CALL TO ORDER

• John McDonald, SGIP Governing Board Chair
SGIP GOVERNING BOARD CHAIR START BUSINESS

• John McDonald

• Establish Quorum
• Approval of Agenda (Consent Agenda)
• Approval of January 13, 2011 Meeting Minutes
<table>
<thead>
<tr>
<th>Category</th>
<th>Member</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1</td>
<td>Brian Markwalter</td>
<td>Consumer Electronics Association</td>
</tr>
<tr>
<td>Category 2</td>
<td>Tariq Samad</td>
<td>Honeywell</td>
</tr>
<tr>
<td>Category 3</td>
<td>Todd Rytting</td>
<td>Panasonic Electric Works Laboratory of America</td>
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<tr>
<td>Category 4</td>
<td>Rich Scholer</td>
<td>Ford Motor Company</td>
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<td>Category 5</td>
<td>George Bjelovuk</td>
<td>American Electric Power</td>
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<td>Stephen Muchlinski</td>
<td>Tacoma Public Utilities</td>
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<td>Category 7</td>
<td>Bob Saint</td>
<td>National Rural Electric Cooperative Association (NRECA)</td>
</tr>
<tr>
<td>Category 8</td>
<td>Chuck Shih</td>
<td>Edge Holdings LLC</td>
</tr>
<tr>
<td>Category 9</td>
<td>Kenneth Van Meter</td>
<td>Lockheed Martin’s Energy Solutions</td>
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<tr>
<td>Category 10</td>
<td>Matthew Theall</td>
<td>HomeGrid Forum</td>
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<tr>
<td>Category 11</td>
<td>Vint Cerf</td>
<td>Google, Inc.</td>
</tr>
<tr>
<td>Category 12</td>
<td>Robby Simpson</td>
<td>GE Energy</td>
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<tr>
<td>Category 13</td>
<td>Wayne Longcore</td>
<td>Consumers Energy</td>
</tr>
<tr>
<td>Category 14</td>
<td>Mladen Kezunovic</td>
<td>Texas A&amp;M University</td>
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<tr>
<td>Category 15</td>
<td>Perry Pederson</td>
<td>U.S. Nuclear Regulatory Commission (NRC)</td>
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<tr>
<td>Category 16</td>
<td>John Nunneley</td>
<td>SunSpec Alliance</td>
</tr>
<tr>
<td>Category 17</td>
<td>Brent Hodges</td>
<td>Reliant Energy</td>
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<tr>
<td>Category 18</td>
<td>John Caskey</td>
<td>National Electrical Manufacturers Assoc. (NEMA)</td>
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<td>Category 19</td>
<td>Paul Centolella</td>
<td>Public Utility Commission of Ohio</td>
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<tr>
<td>Category 20</td>
<td>Rik Drummond</td>
<td>Drummond Group Inc.</td>
</tr>
<tr>
<td>Category 22</td>
<td>Scott Ungerer</td>
<td>EnerTech Capital</td>
</tr>
<tr>
<td>Category 23</td>
<td>John McDonald</td>
<td>GE Energy</td>
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<tr>
<td>Category 23</td>
<td>Paul De Martini</td>
<td>Cisco</td>
</tr>
<tr>
<td>Category 23</td>
<td>Mark McGranaghan</td>
<td>Electric Power Research Institute</td>
</tr>
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## OTHER INVITEES

<table>
<thead>
<tr>
<th>Role</th>
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<th>Affiliation</th>
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<tbody>
<tr>
<td>Ex-officio</td>
<td>George Arnold</td>
<td>NIST</td>
</tr>
<tr>
<td>Ex-officio</td>
<td>Dean Prochaska</td>
<td>NIST</td>
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<tr>
<td>Ex-officio</td>
<td>Dave Wollman</td>
<td>NIST</td>
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<td>Ex-officio</td>
<td>Al Hefner</td>
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<td>Ex-officio</td>
<td>Tom Nelson</td>
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<td>Paul Boynton</td>
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<td>Ex-officio</td>
<td>Cuong Nguyen</td>
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<tr>
<td>Ex-officio</td>
<td>Ray Palmer</td>
<td>FERC</td>
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<tr>
<td>Ex-officio</td>
<td>Chris Irwin</td>
<td>DOE</td>
</tr>
<tr>
<td>Ex-officio</td>
<td>Erich Gunther</td>
<td>EnerNex / Administrator</td>
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<tr>
<td>Ex-officio</td>
<td>Stuart McCafferty</td>
<td>EnerNex / Administrator</td>
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<tr>
<td>Ex-officio</td>
<td>Aaron Snyder</td>
<td>EnerNex / Administrator</td>
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<tr>
<td>Ex-officio</td>
<td>Malcolm Thaden</td>
<td>EnerNex / Administrator</td>
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<td>Ex-officio</td>
<td>Marty Burns</td>
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<td>Ex-officio</td>
<td>Vishant Shah</td>
<td>EnerNex / Administrator</td>
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<tr>
<td>Ex-officio</td>
<td>Sandy Bacik</td>
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<tr>
<td>Ex-officio</td>
<td>Rudi Schubert</td>
<td>EnerNex / Administrator</td>
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<tr>
<td>Plenary Chair</td>
<td>Steve Widergren</td>
<td>Pacific Northwest National Laboratory</td>
</tr>
<tr>
<td>Plenary Vice Chair</td>
<td>Mark Klerer</td>
<td>QualComm</td>
</tr>
<tr>
<td>Plenary Secretary</td>
<td>Paul Molitor</td>
<td>NEMA</td>
</tr>
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## TODAY’S AGENDA

<table>
<thead>
<tr>
<th>Time</th>
<th>Discussion</th>
<th>Presenter / Facilitator</th>
</tr>
</thead>
</table>
| 8:00 a.m. – 8:15 a.m. | Call to Order  
Establish Quorum  
Approval of Agenda (Consent Agenda)  
Approval of January 13, 2011 Meeting Minutes | John McDonald  
George Bjelovuk  
John McDonald  
John McDonald |
| 8:15 a.m. - 8:45 a.m. | NIST Update  
•NIST/FERC/SGIP roles  
•NIST International engagements, including APEC regulatory cooperation proposal  
•Update on NIST SG federal advisory committee  
•NIST framework update | George Arnold |
| 8:45 a.m. - 9:45 a.m. | SGIP Update  
•Catalog of Standards  
•DEWG Activity Update  
•SGIP Update  
•Catalog of Standards  
•Document Branding  
•Plenary meeting plans  
•New Plenary Secretary  
•CSWG outreach presentation  
•SGAC conceptual architecture  
•SGTCC update  
•DEWG status summary | Steve Widergren |
| 9:45a.m. – 10:05 a.m. | International Activities  
•Priorities for international collaboration  
•Update on MOU development with Korea Smart Grid Standardization Forum  
•Japan collaboration update  
•Europe collaboration update  
•Information Sharing on international activities  
•State Grid EPRI | Mark McGranaghan |
## TODAY’S AGENDA (CONT.)

<table>
<thead>
<tr>
<th>Time</th>
<th>Discussion</th>
<th>Presenter / Facilitator</th>
</tr>
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<tbody>
<tr>
<td>10:05 a.m. – 10:20 a.m.</td>
<td>Break</td>
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<tr>
<td>10:20 a.m. – 10:40 a.m.</td>
<td>Home Area Networks Task Force</td>
<td>Brian Markwalter</td>
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<tr>
<td></td>
<td>• Status and recommendations related to SEP 1.x and SEP 2.0</td>
<td></td>
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<tr>
<td>10:40 a.m. – 11:00 a.m.</td>
<td>IPR WG Update</td>
<td>Chuck Shih</td>
</tr>
<tr>
<td></td>
<td>• Progress update on the IPR WG</td>
<td></td>
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<tr>
<td>11:00 a.m. – 11:30 a.m.</td>
<td>PMO Update</td>
<td>Erich Gunther</td>
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<tr>
<td></td>
<td>• PAP00</td>
<td></td>
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<tr>
<td></td>
<td>• PAP02</td>
<td></td>
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<tr>
<td>11:30 a.m. – 11:45 a.m.</td>
<td>VMR Update</td>
<td>John Caskey</td>
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<tr>
<td></td>
<td>• Draft Roadmap for Consumer Technologies</td>
<td></td>
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<td></td>
<td>• DEWGs Support on Roadmap Whitepapers</td>
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<tr>
<td></td>
<td>• Joint VMR/DOE Roadmap Workshop Progress update on the IPR WG</td>
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<tr>
<td>11:45 a.m. – 11:55 a.m.</td>
<td>Other Business</td>
<td>John McDonald</td>
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<tr>
<td></td>
<td>Closing Remarks</td>
<td>John McDonald</td>
</tr>
<tr>
<td></td>
<td>• Next SGIPGB Webinar Meeting: 5-12-2011, 1 – 4 p.m. EDT</td>
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<tr>
<td></td>
<td>• Next SGIP Webinar Meeting: 5-26-2011, 1 – 3 p.m. EDT</td>
<td></td>
</tr>
<tr>
<td>12:00 p.m.</td>
<td>Adjourn</td>
<td></td>
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NIST UPDATE

Dr. George Arnold
March 29, 2011
Topics

• Follow up to FERC Technical Conference
• International Cooperation
• NSTC Smart Grid Subcommittee
• NIST Smart Grid Federal Advisory Committee
• NIST Framework (SP 1108) Update
• Questions?
Steve Widergren, Plenary Chair
March 29, 2011
Topics

• Membership
• Accomplishments
• Issues/concerns
• Upcoming events
  • Nashville plenary overview
  • 2011 event schedule
• Catalog of Standards
• Document branding
• SGAC, SGTCC, CSWG status summaries
• DEWG status summaries: H2G, B2G/I2G
SGIP MEMBERSHIP

• Total # of Member Organizations: 664
  • # of Participating Member Organizations: 555
  • # of Observing Member Organizations: 109
  • # of Organizations who joined in Q1 2011: 19

• Total # of Individual Members*: 1,708

# of Organizations by Country

- USA: 592
- Europe: 21
- Asia: 16
- Oceania: 4
- North America (non-US): 29
- South America: 1
- Africa: 1

# of Participating Member Organizations by Declared Stakeholder Category

*Omits non-active Signatory Authorities.
**SGIP Membership**

**As of 03.15.11**

• Total # of Participating Member Organizations that have Voting Rights: 555

• Of these...
  • # of Organizations currently in “Good Standing” with Voting Rights: 218
  • # of Organizations that “Abstain” from Voting: 5
  • # of Organizations that are *new* and need their “Rights Activated” to Vote: 42
  • # of Organizations that currently need their “Rights Restored” to Vote: 290

• How To Have “Rights Activated” or “Rights Restored”
  • Voting Rights are activated once a Participating Member Organization has one of its Member Representatives attend two consecutive Plenary meetings (face to face and/or web based).
ACCOMPLISHMENTS

• Plenary Secretary election held
• Standards efforts confirmed completed by GB
  • IETF Internet Protocol Suite for Smart Grid (PAP 1)
  • SAE J1772 Electric Vehicle Conductive Charge Coupler (PAP 11)
  • SAE J2836 Use Cases for Communication between PEV and Grid (PAP 11)
  • NAESB REQ18/WEQ19 Energy Usage Information Model (PAP 10)
• Upcoming standards for confirmation
  • NEMA Meter Upgradability (PAP 0)
  • Wireless Guidelines NISTIR (PAP 2)
  • IEEE & ITU-T G9972 Coexistence of Broadband PLC (PAP 15)
  • IEEE 1815 DNP Protocol (PAP 12)
  • AEIC Guidelines for Meter Interoperability (PAP 5)
• Catalog of Standards process reviewed & refined by BOP and IPR WGs
• SGIP branded document format and process drafted
• Bringing visibility to DEWG efforts
• Montreal and Grid-Interop event planning progressing
ISSUES/CONCERNS BEING WORKED

• Market adoption
  • Communication of interoperability work product availability (standards, guides, etc.)
  • Implementation testimonials and other evidence of adoption
  • Maturation toward interoperability testing
• PAP 5 – Meter Data Profiles AEIC Guideline resolving comments and representation from meter supplier stakeholders
• Engagement with international smart grid efforts
  • New members: State Grid Corporation of China, Solairedirect (France), Korea Electrotechnology Research Institute (KERI), and Canterbury University (New Zealand)
  • ETSI Smart Grid Workshop 5-6 Apr 2011
  • SGIP face-to-face, July in Montreal with international theme
• Voting participation
  • Quorums reached in recent elections
  • Focus on getting more organizations in “good standing”
• Renewables and Storage Issues group contemplated
<table>
<thead>
<tr>
<th>Time</th>
<th>Tuesday, 3/29</th>
<th>Wednesday, 3/30</th>
<th>Thursday, 3/31</th>
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<tr>
<td>8:00</td>
<td>Break</td>
<td>Governing Board</td>
<td>T&amp;D, BnP, ZigBee</td>
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<td></td>
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<td></td>
<td>PAP 11, 17</td>
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<tr>
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<td></td>
<td>AC-Use Case Wkshp.</td>
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<tr>
<td>Morning 9:00 – 11:30</td>
<td>Governing Board</td>
<td>CS, BOP, CME, IPS</td>
<td>T&amp;D, BnP, ZigBee</td>
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<td>PAP 03/04, 14</td>
<td>PAP 11, 17</td>
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<td>AC-Semantic Wkshp.</td>
<td>AC-Use Case Wkshp.</td>
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<tr>
<td>11:30</td>
<td>Lunch</td>
<td></td>
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<tr>
<td>Afternoon 1 12:45 – 3:00</td>
<td>Opening Plenary</td>
<td>TCC, H2G</td>
<td>IPR, T&amp;D-sub, CS-sub</td>
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<td></td>
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<td>PAP 09</td>
<td>PAP 10</td>
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<td>AC-SDO, Renew, DOE</td>
<td>AC-Use Case Wkshp.</td>
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<td>Afternoon 2 3:15 – 5:00</td>
<td>SGAC, V2G,</td>
<td>TCC, B2G/I2G, EMII</td>
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<td>PAP 06, 08, 16</td>
<td>PAPs 12-13, 15</td>
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<td></td>
<td>SGIP Bootcamp</td>
<td>AC-SDO, ANSI Portal</td>
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<td>5:00</td>
<td>Dinner Break</td>
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<td>Evening 5:30 – 7:00</td>
<td>Welcome Reception</td>
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<td>Schneider Electric</td>
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<td>Technical Tour</td>
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# 2011 Plenary Meeting Schedule

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<th>Month</th>
<th>Date</th>
<th>Time</th>
<th>Detail</th>
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<tbody>
<tr>
<td>Mar</td>
<td>29-31</td>
<td>All Day</td>
<td>F2F: Nashville</td>
</tr>
<tr>
<td>Apr</td>
<td></td>
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<tr>
<td>May</td>
<td>26</td>
<td>1 – 3 p.m.</td>
<td>Virtual Meeting/Conf. Call hosted @ ConnectivityWeek</td>
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<tr>
<td>Jun</td>
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<tr>
<td>Jul</td>
<td>12-14</td>
<td>All Day</td>
<td>F2F: Montreal – International theme</td>
</tr>
<tr>
<td>Aug</td>
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<tr>
<td>Sep*</td>
<td>16</td>
<td>1 – 3 p.m.</td>
<td>Virtual Meeting/Conf. Call</td>
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<tr>
<td>Oct</td>
<td></td>
<td></td>
<td>(consider possibility of F2F working meeting in Sep/Oct)</td>
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<tr>
<td>Nov</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dec</td>
<td>5-8</td>
<td>All Day</td>
<td>F2F: Grid-Interop, Phoenix</td>
</tr>
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</table>

* Note, date moved to Friday based on coordination with Gridweek organizers.
CATALOG OF STANDARDS

• Scope of the Standards Catalog
  • Standards and guides recognized by SGIP as relevant for enabling SG capabilities
  • No endorsement, beyond that of relevancy, is implied by inclusion in the Catalog

• Objectives of the Standards Catalog
  • Influential, but independent of NIST/FERC decision-making
  • Characterize the various specification organizations and their selected documents with respect to their processes in developing that specifications
  • Provide an annotated resource that identifies standards created by recognized SSOs and/or industry consortia that are relevant to Smart Grid applications
  • Identify functional areas of smart grid where each standard is appropriate
CoS Audience

• **Implementers** – organizations developing Smart Grid products, services, and systems
  • Vendors
    • Hardware
    • Software
  • System integrators and architects
  • Power producers, utilities, aggregators, service providers
  • Market traders

• **Policymakers and SSOs**
  • Those responsible for Smart Grid deployments
  • SSOs developing future or enhancing existing standards to meet Smart Grid needs
**Criteria for Inclusion in Catalog**

1. **Relevancy**: Facilitates interoperability related to the integration of smart grid devices or systems. Relevant smart grid capabilities are as defined by EISA.

2. **Community Acceptance**: The standard should be widely acknowledged as important to the integration of devices or systems that enable Smart Grid capabilities.

3. **Deployment Suitability**: The standard must demonstrate evidence of either having been deployed or filling a Smart Grid deployment gap with demonstrated adequate performance in commercial (real-world) applications.

4. **Interface Characterization**: The relevant portions of the standard focus on requirements for integration and interaction through well-defined interfaces. The standard facilitates the independence and flexibility in device or system design and implementation choices.

5. **Document Maintenance**: The standard is supported by a multi-member organization that will ensure that it can be unambiguously referenced, is regularly revised and improved to meet changing requirements, and that there is strategy for continued relevance.
PROCESS FOR INCLUSION IN THE CoS

1. Identify standard for consideration
2. Perform SGIP reviews of standard
3. Governing Board recommendation on CoS inclusion
4. SGIP plenary vote on inclusion
5. Addition to CoS
CATALOG OF STANDARDS — STRUCTURE

• Catalog Structure
  • Entries in catalog will be structured based on application domain defined in the Framework and further classified by GWAC stack

• Catalog Record Structure
  • Each catalog entry will include a set of attributes that classify the document with respect to:
    • Development process
    • IPR regime
    • Cyber-security aspects
    • Domain of applicability
    • Functionality supported
SGIP DOCUMENT BRANDING

• Plenary Secretary Function
  • Tracking and logging of SGIP work products
  • Control over the mark
• Sources
  • SGIP Leadership, including
    • Deliverables from SGIP Officers
    • SGIP Standing Committees
    • SGIP Working Groups
      • Domain Expert Working Groups
      • Priority Action Plan Working Groups
  • SGIP Governing Board, including
    • Deliverables from GB Officers
    • GB sub-committees
• Essential Elements
  • Formatting & Style
  • Disclaimers
    • “THIS IS NOT A NIST DOCUMENT”
  • Maintenance Instructions
  • Revision History
  • Citation Instructions
### Activities and Accomplishments

- Ongoing focus on Architecture Process and Goals
- Conceptual Architecture
  - Workshops scheduled for Nashville
- Interaction Workshop II for Conceptual Architecture
  - Conceptual architecture adopted by several companies
- Additional PAP Close Out Reviews completed (0,2,15)
- Working with GWAC on a number of fronts
- Working with IETF
- PAP Liaisons updated

### Upcoming Key Milestones and Activities

- ETSI meeting April 7, Sophia Antipolis, France for architecture harmonization
- Working with IETF, and IEC to schedule architecture workshops in April, 2011
- Conceptual Architecture
  - Overview, harmonization and use case workshops scheduled for Nashville.
- Semantic Modeling
  - Summit Follow-on work with PAPs and SSOs
  - Working on next version of white paper

### Deliverables

- Posted Conceptual Architecture Automation Services
- Posted Outputs from Interaction Workshop I
- Published Semantic Model White Paper
- Posted Architecture Process Document
- Posted Draft National Goals White Paper
- Posted National Goals Decomposition Spreadsheet
- Posted Architectural Requirements
- Posted Draft PAP Mapping to NIST Concept Model and GWAC Stack

### Issues, Concerns, and Help Needed

- Architecture development requires focused work that will go beyond volunteer only activities
- There is GB concern on overlap and coordination of information models between the PAPs. Need greater SGAC oversight between the various PAP information modeling activities.
**HISTORY**

- **Requirements Whitepaper**
- **Traceability Matrix**

Goals Workshop
Aug

- **Conceptual Services**
- **Traceability Matrix**

Services Workshops
Business
Oct
IT
Nov

- **Interactions**
- **Traceability Matrix**

Interaction Workshop
Jan
Feb

Harmonization Meetings
Q2/3 2011

- **Whitepaper on each architecture reviewed**

**SGiP**

- To map SDO’s standards efforts into the overall smart grid “ecosystem”
- To allow comparison with various smart grid architectures
- To create discussions in the DEWG
- To quickly start end to end test cases
- To determine gaps in the national standards efforts

**Others**

- Develop their own architectures
- Map new services into their organization
- Develop new product ideas
- Develop new business ideas
- To determine what the detailed requirements are embedded in a business function
FROM THOUSANDS TO A FEW

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<thead>
<tr>
<th>Actor</th>
<th>Domain</th>
<th>Description</th>
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<tbody>
<tr>
<td>Market</td>
<td>Market</td>
<td>A clearing house for trading energy related contracts</td>
</tr>
<tr>
<td>Market Manager</td>
<td>Market</td>
<td>The entity that is responsible for the fair operation of the market</td>
</tr>
<tr>
<td>Participant</td>
<td>Market</td>
<td>Any entity that buys or sells in the market</td>
</tr>
<tr>
<td>Node</td>
<td>Market</td>
<td>A location where a contract can be valued</td>
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</table>

4-6 actors per domain

Power quality services

Measurement

State

Configuration

Operator

Equipment

25-60 Services per domain

Control
TWO NEW LAYERS TO THE MODEL

Domain Level

Communicate
- Facilitate communication with end customers
- Facilitate participant involvement in load control
- Maintain communication to equipment
- Ensure power flow with neighboring control areas is coordinated
- Provide a time versus demand curve that represents the typical demand of a customer
- Provide a mechanism to support communication between adjacent operations centers

Service Level

Function Level

Plan
Manage
Operations
Communicate
Measure
Operate
SGTCC Monthly Quad Chart

Activities and Accomplishments
- SGTCC roadmap has been updated to refine 2011 work activities – draft under review by SGTCC members for final approval at March F2F meeting
- CSWG-SGTCC joint team developing meter test suite based on combination on priority standards
- End to End Test group developing list of priority use case/test program needs
- Working Group 8 - IPRM implementation processes kicked off in February
- Continuing IPRM implementation work with UCAIug for their IEC 61850 testing program, with several new ITCA support efforts now getting underway

Upcoming Key Milestones and Activities
- New work groups for 2011 meeting weekly
  - End to End test group – Mondays
  - Roadmap group – Thursdays
  - IPRM Process group - Tuesdays
- IPRM tutorial session planned for March 30 at the Nashville SGIP F2F meetings
- Workshop to discuss industry priority test program needs planned for Nashville F2F meetings
- Planning underway to engage with accreditation organizations

Deliverables
- Interoperability Maturity Assessment Tool, V1, completed

Issues, Concerns, and Help Needed
- Accelerating ITCA adoption of SGTCC best practices recommendations
- Engaging end users to gain their commitment towards requiring IPRM conformance for ITCA's certifying the products that they purchase
## CSWG Monthly Quad Chart

### Activities and Accomplishments
- Completed outreach session with University of Maryland and Texas Public Utility Commission
- Continued collaboration project with SGTCC on meter security testing requirements
- Collaborating with DOE/NERC/NIST on risk management document
- Privacy Subgroup developing a “Leading Practices” document on best ways to share data with third parties
- 3 Year Plan Sent for Final CSWG Review

### Upcoming Key Milestones and Activities
- Upcoming outreach sessions:
  - 18 May – Minnesota PUC/University of Minnesota
- Design Principles Subgroup to begin work on key management
- Research cyber-physical attacks and possible collaboration
- PAP 13 cybersecurity review

### Deliverables
- PAP 2 cybersecurity review
- ANSI C12.1, C12.19 & C12.22 standard review

### Issues, Concerns, and Help Needed
- Would like status on the development of SGIP Document Series
### CSWG Outreach

#### Outreach Objectives
Educate and inform a broad audience of Smart Grid stakeholders by providing:
- Discussion of roles in Smart Grid as defined by EISA 2007
- Overview of the content in the NISTIR 7628, *Guidelines for Smart Grid Cybersecurity*
- Detail about CSWG ongoing activities and path forward
  - Encourage stakeholder coordination and involvement with CSWG activities

#### Topics Discussed

<table>
<thead>
<tr>
<th>Roles in Smart Grid</th>
<th>NISTIR 7628 Overview</th>
<th>CSWG Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Smart Grid Background</td>
<td>• What the NISTIR <em>is</em> and <em>is not</em></td>
<td>• Goals and Objectives</td>
</tr>
<tr>
<td>• NIST’s role per EISA 2007</td>
<td>• NISTIR content overview</td>
<td>• Coordination with SGIP and other industry groups</td>
</tr>
<tr>
<td>- SGIP background, vision, structure</td>
<td>• In-depth Privacy awareness</td>
<td>• Roadmaps of planned activities</td>
</tr>
<tr>
<td>- How CSWG aligns and coordinates with SGIP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Smart Grid threat overview by DOE</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
HOME-TO-GRID DOMAIN EXPERT WORKING GROUP

Dr. Kenneth Wacks, H2G Co-Chair
March 29, 2011
HOME-TO-GRID DEWG ACCOMPLISHMENTS

• More than 100 members
  • Utilities
  • Equipment suppliers
  • Trade associations

• Issue white papers for NIST by consensus of members

• Published papers:
  • Home-to-Grid Requirements
  • Roadmap for Interoperable Networks, Systems, Devices
  • Privacy of Consumer Information
  • Appliance Interface (2 papers)
  • Electromagnetic Compatibility (EMC) Issues for Home-to-Grid Devices
Merging EPRI ASI & U-SNAP

**EPRI ASI** (Appliance Socket Interface)

- **AIS** = Appliance Interface Socket
- **UCM** = Universal Communication Module

**U-SNAP** (Utility Smart Network Access Port)

- Physical interface

- Energy management HAN messages
  - Simple Command Set
  - Extensible for ClimateTalk, OpenADR, SEP
**AGENDA FOR H2G MEETING (WED. @ 12:45)**

- Appliance interface specifications
  - U-SNAP Appliance & EPRI spec. merger
  - Accommodation of application protocols

- H2G EMC issues
  Coordinate with EMII WG

- Installation guide for EM protection

- Liaison with the SGIP HAN TF

- New H2G DEWG projects

The GWAC Stack
B2G/I2G DEWGS ENERGY SERVICES INTERFACE

Dave Hardin, I2G Co-Chair
March 29, 2011
The ESI is a logical interface that can reside in various devices.
ESI Ties to the SGIP

• Information passing through the ESI is defined by the output from PAPs 3, 4, 9, 10, and 17:
  • OASIS Energy Interoperation (DR and price signals)
  • NAESB Energy Usage Information (meter data)
  • ASHRAE/NEMA Facility Smart Grid Information Model (facility data)

• ESI White Paper document is under development as a B2G/I2G initiative:
  • Focus is on functionality and requirements of the interface to help define the path forward with regard to customer domain architecture and standards.
  • Building upon and providing input to SGIP work:
    – Aiding DEWGs in identifying standards gaps and scoping how to address those gaps
    – Serving as input to the SGAC

• Purpose of the ESI white paper is not to define the ESI as much as to aid in developing a process through which it can be defined.
• The White Paper looks at the ESI from C&I as well as residential perspectives.
The C&I concept of the ESI

The Energy Services Interface (ESI) is:

• The energy information representation for the energy consuming node—a demarcation point at the facility ownership (or control) boundary:

  • ESI may be directly on an energy management system in the end node, or it may be mediated by other business systems. There may be several ESIs in a facility connected in an hierarchical manner.
  • The ESI mediates services: providing information on facility loads/gen/storage to utilities, interfacing DR signals to facility energy management.
ESI INTERACTIONS

Grid Side Service Providers
- Wholesale Markets
- Retail Service Provider
- Curtailment Specialist
- Distribution
- Micro-Grid

ESI
- DR Event Info*
- Control signal**
- Price signal
- Energy usage
- Weather info

Facility Side
- Loads:
  - Systems
  - Components
  - Appliances
  - Devices
  - Vehicles
- Residential gateway
- C&I EMS or other business system
- Direct load connection
- Storage:
  - Active
  - Passive
- Generators:
  - Variable
  - Non-variable
- Meter

* DR event notification, start time, end time, Price, bid acceptance
** For Direct Load Control
STANDARDS GAPS

• Existing facility communication protocols (SEP, BACnet, etc.) all need to align with the PAP17 ASHRAE/NEMA 201P Facility Smart Grid Information Model, which provides:
  – Standard view of loads and load aggregation
  – Standard view of generation and storage
  – Standard representation of schedule intervals, sub-meter data, power quality data, etc.

• Mapping from Energy Interoperation (inter-domain DR/price/market communications) to internal facility communication protocols

• Representation of industrial operations and business cases

• Near real-time transport (energy usage info from meter) for Energy Interoperations communications to ESI

• DR program enrollment

• Tariff communications

• Weather data communications
QUESTIONS

Steve Widergren
INTERNATIONAL ACTIVITIES UPDATE

Mark McGranaghan
March 29, 2011
1. The draft letter Letter of Intent with the Korea Smart Grid Standardization Forum has been shared with the group and we have heard initial feedback from the KSGSF that this approach looks like it can work. They are looking for a representative to be the point of contact for this. Looking to identify someone else from the task force or the SGIP overall as a point of contact.

2. Japan is also interested in formulating an Letter of Intent that is similar. A team from NEDO visited us in Knoxville the same day as the Japan earthquake and we went ahead and had this discussion about coordinating with the SGIP on standards development activities.

3. There is an RFP for support of standards coordination with China EPRI funded by the USTDA. This project will include coordination with the NIST efforts and should be a positive development.

4. No update on European coordination although the standards forum is coming up and we should have a good update from that event.
State Grid Corporation of China
1. Overview of China’s Power Industry

2. State Grid Overview

3. International Business
Installed Capacity

GW

USA: 1100
China*: 962
Japan: 280
Russia: 224
Germany: 139
Canada: 128
France: 118
Brazil*: 112

* based on the statistics in 2010. The rest are based on EIA data.
Rapid Growth of Power Demand

Total Power Consumption
0.1 TWh

9.9% 10.1% 7.5% 5.1% 3.1% 10.4%
24811 39700 48100 59700 76700 172100

Maximum Load
10MW

10.4% 9.3% 9.3% 5.2% 3.1% 9.3%
38635 63400 78000 98900 127200 172100

State Grid Corporation Of China. All rights reserved. ©2011
Generation Mix

Wind, 31.07, 3.2%
Nuclear, 10.82, 1.1%
Thermal, 706.63, 73.4%
Others

<table>
<thead>
<tr>
<th>2010</th>
<th>Installed Capacity (GW)</th>
<th>Year-on-year Growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Installed Capacity</td>
<td>962.19</td>
<td>10.03</td>
</tr>
<tr>
<td>Hydro</td>
<td>213.4</td>
<td>8.43</td>
</tr>
<tr>
<td>Thermal</td>
<td>706.6</td>
<td>8.37</td>
</tr>
<tr>
<td>Nuclear</td>
<td>10.82</td>
<td>19.16</td>
</tr>
<tr>
<td>Wind</td>
<td>31.07</td>
<td>92.62</td>
</tr>
</tbody>
</table>

State Grid Corporation Of China. All rights reserved. @2011
2. State Grid Industry

3. International Overview

Business Overview of China's Power Grid Corporation Of China. All rights reserved. ©2011
Organization structure of State Grid

- 5 regional power grid companies
- 26 provincial and municipal power grid companies
- 4 scientific research institutes
- 18 affiliates
Business Scope of State Grid

Core business
- Build and operate the power grids towards a secure and reliable power supply

Business Scope
- Planning, investment, construction, commissioning, dispatching, operation and maintenance of power grids, including transmission and distribution.
- Renewable energy generation, such as wind and solar power.
- R&D
- Equipment manufacture
The Largest Utility in the World

Ranked 8th Fortune Global 500 (2010) based on the revenue in 2009

Geographic Coverage
26 out of 32 provinces in China; 88% of China’s territory

Customers
Serving over 1 billion population, 80% of China’s population

Indicators (2010)
- USD 321.1 Bn of total assets
- USD 233.7 Bn of revenue
- 618,837km transmission lines (above 66kV/110kV)
- 2,131,930 MVA transformation capacity
- 2,689TWh annual electricity sales
Key Performance Index

- No major power black out occurred over past consecutive 30 years
- Average comprehensive line loss rate of 5.98% (from generation to consumer)
- Power supply availability in urban area 99.906%, in rural area 99.636%
- Powering for all household

State Grid Corporation Of China. All rights reserved. @2011
Challenge of the Highest Transmission Voltage in the world

The imbalanced allocation of generation resources and consumption centers forms a large-scale, long-distance, large-capacity transmission pattern.

- 220kV in 1950s, 330kV in 1970s, 500kV in 1980s
- Sep. 2005: 1st 750kV AC transmission project in China
- 06 Jan 2009: 1st UHV 1000 kV AC transmission project in the world (645 km, 6000 MVA)
- 08 Jul 2010: 1st ±800kV DC transmission project in the world (2000 km, 7000mVA)
- R&D are carrying out on the ±1100kV, 10,000 MVA UHV DC technology

Compared with ±500kV transmission line, ±800kV transmission line:
- 35% increase in unit transmission capacity;
- 50% cut in energy loss.

State Grid Corporation Of China. All rights reserved. @2011
3. INTERNATIONAL OVERVIEW

2. STATE GRID INDUSTRY

1. OVERVIEW OF CHINA'S POWER GRID CORPORATION OF CHINA. All rights reserved. ©2011
Overseas Investment-Philippines

- December 12, 2007, a consortium led by State Grid won the 25-year concession to operate the Philippine’s power transmission grid, the largest privatization deal in the history of Philippines.

Overseas Investment-Brazil

Dec 2010, establishment of State Grid Brazil Holding

Acquisition of transmission assets in 2010:
- Transmission line 3173km
- Transformation capacity 7100MVA
- 6 of 500kV Substations
- 223 local Employees
Overseas EPC Service

Asia
Projects No.: 177
Contract Price: $6,181m

Europe
Projects No.: 13
Contract Price: $125.5m

South America
Projects No.: 3
Contract Price: $283.7m

Oceania
Projects No.: 7
Contract Price: $0.37m
Involvement in International Organizations

- Members of many important international organizations
  - e.g. IEEE, CIGRE, CEPSI, VLPGO
- Active participation in international academic conference:
  - Membership activities,
  - Contribution of high quality papers
  - Addressing many international academic conferences
Thank You!
BREAK
HAN TASK FORCE UPDATE

Brian Markwalter
March 29, 2011
Governing Board Assignment – Recommend actions re: ZigBee installed and future versions

- Texas utilities, vendors and Commission staff collaborated under HAN TF on early version of a position paper on SEP 1.X
- Some members of SGIP Architecture Committee drafted an alternate position paper
- The papers were largely irreconcilable
- Leadership agreement to bring stakeholders together under HAN TF and reconcile work
- Hosted weekly calls throughout most of January & February
PAPER DEVELOPMENT AND APPROVAL

• Authors of both versions engaged to create a new, consolidated position paper with consensus from both groups
  • Jeremy McDonald from Southern California Edison is recognized for personally engaging every commenter in the process.
  • Version 6 of consolidated paper was approved by the HAN TF and other interested parties to be communicated to the Governing Board (Vote 22 Yes, 0 No, 2 Abstain)
HAN Task Force SEP Recommendations

• Three key recommendations:
  1. A cyber-security review should be conducted by the SGIP Cyber Security Working Group (CSWG) of SEP 1.0 and SEP 1.1.
  2. The SGIP HAN TF should be tasked by the SGIP Governing Board to provide specific migration recommendations for SEP 1.0 and SEP 1.1 with SEP 2.0.
  3. SEP 1.0 and/or SEP 1.1 should be recognized as a transitional specification until such time as SEP 2.0 is readily available.
SEP 1.0/1.X Cyber Security Review

• The report recommends that the SGIP CSWG perform an in-depth security analysis of the SEP 1.0 and SEP 1.1 security features.
• The SGIP CSWG should provide a concise set of recommendations on the strength of the security features, the overall security risks and vulnerabilities and any recommendations for hardening/configuring the devices in the field.
• In addition to SEP 1.0 and SEP 1.1, the SGIP CSWG should also start looking at SEP 2.0 when these specifications are available.
• The ZigBee Alliance should help facilitate these reviews by contributing the original Carnegie Mellon University report as well as providing ZigBee’s internal security response.
Migration/Coexistence for SEP 1.0, 1.1 & 2.0

• The report recommends that SGIP provide guidance on the technical, business and customer support aspects on how to migrate between two incompatible systems.
  • This issue is not just applicable to the SEP but also applicable to many of today’s non-standards based technologies. These technologies will eventually migrate to the next generation of standards based technologies and will need similar guidance.
• In subsequent discussions, the HAN Task Force learned that ZigBee Alliance has a use case and scenario analysis underway.
  • The HAN Task Force recommends that Tobin Richardson of ZigBee Alliance lead the creation of this analysis
  • Expanded participation by SGIP members is encouraged
• Request the report be presented at the next SGIP Governing Board meeting.
SEP 1.0/1.1 recognized as a transitional specification

• Recognize SEP 1.0 and SEP 1.1 as a transitional specification.
• At this point in time, it is the only ZigBee technology that is capable of running on the new generation of Smart Meters (i.e., IEEE 802.15.4 wireless meters).
AD HOC Task Forces

Two Ad Hoc Task Forces have been established:

- Ad Hoc Task Force 1 under Jorge Contreras is focused on determining the IPR information relating to candidate Smart Grid standards, the SSO under whose sponsorship the standard is being developed (or has been developed under), that is “most useful” to the SGIP. This Ad Hoc will also recommend a process by which the IPR information is solicited (“An information request to Standards Development Organizations”) and maintained.

- Ad Hoc Task Force 2 under Dan Bart is focused on taking the language related to IPR out of the current By-Laws and using it to form a recommended SGIP IPR Policy for its own deliverables, in a stand alone document, with new language for the By-Laws that points to that standalone document.
Catalog of Standards ("CoS") Comments and Recommendations

The IPR WG was asked to comment on the sections related to IPR in the draft CoS process document and came to the following consensus viewpoint and recommendations:

- The existing IPR section in the draft Catalog of Standards process document was too broad and indefinite to accurately delineate the IPR Regime or IPR Policy characteristics of a submitting Standards Setting Organization ("SSO") or to characterize the specific IPR issues for a specific candidate standard to be included in the CoS. It was also problematic as to HOW and WHO would be able to ascertain for even these simple IPR attributes (the check-boxes for FRAND, Royalty-Free, Public Domain, Open Source), whether the boxes should be checked or not, and what checking the box signified.

- CoS Section 3 (Catalog Documentation Structure) the four check boxes: FRAND, Royalty-Free, Public Domain, and Open Source, listed in Item 7, under IPR Regime:
  - These check boxes should be removed: the attributes are not clearly defined, which makes them misleading, and not helpful.
  - As an interim measure, replace the four check boxes with links to policy(ies) and disclosures/licensing commitments on file at the SSO. This likely will be more precise and accurate until a more detailed list of SSO IPR information is proposed.
CoS RECOMMENDATIONS

CoS Section 4 (Procedures), item 4.1(2) should be amended to read in its entirety:

"The Sponsoring Organization or other entity cognizant of a standard’s detail and applicability shall provide the Standards Information Template. In connection with Item #7 under “Standards Development Process” relating to IPR, the Sponsoring Organization will be asked to provide links to relevant information that is maintained on the Sponsoring Organization’s website. If the Sponsoring Organization does not maintain such information on its website, it will be asked to provide an electronic copy (to the extent that this information is publicly available) to the SGIP that the SGIP can then make available. There are two categories of information that will be sought: (1) information regarding all applicable IPR-related policies that were in effect with regard to the candidate Standard (including policies relating to patents, copyrights, confidential information, marks and logos and any other proprietary rights), and (2) information regarding any IPR-related disclosures or licensing statements regarding the candidate Standard."
AD HOC TASK FORCE 1 STATUS, AND REQUESTED THOUGHTS AND GUIDANCE FROM THE GOVERNING BOARD

The Ad Hoc is continuing its work on a document focused on collection of IPR information related to the Catalog of Standards (over and above the current recommended links to information SSOs may have on file), what form, and the process by which the information request should be made to the SSOs and SDOs. It would be helpful to get the thoughts and guidance of the Governing Board on the following:

- What does the GB anticipate will be done with the IPR attributes that are ultimately listed/linked in the Catalog of Standards? (*i.e.*, who will look at these, and what types of decisions will they make?)

- Does the GB anticipate seeing in the CoS only "documentary" information derived directly from SDO IPR policies, or would they also like us to suggest and define "experiential" attributes (*i.e.*, the SDO's history and experiences with IPR in the candidate standard, but which is not necessarily part of a formal SSO IPR policy document). The broader question here: how much information is the GB interested in with respect to the Catalog of Standard’s IPR Regime?

- Would it be more helpful to include in the CoS links to SDO policies and databases, or short summaries of information derived from these sources? If the latter, who would generate and maintain these summaries?
AD HOC TASK FORCE 2 STATUS, AND REQUESTED THOUGHTS AND GUIDANCE FROM THE GOVERNING BOARD

The Ad Hoc is continuing its work focused on a recommended SGIP IPR Policy for its own deliverables, in a standalone document, with new language for the By-Laws. It would be helpful to get the thoughts and guidance of the Governing Board on the following:

- How critical is compliance with the existing SGIP IPR Policy and By-Laws (Section 2.6), which states:

  “The intellectual property disclosure policy and activities that violate anti-trust law will be reviewed at the start of every meeting.”

- And what is the priority for the work in enhancing SGIP’s own IPR Policy?
  - How stringent should SGIP’s own IPR Policy be?
  - What does the GB see as SGIP’s IP, particularly moving forward? (The SGIP does not exist in a legal sense.)
  - How does the GB want to deal with derivative works of SGIP IP?
GOVERNING BOARD STANDARDS INTRODUCTION

Erich Gunther, Administrator
March 29, 2011
**BACKGROUND**

- **Standard Name:** NEMA SG-AMI 1-2009 Requirements for Smart Meter Upgradeability

- **Brief Abstract:** To support the development and deployment of a Smart Grid, many electric utilities are looking to make their Advanced Metering Infrastructure (AMI) and Smart Meter investments now as a precursor or enabler to additional Smart Grid, energy management, and consumer participation initiatives.

- **POC:** NEMA, John Caskey

- **Why?** NIST identified this need for a meter upgradeability standard as a high priority requiring immediate attention. The National Electrical Manufacturers Association (NEMA) accepted the challenge to lead this effort to develop a standard set of requirements for smart meter upgradeability on an exceptionally rapid schedule.
**PAP WG CoS Criteria Checklist**

<table>
<thead>
<tr>
<th>Achieved?</th>
<th>CoS Criteria</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td><strong>Relevancy</strong>: The standard facilitates interoperability related to the integration of Smart Grid devices or systems. Relevant Smart Grid capabilities are as defined by EISA</td>
<td>Requirements for meter upgradeability</td>
</tr>
<tr>
<td>✓</td>
<td><strong>Community Acceptance</strong>: The standard should be widely acknowledged as relevant to the integration of devices or systems that enable Smart Grid capabilities.</td>
<td></td>
</tr>
<tr>
<td>✓</td>
<td><strong>Deployment Suitability</strong>: The standard must demonstrate evidence of either having been deployed or fulfilling a Smart Grid deployment gap with demonstrated adequate performance in commercial (real-world) applications.</td>
<td>There was a gap in the industry with respect to meter upgradeability requirements. This standard fills that gap.</td>
</tr>
<tr>
<td>✓</td>
<td><strong>Interface Characterization</strong>: The relevant portions of the standard focus on requirements for integration and interaction through well-defined interfaces. The standard facilitates independence and flexibility in device or system design and implementation choices.</td>
<td>The developed requirements are technology and communications agnostic.</td>
</tr>
<tr>
<td>✓</td>
<td><strong>Document Maintenance</strong>: The standard is supported by a multi-stakeholder organization that will ensure that it can be unambiguously referenced, is regularly revised and improved to meet changing requirements, and that there is a strategy for continued relevance.</td>
<td>Developed by NEMA, an ANSI-accredited SDO. An ANSI subcommittee was formed to take the requirements to a full ANSI standard.</td>
</tr>
</tbody>
</table>
# Closeout Process Checklist

<table>
<thead>
<tr>
<th>Achieved?</th>
<th>Organization and Criteria</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The PAPWG has followed the Working Group Consensus and Voting Operating Procedures.</td>
<td>This PAP pre-dates the formation of the SGIP. Nonetheless, the PAP did follow NEMA processes during the development.</td>
</tr>
<tr>
<td>✓</td>
<td>The CSWG has performed an analysis against the NISTIR requirements and determined the standard meets its requirements.</td>
<td>In a future revision, it is recommended that additional cybersecurity requirements that are directly pertinent to meter upgrades should be covered within this standard.</td>
</tr>
<tr>
<td>✓</td>
<td>The SGAC has performed an analysis against the architectural requirements and determined the standard meets its requirements.</td>
<td></td>
</tr>
</tbody>
</table>
### PMO Checklist and Recommendation

<table>
<thead>
<tr>
<th>Achi- eved?</th>
<th>Criteria</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>Does completion of this standard complete work of the PAP?</td>
<td>NEMA Meter Upgradability Standard: SG-AMI 1-2009</td>
</tr>
<tr>
<td>NA</td>
<td>Are all WG tasks complete?</td>
<td>There are no tasks to track since the PAP was performed prior to SGIP and PMO processes</td>
</tr>
<tr>
<td>✓</td>
<td>Are all WG artifacts available on the TWiki and/or IKB?</td>
<td>All are available on the TWiki</td>
</tr>
<tr>
<td>NA</td>
<td>Was the PAP Project Lifecycle process followed?</td>
<td>There was not a PAP Project Lifecycle when this PAP was performed. However, the PMO considers the work relevant and waivers/grandfathers this PAP from the process. The PAP did follow the closeout process with CSWG, SGAC and recommendation reviews.</td>
</tr>
<tr>
<td>✓</td>
<td>Were all the PAP objectives met?</td>
<td>The effort predates the PAP process, but they established objectives and met them.</td>
</tr>
<tr>
<td>✓</td>
<td>Were all PMO objectives and tasks met?</td>
<td>All NEMA objectives were met</td>
</tr>
</tbody>
</table>

**General Comments, Observations:** PAP00 was an urgent priority and was performed prior to the establishment of the SGIP (or any PMO processes). The outcome was a NEMA standard. An ANSI subcommittee was formed to create a full ANSI standard on smart meter upgradeability.

**Overall Recommendation:** Add NEMA SG-AMI 1-2009 Requirements for Smart Meter Upgradability to CoS. Close PAP00.
BACKGROUND

• **Name:** Guidelines for Assessing Wireless Standards for Smart Grid Applications

• **Brief Abstract:** Provide methods and tools for assessment of a variety of wireless technologies based on standards.

• **POC:** NIST, Nada Golmie

• **Why?** Wireless technologies are one of many types of media that could meet many Smart Grid requirements by enabling access where other media are too costly or otherwise not workable. Different wireless technologies must be used with knowledge of their varying capabilities and weaknesses in all plausible conditions of operation. This work provides objective information on the appropriateness of use.
<table>
<thead>
<tr>
<th>Achieved?</th>
<th>Criteria</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td><strong>Relevancy</strong>: The standard facilitates interoperability related to the integration of Smart Grid devices or systems. Relevant Smart Grid capabilities are as defined by EISA</td>
<td>Report identifies key tools and methods to assist Smart grid system designers in making informed decisions about existing and emerging wireless technologies.</td>
</tr>
<tr>
<td>✓</td>
<td><strong>Community Acceptance</strong>: The standard should be widely acknowledged as relevant to the integration of devices or systems that enable Smart Grid capabilities.</td>
<td>Industry contributions included UCA IUG, IEEE 802 Series, CDMA 2000, Geomobile Radio One</td>
</tr>
<tr>
<td>✓</td>
<td><strong>Deployment Suitability</strong>: The standard must demonstrate evidence of either having been deployed or fulfilling a Smart Grid deployment gap with demonstrated adequate performance in commercial (real-world) applications.</td>
<td>The guidelines can be used by utilities, network technology vendors, and researchers to evaluate the deployment of communication technologies for the Smart Grid.</td>
</tr>
<tr>
<td>✓</td>
<td><strong>Interface Characterization</strong>: The relevant portions of the standard focus on requirements for integration and interaction through well-defined interfaces. The standard facilitates independence and flexibility in device or system design and implementation choices.</td>
<td>Guidelines are technology-independent and provide methodologies for selecting different wireless communication solutions.</td>
</tr>
<tr>
<td>✓</td>
<td><strong>Document Maintenance</strong>: The standard is supported by a multi-stakeholder organization that will ensure that it can be unambiguously referenced, is regularly revised and improved to meet changing requirements, and that there is a strategy for continued relevance.</td>
<td>The Advanced Network Technologies Division (ANTD), as part of NIST 's Information Technology Laboratory, serves to provide the networking industry with the best in test and measurement research.</td>
</tr>
</tbody>
</table>
## Closeout Process Checklist

<table>
<thead>
<tr>
<th>Achieved?</th>
<th>Organization and Criteria</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>The PAPWG has followed the Working Group Consensus and Voting Operating Procedures.</td>
<td></td>
</tr>
<tr>
<td>✓</td>
<td>The CSWG has performed an analysis against the NISTIR requirements and determined the standard meets its requirements.</td>
<td>Future work address key relevant security requirements, cybersecurity techniques and develop additional use cases</td>
</tr>
<tr>
<td>✓</td>
<td>The SGAC has performed an analysis against the architectural requirements and determined the standard meets its requirements.</td>
<td></td>
</tr>
</tbody>
</table>
# PMO Checklist and Recommendation

<table>
<thead>
<tr>
<th>Achieved?</th>
<th>Criteria</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Does completion of this standard complete work of the PAP?</td>
<td>NISTIR 7761 Guidelines for Assessing Wireless Standards for Smart Grid Applications. Want to keep PAP open to complete V2.</td>
</tr>
<tr>
<td>✓</td>
<td>Are all WG tasks complete?</td>
<td>Yes, they are complete up to this point, but we expect new ones if the PAP is left open.</td>
</tr>
<tr>
<td>✓</td>
<td>Are all WG artifacts available on the TWiki and/or IKB?</td>
<td></td>
</tr>
<tr>
<td>✓</td>
<td>Was the PAP Project Lifecycle process followed?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Were all the PAP objectives met?</td>
<td>PAP objectives were mostly met (3/5), but will need to keep the PAP open and work on V2 to fully meet all the requirements</td>
</tr>
<tr>
<td>✓</td>
<td>Were all PMO objectives and tasks met?</td>
<td>Yes, they are complete up to this point, but we expect new ones if the PAP is left open.</td>
</tr>
</tbody>
</table>

**General Comments, Observations:** PAP 2 resulted in NISTIR 7761 that will be maintained by NIST and upgraded to Version 2 in the next year. The current publication provides guidelines for using wireless technologies in Smart Grid. The next publication will include additional use cases on how to apply wireless technologies as well as activities with respect to cyber security.

**Overall Recommendation:** Add NISTIR to CoS. Leave PAP 2 open to complete objectives and deliver NISTIR V2.
Open time to ask questions:

- John Caskey, PAP 0, NEMA
  - NEMA SG-AMI 1-2009 Requirements for Smart Meter Upgradeability

- David Su/Nada Golmie, PAP 2, NIST
  - NIST IR 7761 Guidelines for Assessing Wireless Standards for Smart Grid Applications
VMR Task Team Review

• Adopted broad smart grid vision from DOE.
• Developed Interoperability related Vision.
• Adopted SGIP and SGIP-GB Missions from existing SGIP related documents.
• Developed comprehensive list of smart grid related goals and milestones.
• Attempted to reverse-engineer schedule and priorities from goals and milestones.
• This final step did not work out because technology evolution and customer adoption occur in stages.
VMR Task Team – Alternate Approach

- Drafted Consumer Technologies Roadmap whitepaper:
  - Completed reviews in task team
  - Completed reviews by SGIP-GB
  - Draft available for SGIP review and comment

- Working with DEWGs to assist in developing whitepapers for other domains:
  - Completed draft generic whitepaper outline
  - Will review outline with DEWGs on Thursday
VMR Task Team – Alternate Approach Cont.

• Adopted “domains” from conceptual model.
• Identified technologies for Consumer domain.
• Reviewing list of services from Architecture Committee team.
• Will refine list of services and/or interfaces for Consumer domain.
• Scheduling joint workshop with DOE staff and others to match services/interfaces with each technology area in the Consumer domain.
Conclusion

• Any questions or comments about work to date?
• Please review draft Consumer Technologies roadmap and provide comments on website.
CONCLUDE MEETING

• Other Business

• Closing Remarks

• Next SGIP Meetings:
  • Governing Board: May 12
    Virtual Meeting
  • SGIP: July 12-14
    In-person, Montreal, Canada

• Adjourn