SMART GRID ADVISORY COMMITTEE (SGAC)

MINUTES OF MARCH 24, 2011, MEETING
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

GAITHERSBURG, MD

ATTENDANCE

Smart Grid Advisory Committee Members Attending
William O. Ball
Lynne Ellyn
Lawrence E. Jones
Suedeen G. Kelly
Terry Mohn
David Owens
Simon Pontin
William H. Sanders
Dan Sheflin
Thomas J. Tobin
David Vieau

NIST Staff
George Arnold
Paul Boynton
Allan Eustis
Jerry FitzPatrick
Cuong Nguyen
Dean Prochaska
David Wollman

Others
Dan Bart, Valley View Corporation
Larry M. Camm, Schweitzer Engineering Laboratories, Inc.
Chris Eisenbrey, Edison Electric Institute
Brett Kilbourne, Utilities Telecom Council
David Najewicz, GE Appliances
George T. Willingmyre, GTW Associates
Charlotte Skidmore, Association of Home Appliance Manufacturers
Paul Molitor, National Electrical Manufacturers Association (NEMA)

Call to Order – *Dr. George Arnold, National Coordinator for Smart Grid Interoperability*

Dr. Arnold called the meeting to order at 8:00 am.

Subcommittee Breakouts
Subcommittee 1 – Dan Sheflin Lead (Lecture Room D)
Subcommittee 2 – Suedeen Kelly Lead (B111)
Subcommittee 3 – Lynne Ellyn Lead (B113)
Subcommittee 4 – Dr. Lawrence Jones Lead (Dining Room A)

Subcommittee 1 Report – *Dan Sheflin, Chair, SGAC*

Mr. Sheflin reported on the progress of Subcommittee 1 (Short-Term). The group has conducted over 20 interviews with government and industry experts. In general, the process and speed of the Smart Grid Interoperability Panel (SGIP) activity is good. An observation is that utility participation is weak and uneven and needs to have the utility trade groups such as Edison Electric Institute (EEI), National Rural Electric Cooperative Association (NRECA), and American Public Power Association (APPA) to pull more utilities into the process. SGIP committees require a high level of participation and resource is an issue for utilities. A question is that can utilities collaborate to cover more fronts. The problem with collaboration is that every issue is colored with a state context based on the Public Utilities Commission (PUC). Almost every activity in SGIP will have a utility impact. There needs to be some guidance from NIST about the governing board (GB) role. One GB member wouldn't take input from a colleague in his stakeholder category according to the charter. This is not good if the GB is expected to be a "representative body" of stakeholders. The Architecture Committee works in multiple small teams, which may not give everybody an opportunity to provide input. Utilities can't cover every team since resource is an issue for utilities as stated earlier.

Some questions on the process that will need to be clarified:

- What demonstration process will there be to assure utilities that standards are implementable?
- How do you draw the line between NIST, SGIP and SDO responsibilities for this?
- In light of the recent conference hosted by FERC, there is some confusion over the NIST role and definition of the "NIST process."
- What does it mean to be included on the NIST standard list?
- Clearly different from a FERC standard which is written in stone, regulated, and enforceable.
- The language around the issue needs to clearly differentiate a "recommendation" from a "mandate."
- What is expected when the term "adoption" is used?
- How is "consensus" being defined and applied?
- It should be clearly expressed that the Catalog of Standards is only a guideline.
- What is driving the sense of urgency?
- Is there enough bandwidth in the industry to maintain this pace?
- What is the big picture?
- Will this get rolled out in chunks?
- Is there a better way to prioritize?

Discussion – The group discussed the following topics:

- For the purpose of this committee, don't get too far into the weeds on standards. The best way is to identify the policy objectives, and then use the standards on a voluntary basis to accomplish the objectives. Policymakers need to decide if there is a performance requirement. The April 2009 Congressional report is driving the urgency, as is the interactions between EISA and ARRA (Stimulus). The real question for the government in that sense is, "how can you spend billions of dollars in a non-standardized environment?"
- "At the edge," where electrons and attendant data cross boundaries is where the priorities should be. The edge is defined as the utility to utility, state to state, and utility to customer transactions take place. This is how legislators and regulators see the world – not in terms of device to device interactions.
- Agreed. This fits with the utilities focus on reliability, stability, and security in the grid. Electric vehicles and renewables are examples that impact that.

Subcommittee 2 Report – *Suedeen Kelly, Member, SGAC and David Owens, Vice-Chair, SGAC*

Ms. Kelly and Mr. Owens reported on the progress of Subcommittee 2 (Medium-Term). The main issues in the medium term are reliability, communications, stakeholder involvement, and security. Nobody understands the real roles of NIST and the SGIP. This is an identified gap, and the group recommends that NIST engage in a process to better define those roles to all stakeholders, industry and government. There is a concern that the SGIP process does not have any focus on reliability. There is an architectural and security review in SGIP, but no reliability assessment. This needs to happen before any standard is put before the Federal Energy Regulatory Commission (FERC) or a state regulatory body. A checkbox on reliability would also help with FERC's concerns about consensus as in EISA. Cybersecurity needs to be assessed at multiple levels including individual components, systems, and grid-scale. The NIST Interagency Report (NISTIR) on Cybersecurity is a textbook, and can be used to define cybersecurity evaluations at multiple levels. The problem is that it is 1,000 pages between three volumes. Subcommittee 2 agrees with Subcommittee 1 that utilities need to be more involved. No utilities are part of the cybersecurity working group as listed on the SGIP web site. There is tremendous angst over the movement of standards into FERC and/or regulation. Introduction of reliability assessments will make utilities and regulators more comfortable. There needs to be more interaction between NIST and FERC at the executive level (George Arnold to Chairman Wellinghoff). It appears to be staff to staff interaction, but needs more guiding presence.

Discussion – The group discussed the following topics:

- It is important to note that a standard is NOT equal to a regulation. A standard needs to be guided into a regulation from a performance perspective. FERC faces this in the bulk markets and transmission domains, and state commissions have a similar challenge in the distribution domain.
- FERC is not, and should not be concerned about consensus at the standard level – that is the Standards Development Organization (SDO)'s issue. They want consensus that the grid will remain reliable, stable, and secure. This is why you see more interest from them at the distribution level, because of its impact on the wholesale funnel.

- Is FERC's concern about consensus of standards or the consensus of process? It needs to be about process, and transparency is key. The transparency argument is not sustainable if you have to pay to be part of the process – it is necessarily exclusionary, usually to the detriment of government-types who may not have the budget to participate.
- Relative to the "process" question, this fits with the NIST mission in Energy Independence and Security Act (EISA) which describes "the institute's work," with the keyword being "work." The "work" for NIST in Smart Grid is all about process. Also, the FERC description in EISA indicates that rulemaking should take place "as may be necessary." How do you determine what is necessary?
- In terms of the standards development process, NIST staff participates, as does Federal Communication Commission (FCC) staff in a number of instances. FERC staff does not, although some of the North America Electric Reliability Corporation (NERC) staff does. Certainly government has access to "the process," it's just a question of whether or not they choose, or are allowed to participate.
- NIST recognized early on that access to standards would be essential to success. They asked American National Standards Institute (ANSI) to go to the SDOs and voluntarily provide reviewable copies for NIST staff and other SGIP participants. These have been available online for something like nine months, and their availability has been widely publicized to the SGIP.
- There is obviously a communication problem.
- There seems to be a need to have NERC more involved. We have to solve the reliability problem.

Subcommittee 3 Report – *Lynne Ellyn, Member, SGAC*

Ms. Ellyn reported on the progress of Subcommittee 3 (Long-Term). A draft of the report is available and has been circulated to the committee members. Review and feedback is invited and encouraged.

The approach is very much like a framework:

- Baseline scenario describes a future world for Smart Grid
- How do the resources play out against the tasks
- Descriptions of the NIST versus industry roles
- What is the durability of the NIST resources?
    - How should they be aligned and organized?
- How do you organize to interoperate with other federal agencies?
- What is the role of the national labs?

Subcommittee 3 report is about the division of labor:

- Government versus industry responsibilities
    - What is mandated in EISA?
    - What is in the core NIST mission?
- What has to happen?
    - What resources are necessary?

How does the SGIP transition to a standalone entity?

Discussion – The group discussed the following topics:

- In terms of the long term future, we need to close the loop between SDOs, NIST, utilities, EEI, NRECA, APPA, etc. In order to get the power company perspective, there needs to be more leadership from the power company associations.
- Resources are increasingly scarce in utilities, especially during tough economic times when utility commissions are less forgiving. They barely have enough bandwidth to work with NERC, who has a line of sight relationship on utility operations. We can't continue the current pace, and there is a concern over the recovery of expenses for activities like SGIP and standards writing.
- We learned a number of things in the conversation with George Arnold this morning. There are some additional directions that we are going to examine, and some government resources that we will talk to. In the meantime, please review and comment on the current report – it will definitely change following today's meeting.

Subcommittee 4 Report – *Lawrence Jones, Member, SGAC*

Dr. Jones reported on the progress of Subcommittee 4 (Research Needs). The basic approach was to identify the best subjects for research now and in the future. There are six major roadmaps for Smart Grid globally – every member had to review two of them. A lot has been accomplished from a documentary perspective. The gap appears to be in measurement and this is a natural fit for NIST, and they need to consider how they can contribute to improving measurement for Smart Grid. How do we define and agree on measurement parameters? Are there new measurements we should be using (Frequency example)? New test beds need to be created. We need to look to improve modeling and simulation. Work from the national labs needs to be coordinated and leveraged. This seems to be an underused resource.

Discussion – The group discussed the following topics:

- Please help prioritize the technical efforts.
- We need a partnership between utilities and NIST to direct and create a common value in the technical effort. Without this we will be subject to duplication of efforts, and the ultimate value may not be defined.
- In one sense, government needs to step in and say that smart meters are working fine – and the consuming public just has to deal with it. Part of the reason for customer bills going up is because they don't have the losses that electromechanical meters do. On the data front, we need to clarify what is necessary to "interoperate," whatever that means, and how that data can be leveraged to enhance power quality, reliability, and stability.
- Relative to the technology, how do you define and measure cybersecurity in the data?
- Are there new metrics for Smart Grid? Is there something beyond frequency? NIST can apply their unique qualifications here.
- Is there a way to measure societal and economic benefit related to Smart Grid expenditures?
- DOE has some forward-looking descriptions about measurements for Smart Grid in a document they published around June of 2008 – right after the passage of EISA.

Discussion about the Report – *All*

- The timeframe is ideally around 1 year from the time this panel got started, and the team would like to target an October 31st completion date. This was generally agreeable to both sides.
- The basic organization of the report will be around the four working teams; short-term, near-term, long-term, and technology. Each team should also use a common set of themes and assumptions; technical penetration, economy, etc. To assist with this, David Owens and Chris Eisenbrey from EEI will provide the outputs from their scenario planning exercises last year. The group three report already has a set of assumptions baked-in – everyone should already have a copy.
- Each section of the report should identify gaps, and things like the relationships between NIST, FERC, Industry, States, Stakeholders, etc. Although, we need to be careful about telling FERC what to do, everything needs to be frame from a NIST point of view and recommend interactions with FERC. It will be helpful and instructive to see what FERC comes out with from the responses to the technical conference.
- Short & Medium term teams need to make recommendations for the here and now.

Proposed Schedule:

- May 31st – Outlines Due
- July 31st – 1st Draft
- September 1st – 2nd Draft
- October 1st – Vote on the Report (this gives everyone a little time to react and re-vote before the Oct. 31 deadline)

Common Themes:

- Utility Participation needs to increase
- FERC NIST Coordination – NIST should help FERC by taking into account where FERC picks up the NIST framework. NIST output should address FERC views on Reliability, Cyber Security, and Transparency and Openness of the SGIP process and framework.
- NIST needs to get states into a mindset to defer to NIST on content of standards by ensuring that the SGIP process has been Inclusive, Transparent and addresses Cyber Security and Reliability
- Include Grid Reliability and Cyber Security reviews in the SGIP approval process
- SGAC should give NIST input and advice on the key consumer advocate groups they need to educate on SGIP.
- NIST should define Smart Grid and Interoperability definitions. (NSTC is addressing Smart Grid definition)
- SGAC should reach out to Utility Industry Groups (EEI, APPA, NRECA) to better engage Utilities in SGIP via current protocols, meetings and processes.
- What is the difference between Interoperability and Standardization?
- NIST should identify areas (Priority Action Plans, Domain Expert Working Groups, and etc.) that are most important for them to be involved in.
- NIST's Role as it relates to other entities.

NIST Update – *Dr. Charles Romine, Acting Associate Director for Laboratory Programs/Principal Deputy, NIST*

Presentation Summary – Dr. Romine thanked SGAC members for their service on this important Committee. He provided an overview of the NIST Organizational Structure and context around the Administration's agenda, congressional landscape, and budget situation. In addition, he discussed the NIST role in key issues including interoperability standards for Smart Grid, healthcare IT, cloud computing, inter-departmental standards, and Smart Grid approach as model. Pat told the Committee about the pending reorganization at its first meeting. It took effect two days later, on October 1. Dr. Romine moved into his current position early in 2011.

The Administration's agenda was clear in President Obama's State of the Union address in which a major focus was on innovation and winning the future. He emphasized R&D, education, science, technology, and clean energy. These are all areas where NIST has an important role to play. The 2010 election brought some major changes to the Congressional landscape. In the final months of the 111th Congress, one of the most significant pieces of legislation, especially for NIST, was the reauthorization of the America COMPETES Act. Other highlights of the 111th Congress that have had important impacts on NIST included Health Care legislation and the American Recovery and Reinvestment Act (ARRA). The 112th Congress has a different focus and will try to work on reining in government spending. The budget debate is especially complicated this year, because it involves the current year's budget (FY2011, which is almost half over) as well as next year's budget (FY2012). And, in the midst of all this uncertainty, NIST is also planning ahead for the FY2013 budget. NIST is operating under a Continuing Resolution (CR), through April 8, a little over two weeks from now. Under the CR, NIST budget is being held at FY2010 levels. The FY2012 budget submitted to Congress by President Obama is very positive for NIST. The FY 2012 budget request addresses challenges in key priority areas including manufacturing, information technology and cybersecurity, healthcare, environment and consumer safety, energy, and physical infrastructure. An important initiative to highlight is the interoperability standards for emerging technologies that includes support for Smart Grid, health care IT and electronic health records, and cloud computing.

The SGIP has some remarkable accomplishments. They have completed a number votes for standards coming out of the PAPs. The SG Testing and Certification Committee (SGTCC) completed its Interoperability Process Reference Manual (IPRM). The SG Architecture Committee (SGAC) began working on an architecture to support the conceptual model that traces back to national goals. The Cyber Security Working Group (CSWG) began formal outreach to stakeholders to discuss the NISTIR. The SGIP PMO has formalized and streamlined its PAP close-out process, including reviews by the SGAC and the CSWG. International participation in the SGIP has expanded, most recently welcoming Japan, Korea, Brazil and China.

NIST-initiated SGIP made significant progress with first set of standards released. NIST has ongoing work on interface between standards efforts and FERC. Two other areas where NIST is taking a leadership role in coordinating standards are in Health IT and Cloud Computing. NIST has inter-agency leadership in coordinating standards as a result of a recommendation from the Visiting Committee on Advanced Technology (VCAT). NIST establishes and leads the National

Science and Technology Council's Subcommittee on Standards. The Subcommittee has facilitated a dialog on federal government's role in standards to address national priorities.

For more details, see Dr. Romine's presentation.

Discussion – The group discussed the following topics:

- Some of the ARRA funding on project has not been spent to date and will these fund remains available?
- Spectrums auctions – Are these being controlled by NTIA?
- What is success look like for the Smart Grid effort?
- Timing on the release of the NSTC Smart Grid Subcommittee Report.

Public Comments

The following comments were provided by members of the public in attendance:

- Appreciation for the opportunity to observe the meeting and learn about the Committee's activity.
- Referring the Committee to the comments that GTW Associates submitted in response to the Request for Information (RFI) from the NSTC Standards Subcommittee on the role of government in standards.
- Referring the Committee to a paper by ANSI on the copyright ability of standards that are developed by volunteer SDOs.
- The SGIP is working on many issues related intellectual property rights.
- Proposing that the SGIP recommends standards to NIST. Though, SGIP cannot do that since it is not a FAC.
- SGIP self-sustainment is a good idea.
- The California PUC has expressed concerns about the fee for participation if the SGIP is moving to a self-funding mode. SDOs often have fee-waiver option for government participants.

Wrap-Up

The meeting was adjourned at 4:00 pm on Thursday, March 24, 2011.