Sector activities. Power Delivery & Utilization Sector Council members are invited to also attend the preceding Program Advisory meetings September 8-10, 2014. Click here for more information.

October 27-29, 2014, Smart Grid Demonstration Conference, Charlotte, NC

The last meeting of the Smart Grid Demonstration Initiative is being conducted with the U.S. Department of Energy and will focus on:

- Smart grid successes
- Technology readiness
- Surprises & challenges

Development of the program is underway and Smart Grid Demonstration Initiative participants will be emailed agenda details in their an invitation to this meeting. For more information contact Gale Horst at ghorst@epri.com.

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