

NIST Smart Grid and Cyber-Physical Systems Newsletter

April 24, 2015

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Grid 3.0 Workshop on March 26-27, 2015 Identifies Key Issues for Emerging Grid

Leaders from industry, government, and academia gathered at a March 26-27, 2015, workshop at NIST in Gaithersburg, Maryland, to identify and develop action plans to address critical challenges facing the electricity sector over the next three to five years. This workshop is part of a collaborative “Grid 3.0” planning process being organized by NIST and seven other organizations representing various segments of the electricity sector.

The Grid 3.0 planning process began five months ago with the [“Electricity Sector Issues Roundtable: Grid 3.0 and Beyond”](#) (held at NIST-Gaithersburg on November 13, 2014). The process will continue in the months ahead, as the priority actions identified in last month’s workshop are further developed and incorporated into a roadmap for addressing the challenges.

Keynote speaker Pat Hoffman (Assistant Secretary for the Office of Electricity Delivery and Energy Reliability, DOE) set the stage for the workshop with her keynote address. Additional opening remarks were offered by Chris Greer (Director of the Smart Grid and Cyber-Physical Systems Program Office, NIST) and Carl Imhoff (Electricity Infrastructure Sector Manager, Pacific Northwest National Laboratory, DOE). The workshop’s format—a mix of invited panels and a breakout session—enabled the nearly 100 participants to each provide input.

The following key topics were addressed:

- Enabling New Entrants and Innovation
- Impact of Technology and Flexible Resources
- Enhancing Reliability and Resiliency
- Enabling New and Evolving Markets
- Architecting the Change
- Evolving Industry Structure

More details about March 26-27 the workshop are [available online](#), including links to the webcast archive, the agenda, and many of the presentations.

The Grid 3.0 planning process began five months ago with the [“Electricity Sector Issues Roundtable: Grid 3.0 and Beyond”](#) (held at NIST-Gaithersburg on November 13, 2014). In the months ahead, the Grid 3.0 Organizing Committee, which includes NIST’s Chris Greer and Dave Wollman, will drive the ongoing work of the Grid 3.0 process, including the following activities:

- Refine the key themes from the workshop
- Develop aspirational “future statements” for each theme

- Conduct a gap analysis (identifying which organizations are working in this space, what relevant work is being done by each organization, and what is missing)
- Develop action plans around priority gaps

The next event in the Grid 3.0 process will be a public webinar, hosted by the Smart Grid Interoperability Panel (SGIP), on May 12 at 1 p.m., EDT. The webinar will provide an overview of the results from the March 26-27 workshop, as well as a look ahead at next steps. [Details and registration are available online.](#)

Workshop on March 24-25, 2015, Lays Groundwork for NIST Transactive Energy Challenge

Transactive Energy (TE), a subject of great current interest in the energy sector, refers to techniques for managing the generation, consumption, or flow of electric power within an electric power system through the use of economic or market-based constructs while considering grid reliability constraints. As the electric power grid transforms to integrate increased use of distributed energy resources (such as wind and solar energy) and to give customers more choice and control in their use of energy, the concept of transactive energy is likely to play a key role.

The goal of the workshop was to help design a “Transactive Energy Challenge” that will be launched by NIST later this year. The Challenge process will involve the formation of teams around key smart grid TE use cases (i.e., the problems) and the use of modeling and simulation tools to find solutions. Organizers anticipate that the Challenge will speed development of the simulation tools and platforms that will be essential in the coming decade as scientists, engineers, and policy makers explore the impact of alternative ways to create and operate TE systems.

On the opening morning of the workshop, participants received an overview of transactive energy issues from a variety of perspectives—from technical to regulatory to economic. They then learned about grid modeling and simulation efforts currently under way at four academic and federal national laboratories. Through a series of breakout sessions during the second half of the workshop, the attendees identified goals and objectives for the TE Challenge.

[Workshop details, including links to PDFs of presentations, are available online.](#)

Over the next several months, the details of the Challenge will be finalized, and the TE Challenge will be unveiled and announced later this year. For more information, please contact David Holmberg at NIST (david.holmberg@nist.gov).

CPS Public Working Group Workshop on April 7-8, 2015, Discusses Pre-draft CPS Framework

The second face-to-meeting of the NIST CPS Public Working Group (PWG) was held on April 7-8, 2015, at NIST in Gaithersburg, Maryland. Experts from academia, government, and industry gathered to review the working draft integrated CPS Framework being developed in phase two of the CPS PWG. The workshop also served as the launchpad for phase three of the CPS PWG, which will focus on improvements to the draft CPS Framework and roadmapping to identify opportunities for coordinated work to address key technical challenges.

The first morning of the workshop featured a series of five presentations from the CPS Reference Architecture Subgroup. The four other subgroups—Cybersecurity, Timing, Data Interoperability, and Use Cases—then summarized their work to date and gave their perspectives on the draft integrated CPS Framework.

The workshop format then shifted to breakout sessions that gave participants an opportunity to engage in developing several specific application scenarios in order to “test drive” the Framework, which is currently in a “pre-draft” version. Finally, the participants turned their attention to roadmapping, the next phase of the PWG process. Throughout the workshop, there were many vigorous discussions on the reference architectural

concepts, and valuable input was received to help improve the draft Framework.

Workshop details, including the [agenda](#) and [links to PDFs of presentations](#), are available online. Many of the key presentations sessions were [webcast and are now available online.](#)

In the coming months, the CPS PWG will use the workshop input and continuing discussions to produce a draft CPS Framework, which will be released in the summer for public comment.

The CPS Public Working Group (CPS PWG) was established by NIST in 2014 to foster and capture inputs from those involved in CPS, both nationally and globally, to help create a foundation for CPS advances across multiple “smart” domains. Realizing the future promise of CPS will require interoperability between elements and systems, supported by new reference architectures and common vocabularies. Addressing the problems and opportunities of CPS requires broad collaboration to develop a consensus around these concepts, and a shared understanding of the essential roles of timing, cybersecurity, and data. For more information about the PWG and its five subgroups, [visit the CPS PWG collaboration website](#).

“Cybersecurity for Smart City Infrastructure” Workshop – May 27-28, 2015, at NIST in Gaithersburg, Maryland

The Designed-in Cybersecurity for Smart Cities Workshop is being jointly held by NIST and the Cybersecurity Research Alliance (CSRA). This workshop responds to the needs of communities around the world—from small towns to megacities—that are turning to smart city solutions to improve livability, workability, and sustainability. Essential to the success of these efforts are smart city solutions that are secure, reliable, and privacy-enhancing.

This workshop will foster collaborative discussion on how cybersecurity and privacy engineering might be designed into the infrastructure of a new generation of smart cities. To this end, the panel and breakout sessions provide opportunities for discussions about architectures (from the city or enterprise perspective), standards, privacy, and research and development. The goals are to identify short-, mid-, and long-term strategies for research and development (R&D) that enable transformative solutions for secure, privacy-preserving smart cities. [The full agenda and registration details are available online.](#)

Global City Teams Challenge Festival Planned for June 1, 2015, in Washington, D.C

The culminating event of this year’s Global City Teams Challenge (GCTC) is coming on June 1, 2015, in Washington, D.C. Save the date! [Details are available on the US IGNITE website.](#)

SGIP Update

Cybersecurity Webinar held on April 23, 2015

This webinar provided an overview of the Cybersecurity Capability Maturity Model (C2M2), a program from the U.S. Department of Energy (DOE) that is helping to enhance the security and resilience of critical infrastructure. The model, as discussed by DOE’s Jason Christopher, provides a mechanism that helps organizations evaluate, prioritize, and improve cybersecurity capabilities. Over 130 attendees registered for the webinar. The diverse

participants—from five continents—represented utilities, state regulatory commissions, manufacturers, national labs, and federal/national agencies. The webinar also included an update from the SGIP Smart Grid Cybersecurity Committee Chair, NIST's Vicky Pillitteri, on the committee's activities and the NIST Cybersecurity Framework. [A recording and PDF of the webinar presentation is archived online.](#)

Grid 3.0 Update Webinar to be held on May 12, 2015, at 1:00 p.m. (EDT)

See Grid 3.0 article above for more details.

SGIP Annual Conference to be held in New Orleans, November 3-5, 2015

[Preliminary program details are now available online.](#)