Office of Science & Technology

Smart Grid Visit of the Austrian Delegation to the United States

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National Institute of Standards and Technology

http://www.nist.gov/index.html

Founded in 1901, NIST is a non-regulatory federal agency within the U.S. Department of Commerce. NIST's mission is to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life.

NIST carries out its mission in four cooperative programs:
- the NIST Laboratories, conducting research that advances the nation's technology infrastructure and is needed by U.S. industry to continually improve products and services;
- the Baldrige National Quality Program, which promotes performance excellence among U.S. manufacturers, service companies, educational institutions, health care providers, and nonprofit organizations; conducts outreach programs and manages the annual Malcolm Baldrige National Quality Award which recognizes performance excellence and quality achievement;
- the Hollings Manufacturing Extension Partnership, a nationwide network of local centers offering technical and business assistance to smaller manufacturers; and
- the Technology Innovation Program, which provides cost-shared awards to industry, universities, and consortia for research on potentially revolutionary technologies that address critical national and societal needs.

NIST's core competencies compile of measurement science, rigorous traceability and the development and use of standards.

Smart Grid Interoperability Standards Project

http://www.nist.gov/smartgrid/

The mission of the Office of Electricity Delivery and Energy Reliability is to lead national efforts to modernize the electric grid; enhance security and reliability of the energy infrastructure; and facilitate recovery from disruptions to energy supply.

Under the Energy Independence and Security Act (EISA) of 2007, the National Institute of Standards and Technology (NIST) has "primary responsibility to coordinate development of a framework that includes protocols and model standards for information management to achieve interoperability of smart grid devices and systems…"

As specified in the American Recovery and Reinvestment Act (ARRA), NIST will receive $10 million through the Department of Energy (DOE) to carry out responsibilities assigned under EISA. In addition, NIST is allocating $5 million in ARRA funding for this purpose. The funding supports collaborative efforts to develop a comprehensive framework for a nationwide, interoperable Smart Grid for the U.S. electric power.

The Smart Grid will be key to national efforts to further energy independence and curb greenhouse gas emissions, and NIST is carrying out its responsibilities with a sense of urgency. With industry, government, and consumer stakeholders, NIST is expediting

identification and development of standards critical to achieving a reliable and robust Smart Grid.

NIST is well-suited for this role. The agency has earned a reputation as an "honest broker"—an impartial, technically knowledgeable third party with a long history of working collaboratively with industry and other government agencies. These partners include DOE and the Federal Energy Regulatory Commission (FERC).

Cuong Nguyen

Smart Grid Program Manager

Cuong Nguyen joined the National Institute of Standards and Technology in May 2010 as a Program Manager in the Office of the National Coordinator for Smart Grid Interoperability. As a Program Manager, he manages the NIST Smart Grid Advisory Committee (SGAC) and provides management and administrative support in the Smart Grid Office. The SGAC was established provide input to NIST on the Smart Grid Standards, Priorities and Gaps, and on the overall direction, status and health of the Smart Grid implementation by the Smart Grid industry, including identification of issues and needs.

Cuong has over 12 years of budget, policy, program management, and strategic planning experience in the Federal government. Prior to NIST, he was a Program Analyst in the Office of the Director, Division of Lung Diseases, National Heart, Lung, and Blood Institute of the National Institutes of Health. As a Program Analyst, Cuong advised scientific staff on regulatory, policy, and procedural matters related to grant solicitations and funding. He participated on strategic planning efforts and programmatic reviews. He coached new scientific staff on policies and procedures that pertained to extramural program management.

Cuong holds a Bachelor of Science degree in computer science from the University of Maryland University College.

Dean Prochaska

National Coordinator for Smart Grid Conformance

Dean Prochaska joined the National Institute of Standards and Technology in April 2009 and is serving as the National Coordinator for Smart Grid Conformance. Prior to NIST, Dean worked in the Telecommunications Industry for over 20 years holding a variety of executive positions.
In his most recent position in the Telecom Industry he served as the Director of Global Technology Standards for Sprint's wireless and wire line business. In this role his department was instrumental in supporting the technology direction for Sprint. During his Standards tenure at Sprint Dean has also served on multiple standards board's including the WiMAX Forum, Open Mobile Alliance, Mobile Wireless Internet Forum and also the CDMA Development Group Executive Board. Prior to Dean's Standards position he held executive positions in the Sprint Engineering and Operations division where he was responsible for directing technical groups responsible for the original design, build out, and operation of multiple major Sprint wireless systems. His tenure in the wireless industry also included previous position in Business Development.

David Holmberg

Building and Fire Research Laboratory

Dr. David Holmberg is a researcher in the Mechanical Systems and Controls Group within the Building and Fire Research Lab at NIST. His work focuses on building integration into the Smart Grid and, more generally, communication of building-system data to outside partners. Dr. Holmberg serves as

part of the NIST Smart Grid team, leading the Building-to-Grid domain expert working group and serving as NIST lead for a number of customer-interface related priority action plans within the Smart Grid standards effort. He is also convener of the BACnet Smart Grid Working Group (SG-WG) of the ASHRAE BACnet committee focused on commercial building automation system interactions with the smart grid. He also co-chairs the OASIS Energy Interoperation technical committee focused on developing a standard for demand response signaling, energy market transactions, energy usage and load communications and other cross-domain energy interactions. Research interests include information modeling to support standards development in addition to novel smart grid aware building control strategies.

Dr. Holmberg received his PhD from Virginia Tech, and joined NIST as a post-doc in 1997, studying issues related accurate measurement of heat flux in mixed-mode (conduction, convection, and radiation) heat transfer environments. Since joining the Mechanical Systems and Controls Group, he has addressed BACnet network security, utility interactions, and communication of building data to emergency responders. Dr. Holmberg is a member of ASHRAE and ASME.

Gerald FitzPatrick

Electronics and Electrical Engineering Laboratory

Gerald FitzPatrick is part of the Smart Grid team at the National Institute of Standards and Technologies (NIST). He has served as the NIST representative on the Department of Energy Smart Grid Task Force, which coordinates federal agency activities in Smart Grid. He is also is also the Co-Chair of the NIST Transmission and Distribution Domain Experts Working Group. He was the leader of the NIST Applied Electrical Metrology (AEM) Group, which originally led NIST's efforts to fulfill its mandate given by the 2007 Energy Independence and Security Act (EISA).

The AEM Group continues a legacy begun by NIST's predecessor, the National Bureau of Standards (NBS), which had supported the electric power industry practically from its inception. The Group conducts research in precision measurement of electric power and energy, maintains the national standards, and provides measurement services for standard meters. Prior to leading the AEM Group, Dr. FitzPatrick conducted research in the precision measurement of high voltage that supported standards development for testing of electrical insulation and power equipment.

He received a B.A. in Physics from Rutgers University, an M.S.E.E. from the New Jersey Institute of Technology, and the Ph.D. degree in Electrical Engineering from the State University of New York at Buffalo.

Boeing Company

http://www.boeing.com/

Boeing is the world's largest aerospace company and leading manufacturer of commercial jetliners and defense, space and security systems. A top U.S. exporter, the company supports airlines and U.S. and allied government customers in more than 90 countries. Boeing products and tailored services include commercial and military aircraft, satellites, weapons, electronic and defense systems, launch systems, advanced information and communication systems, and performance-based logistics and training.

Boeing has a long tradition of aerospace leadership and innovation. The company continues to expand its product line and services to meet emerging customer needs. Its broad range of capabilities includes creating new, more efficient members of its commercial airplane family; integrating military platforms, defense systems and the warfighter through network-enabled solutions; creating advanced technology solutions; and arranging innovative customer-financing options.

With corporate offices in Chicago, Boeing employs more than 159,000 people across the United States and in 70 countries.

Boeing is organized into two business units: Boeing Commercial Airplanes and Boeing Defense, Space & Security. Supporting these units are Boeing Capital Corporation, a global provider of financing solutions; the Shared Services Group, which provides a broad range of services to Boeing worldwide; and Boeing Engineering, Operations & Technology, which helps develop, acquire, apply and protect innovative technologies and processes.

Smart Grid Demonstration Project

http://www.smartgrid.gov/project/boeing-company-smart-grid-demonstration-project
http://boeing.mediaroom.com/index.php?s=43&item=976

The Boeing Company Smart Grid Demonstration Project is a United States Department of Energy Smart Grid Demonstration Project which is based in St. Louis, Missouri.
The project demonstrates an advanced Smart Grid software technology with military-grade cybersecurity for improving regional transmission system planning and operation. The project includes Regional Transmission Operators (RTOs) and utilities that collectively serve all or part of 21 states and more than 90 million people. The Boeing Smart Grid Solution (SGS) software is designed to be scalable, secure, and compatible with multiple systems to help RTOs and utilities improve grid reliability and efficiency.

On November 24, The Boeing Company was selected to receive federal stimulus funds from the U.S. Department of Energy as part of a three-year study to improve the efficiency and reliability of the United States' power grid.

"For years, Boeing has developed secure, networked systems vital to our nation's defense, and bringing this capability to the development of a smart power grid for energy security and efficiency is no less important for America's future," said Dennis Muilenburg, president and CEO of Boeing Integrated Defense Systems (IDS). "Working with the Department of Energy and our industry partners to apply proven technology and systems engineering to energy solutions opens up new opportunities for innovation and growth at Boeing and new jobs across the country."

Boeing received an $8.5 million grant to lead one project team and is a subrecipient on two others -- one led by Consolidated Edison of New York, and one by Southern California Edison. Each grant will fund a smart grid prototype in a different region of the United States. The projects are designed to achieve the following goals:

- increase grid reliability
- reduce system demands and costs
- increase energy efficiencies
- rapidly allocate energy when and where it is needed
- provide greater network security and flexibility to accommodate new energy technologies.

Brad Cohen

BDS Energy Chief Engineer

Brad has had increasing Program Management, Design and Systems/System of Systems Engineering Leadership responsibilities on programs since he joined Boeing in July 1980. He has worked on MX, ALCM, B-1B, Boeing Avionics Test bed, B-2, FOG-M and SSF/ISS, ATM, FCS and Energy.

It was on International Space Station where he was promoted into management. Upon leaving ISS he entered the Executive Leadership Team of Air Traffic Management where he was Chief Systems Engineer, Chief Architect, and Systems Engineering and Integration Manager responsible for a diverse bi-coastal team of 150+ and Integrator of Business Unit-wide Status Reviews. Brad was the team leader in developing the C4ISR framework architecture for a System of Systems global satellite-based air traffic management system. Brad was chairman of Systems Engineering & Integration Working Group, Co-Manager of ATM skill team and Manager of Washington, DC engineering skill group. During this same time, Brad was ERAM Program Manager & Deputy Director of Systems Integration Team and System Engineering Manager of International Space Station.

Brad joined the Future Combat Systems program in 2003 during the proposal phase as the Director of Complementary Programs. In 2004 the Complementary Programs team and the System of Systems Engineering & Integration team were combined. In 2007 he took a new position in FCS as the Senior Director of System of Systems Design Integration.

In 2009 Brad took a new assignment as Chief Engineer of BDS Energy Solutions.