SMART GRID INTEROPERABILITY PANEL
OCTOBER 2010 GOVERNING BOARD MEETING

John McDonald
SGIP Governing Board Chair
October 14, 2010
CALL TO ORDER

John McDonald, SGIP Governing Board Chair
# Today’s Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Discussion</th>
<th>Presenter / Facilitator</th>
</tr>
</thead>
</table>
| 1:00 p.m. – 1:15 p.m. | Call to Order  
Establish Quorum  
Approval of Agenda (Consent Agenda)  
Approval of September 9, 2010 Meeting Minutes | John McDonald  
George Bjelovuk  
John McDonald  
John McDonald |
| 1:15 p.m. - 1:30 p.m. | NIST Update                                                             | Dean Prochaska                           |
| 1:30 p.m. – 2:15 p.m. | Status from SGIP Plenary Chair                                          | Steve Widergren                          |
| 2:15 p.m. – 2:35 p.m. | Architecture for Home Area Networks Task Force  
-Further work/handoff | Brian Markwalter                                      |
| 2:35 p.m. – 2:55 p.m. | International Activities Report  
-Repository  
-Strategy for key countries | Mark McGranaghan                                     |
| 2:55 p.m. – 3:15 p.m. | IPRWG Update  
-WG Objectives | Paul De Martini                                       |
| 3:15 p.m. – 3:30 p.m. | PMO PAP Update                                                         | Wayne Longcore                           |
| 3:30 p.m. – 3:50 p.m. | CMEWG Progress Report  
-Priorities | Mladen Kezunovic                                     |
| 3:50 p.m. – 4:00 p.m. | Other Business  
-GB Roadmap direction  
-Closing Remarks | John McDonald  
John Caskey  
John McDonald |

Next SGIP GB Meeting: November 30, 2010, Chicago IL at Grid-Interop  
Next SGIP Webinar: October 29, 2010, 1-3 p.m., EDT  

4:00 p.m. Adjourn
## GOVERNING BOARD MEMBERS

<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>
</tr>
<tr>
<td>Category 4</td>
<td>Rich Scholer</td>
<td>Ford Motor Company</td>
</tr>
<tr>
<td>Category 5</td>
<td>George Bjelovuk</td>
<td>American Electric Power</td>
</tr>
<tr>
<td>Category 6</td>
<td>Stephen Muchlinski</td>
<td>Tacoma Public Utilities</td>
</tr>
<tr>
<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>
</tr>
<tr>
<td>Category 10</td>
<td>Matthew Theall</td>
<td>HomeGrid Forum</td>
</tr>
<tr>
<td>Category 11</td>
<td>Vint Cerf</td>
<td>Google, Inc.</td>
</tr>
<tr>
<td>Category 12</td>
<td>Le Tang</td>
<td>ABB Inc.</td>
</tr>
<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>
</tr>
<tr>
<td>Category 15</td>
<td>Perry Pederson</td>
<td>U.S. Nuclear Regulatory Commission (NRC)</td>
</tr>
<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>
</tr>
<tr>
<td>Category 18</td>
<td>John Caskey</td>
<td>National Electrical Manufacturers Assoc. (NEMA)</td>
</tr>
<tr>
<td>Category 19</td>
<td>Paul Centolella</td>
<td>Public Utility Commission of Ohio</td>
</tr>
<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>
</tr>
<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>
</tbody>
</table>

October 14, 2010
### Other Invitees

<table>
<thead>
<tr>
<th>Role</th>
<th>Member</th>
<th>Affiliation</th>
</tr>
</thead>
<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>
</tr>
<tr>
<td>Ex-officio</td>
<td>Dave Wollman</td>
<td>NIST</td>
</tr>
<tr>
<td>Ex-officio</td>
<td>Al Hefner</td>
<td>NIST</td>
</tr>
<tr>
<td>Ex-officio</td>
<td>Tom Nelson</td>
<td>NIST</td>
</tr>
<tr>
<td>Ex-officio</td>
<td>Paul Boynton</td>
<td>NIST</td>
</tr>
<tr>
<td>Ex-officio</td>
<td>Ray Palmer</td>
<td>FERC</td>
</tr>
<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>
</tr>
<tr>
<td>Ex-officio</td>
<td>Stuart McCafferty</td>
<td>EnerNex / Administrator</td>
</tr>
<tr>
<td>Ex-officio</td>
<td>Aaron Snyder</td>
<td>EnerNex / Administrator</td>
</tr>
<tr>
<td>Ex-officio</td>
<td>Malcolm Thaden</td>
<td>EnerNex / Administrator</td>
</tr>
<tr>
<td>Ex-officio</td>
<td>Marty Burns</td>
<td>EnerNex / Administrator</td>
</tr>
<tr>
<td>Ex-officio</td>
<td>Vishant Shah</td>
<td>EnerNex / Administrator</td>
</tr>
<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>
</tbody>
</table>
SGIP CHAIR START BUSINESS – JOHN MCDONALD

● Establish Quorum

● Approve agenda
  ○ Approve consent agenda in Board Business document
    • Members may pull items from the consent agenda for discussion BEFORE approving meeting agenda

● Approval of September 9, 2010 Meeting Minutes

● Approval of Governing Board candidate evaluation committee

October 14, 2010
GOVERNING BOARD
CANDIDATE EVALUATION COMMITTEE (TENTATIVE)

- Government
  - George Arnold, NIST
  - Chris Irwin, DOE

- SGIP Governing Board
  - John McDonald, GE
  - George Bjelovuk, AEP
  - Todd Rytting, Panasonic Electric Works Laboratory of America
  - Brian Markwalter, CEA

- SGIP Officer
  - Mark Klerer, QualComm

- SGIP Member
  - Mike Coop, Consultant

- SGIP Administrator
  - Erich Gunther, EnerNex
NIST UPDATE

Dean Prochaska
SGIP PLENARY CHAIR STATUS UPDATE

Steve Widergren
TOPICS

- Membership
- Accomplishments
- Issues/concerns
- Upcoming events
  - SGIP GB selection timeline
  - Grid-Interop agenda
  - 2011 event schedule
- SGAC, SGTCC, CSWG status update
- Standards catalog
- Electromagnetic Interoperability Issues WG
- SGAC work products and directions
SGIP MEMBERSHIP

- Total # of Member Organizations: 624
  - # of Participating Member Organizations: 542
  - # of Observing Member Organizations: 82
  - # of Organizations who joined in September: 3

- Total # of Individual Members*: 1,729
  * Omits Signatory Authorities who aren’t also

# of Participating Member Organizations by Declared Stakeholder Category

- Stakeholder Categories

- # of Organizations by Country
  - USA: 562
  - Canada: 28
  - International: 34
ACCOMPLISHMENTS

- SGIP St. Louis meeting
  - Over 200 in attendance, with ~320 in other meeting sites and remotely
  - Successful format to progress PAP, WG, and committee work
  - Larry Barto and Steve van Ausdall recognized for their contributions
  - All attendees and materials are posted on the Twiki under Plenary Meetings
  - Need continued acknowledgement of people dialed-in to the meeting

- PAP highlights
  - PAP 2 Wireless Guidelines: NISTIR Report due October
  - PAP 4 Common Scheduling: OASIS WS-Calendar public review closes 23 Nov
  - PAPs 3 & 9 Pricing & DR Signals: standards approaching OASIS public comment phase
  - PAP 5 Meter Data: AEIC Guidelines for Meter Interoperability drafted in September
  - PAP 10 Energy Usage Information: NAESB draft in formal review, complete in December
  - PAP 11 Electric Vehicle: results to be submitted to GB in November
  - PAP 12: potential 1 year schedule reduction for DNP/61850 mapping with IEEE/IEC

- Electromagnetic Interoperability Issues WG formed
- 2011 event schedule in place
- Purpose and benefits of catalog of standards drafted
- ANSI license agreement for access to standards: 150 “floating” licenses
**ISSUES/CONCERNS BEING WORKED**

- **PAP 15 – Harmonize PLC standards for appliance integration**
  - Joint IEEE and ITU-T narrow-band PLC process for single standard established
- **PAP 1 Role of Internet Protocol**
  - IETF guide for smart grid in review, open questions on cyber security, network management, and quality of service
  - Concept of an Internet WG being considered for such questions
- **Architecture related concerns**
  - Semantics coordination across SGIP efforts progressing after Semantic Summit in St. Louis
  - Coordination of SG architecture in other organizations: coordination with IEC SG3, IETF, IEEE P2030 and ITU-T initiated
- **Media communications support: part time resource provided by NIST**
- **DEWG work plans**
  - Domain expertise for SGIP vision and roadmap effort
  - Improve visibility of efforts throughout the SGIP
- **Engagement with international smart grid efforts**
  - SGIP face-to-face targeted for July in Montreal with international theme
  - GB International Task Force engaged
## GB Election Timeline – Even Stakeholders, 2010

<table>
<thead>
<tr>
<th>DUE DATE</th>
<th>TASK</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.20</td>
<td>Call for candidates open</td>
</tr>
<tr>
<td>10.8</td>
<td>Call for candidates close</td>
</tr>
<tr>
<td>10.29</td>
<td>Nominations reviewed, slates finalized and candidates notified</td>
</tr>
<tr>
<td>11.17</td>
<td>Membership Applications to vote “frozen”</td>
</tr>
<tr>
<td>11.18</td>
<td>Electronic voting opens at 9a.m. EST</td>
</tr>
<tr>
<td>12.1</td>
<td>Candidate Introductions @ Grid-Interop</td>
</tr>
<tr>
<td>12.2</td>
<td>Electronic voting closes at 5p.m. EST</td>
</tr>
<tr>
<td>12.3</td>
<td>Announce winners and/or runoff</td>
</tr>
<tr>
<td>12.6 – 12.15</td>
<td>RUNOFF CONTINGENCY: Open runoff election 12 pm</td>
</tr>
</tbody>
</table>
## UPCOMING 2010 PLENARY EVENTS

- 29 Oct, 1-3 pm Eastern: SGiP webinar
- 30 Nov – 3 Dec: Grid-Interop, Chicago

<table>
<thead>
<tr>
<th>Mon. 11/29</th>
<th>Tue. 11/30</th>
<th>Wed. 12/1</th>
<th>Thu. 12/2</th>
<th>Fri. 12/3</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.00 am</td>
<td>GB Meeting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.30 am</td>
<td>GB Meeting</td>
<td>PAPs &amp; WGs</td>
<td>PAPs &amp; WGs</td>
<td>PAPs &amp; WGs</td>
</tr>
<tr>
<td>12.00 pm</td>
<td>LUNCH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.00 pm</td>
<td>GB Meeting</td>
<td>Opening Plenary</td>
<td>Closing Plenary</td>
<td>GB Meeting</td>
</tr>
<tr>
<td>3.30 pm</td>
<td>DEWGs &amp; Committees</td>
<td>PAPs &amp; WGs</td>
<td>PAPs &amp; WGs</td>
<td>PAPs &amp; WGs</td>
</tr>
<tr>
<td>5.00 pm</td>
<td>Candidate Interviews and Optional Meetings</td>
<td>PAPs &amp; WGs</td>
<td>PAPs &amp; WGs</td>
<td>PAPs &amp; WGs</td>
</tr>
<tr>
<td>7.00 pm</td>
<td>GB Meeting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.00 pm</td>
<td>GB Meeting</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## 2011 Plenary Meeting Schedule

<table>
<thead>
<tr>
<th>Month</th>
<th>Date</th>
<th>Time</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>21</td>
<td>1 – 3 p.m.</td>
<td>Virtual Meeting/Conf. Call</td>
</tr>
<tr>
<td>Feb</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mar</td>
<td>29-31</td>
<td>All Day</td>
<td>F2F: Dallas, Nashville, Austin</td>
</tr>
<tr>
<td>Apr</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>May</td>
<td>26</td>
<td>1 – 3 p.m.</td>
<td>Virtual Meeting/Conf. Call hosted @ ConnectivityWeek</td>
</tr>
<tr>
<td>Jun</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jul</td>
<td>12-14</td>
<td>All Day</td>
<td>F2F: Montreal – International theme</td>
</tr>
<tr>
<td>Aug</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sep</td>
<td>15</td>
<td>1 – 3 p.m.</td>
<td>Virtual Meeting/Conf. Call hosted @ GridWeek</td>
</tr>
<tr>
<td>Oct</td>
<td></td>
<td></td>
<td></td>
</tr>
<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>
</tbody>
</table>
### Activities and Accomplishments

- **D3 – Interoperability Process Reference Manual (IPRM)** completed review and comment period during St. Louis meetings; currently undergoing final editorial updates for release.
- Initiated outreach to Interoperability Testing and Certification Authorities (ITCA) seeking their cooperation and participation in piloting the IPRM to assess their organizations against the IPRM recommendations.
- Prepared draft ITCA audit process document and checklist in preparation for ITCA reviews.
- Launched discussion with accreditation bodies for future independent ITCA reviews.

### Deliverables

- **D3 – Interoperability Process Reference Manual (IPRM)** has been completed and is being prepared for SGIP review.

### Upcoming Key Milestones and Activities

- Presentation on SGTCC framework and plan to the SGIP on October 29 to build awareness and support for the process.
- Completing 2-3 ITCA reviews by late November.
- Updates to the IPRM based on experience gathered during the ITCA review process, and revision/release in early January.
- Have consolidated the approaches in testing and laboratory certification into one document and are planning pilots for completion by the end of the year.

### Issues, Concerns, and Help Needed

- Obtaining timely cooperation from the ITCAs to participate in the review process with the TCC, and accelerating their commitment to adopt and enact the SGTCC recommendations in their operations.
**Activities and Accomplishments**

- Completed draft of the “Introduction to the NISTIR 7628, Guidelines for Smart Grid Cyber Security”
- Completed Outreach Session with California PUC
- Briefed NISTIR at TTC Conference in Alexandria VA
- Created new CSWG Subgroup on AMI security and on Testing and Certification
- Completed 5 Standards Assessments
- Expanded Support to PAPs
  - PAP2 – Requirements Update and Impact of Cyber Security on Waveforms
  - PAP 10 – Integrating Cyber Security
- Identified CWG team members to provide support to remaining PAPs

**Deliverables**

- Supporting Update to PAP 2 Requirements Matrix
- Supporting PAP 10 Requirement Development
- Review of next set of potential applicable standards
- Complete NISTIR 7628 Introduction

**Upcoming Key Milestones and Activities**

- PAP2 Requirements Update
- PAP2 Cyber Security impact by Waveform – Bandwidth Study
- Publish NISTIR 7628 Introduction
- Upcoming outreach Sessions:
  - IEEE 4-6 October at NIST
  - GridWeek 18-21 October in DC
  - University of Illinois – November 5, Champaign, IL
  - Georgia Tech – November 18-19, Atlanta, GA

**Issues, Concerns, and Help Needed**

- None
Plenary leadership team working in conjunction with SGAC and other SGIP working groups

**Proposed Scope of the Standards Catalog**
- Standards and guides recognized as relevant for enabling SG capabilities

**Proposed Objectives of the Standards Catalog**
- Explain value & purpose of the catalog for SG community
- Influential, but independent of NIST/FERC decision-making
- Characterize the various specification organizations with respect to their processes in developing their 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 (draw on SGAC work)
**Catalog of Standards (cont.)**

- **Process**
  - NIST Framework and Roadmap for SG Interoperability v1.0 identifies many standards to consider
  - Additional standards can be identified to the SGIP Administrator by any SGIP member for potential inclusion in catalog
  - Relevance and importance evaluated by appropriate SGIP working group (e.g. DEWG, PAP, etc) and consensus developed
  - 75% approval by SGIP membership required to forward to SGIPGB for approval for inclusion in the catalog
  - Standards included in the catalog may be deprecated from further use to changes in technology or needs by following the same process.

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

- **Relationship to NIST and FERC lists**
  - Standards Catalog strives for accurate characterization and relevance to the smart grid community, and avoids recommendation
  - Standards Catalog expected to be a larger compilation which can inform NIST and FERC in their decision processes
ELECTROMAGNETIC INTEROP ISSUES WG

NIST Framework, Release 1 (section 7.3) identifies electromagnetic disturbances and interference as two of the “…major standards-related issues and barriers impacting standardization efforts and progress toward a fully operational Smart Grid.”

• Electromagnetic Interoperability Issues Working Group was approved and created by the SGIP Plenary Chair, after
  • Review and revision of its charter with the Governing Board, and after
  • Discussion of an initial PAP proposal with the TnD DEWG (and H2G DEWG).

• Progress to Date:
  • Working Group page added to Twiki site and list server initiated
  • Announcement circulated to initial email list and SGIP forum
  • Good response to announcements
  • Initial teleconference/webcast scheduled for Nov 1, regular telecon/web meetings planned, F2F at Grid-Interop
  • Tentative Agenda items:
    • Introductions, Review charter and activities, Deliverables and time-lines, Subgroups, and Action items
**ELECTROMAGNETIC INTEROP ISSUES WG**

- **Scope:** This Working Group will investigate enhancing the immunity of Smart Grid devices and systems to the detrimental effects of natural and man-made electromagnetic interference, both radiated and conducted. The focus is to address these electromagnetic compatibility (EMC) issues and to develop recommendations for the application of standards and testing criteria to ensure EMC for the Smart Grid, with a particular focus on issues directly related to interoperability of Smart Grid devices and systems, including impacts, avoidance, generation and mitigation of and immunity to electromagnetic interference. These recommendations from the Electromagnetics Interoperability Issues Working Group can be considered by the SGIP for follow-on activity (PAP creation, SGTCC action, etc.). With its focus on interoperability, this effort is not a general review of electromagnetics and electric power related issues, such as power quality, which are being addressed in different groups outside the SGIP.

*NIST Framework, Release 1 (section 7.3) identifies electromagnetic disturbances and interference as two of the “...major standards-related issues and barriers impacting standardization efforts and progress toward a fully operational Smart Grid.”*
SGAC WORK PRODUCTS & DIRECTION

Ron Ambrosio
SGAC, Chair
## SGAC Quad Chart

### Activities and Accomplishments
- Ongoing focus on Architecture Process and Goals
- Conceptual Architecture
  - Goal Decomposition Workshop complete
  - Requirements Workshop complete
- Semantic Summit at St. Louis SGIP meeting
- Appointed SGAC liaisons to PAPs/DEWGs
- Developing SGAC Workplans (ongoing)
- Organizing SGAC participation at Grid-Interop 2010

### Deliverables
- Published Semantic Model White Paper
- Published Architecture Process Document
- Published Draft National Goals White Paper
- Published National Goals Decomposition Spreadsheet
- Published Architectural Requirements
- Published Draft PAP Mapping to NIST Concept Model and GWAC Stack

### Upcoming Key Milestones and Activities
- Engage with and aid in coordination of key industry reference architecture activities
  - Contact initiated with IEC SG 3, IETF, IEEE P2030, ITU-T
- Conceptual Architecture
  - Services Workshop – 10/11 – 14 at CA ISO
  - Draft materials posted to the Twiki
- Semantic Modeling
  - Follow-on work with PAPs and SSOs from Summit
  - Working on next version of white paper

### 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.
SGAC DIRECTIONS

- Developing a Conceptual Architecture based on Services for the purpose of providing a framework for industry reference architectures.
  - High Level Requirements
  - Goals
  - Consolidated Actors List
  - Path Forward

- Working towards achieving inter-domain semantic alignment thru
  - Outreach, i.e. the Semantic Summit in St. Louis
  - Semantic White Paper (current version on TWIKI)

- Working towards improving coordination between PAPs and DEWGS thru SGAC liaisons
  - Updates as required from liaisons during bi-weekly SGAC calls

- Coordination with SSOs developing smart grid architectures
CONCEPTUAL ARCHITECTURE
CONCEPTUAL ARCHITECTURE PROCESS

Goals Workshop
Aug 18-19

- Goals Whitepaper
- Process Presentation

Requirements Workshop
Sept 28-29

- Requirements Whitepaper
- Traceability Matrix

Services Workshops
Business
Oct 11-14
IT
TBD

- Conceptual Services
- Traceability Matrix

Interaction Workshop
TBD

- Interactions
- Traceability Matrix

Harmonization Meetings
Q1 2011

- Whitepaper on each architecture reviewed
GOALS

• As complete a set of requirements as is possible in a reasonable amount of time
• Open Public input for requirements
• A Traceable link between national goals, use cases, requirements, and implementations
  • Use cases linked to national goals
  • Requirements mapped to services (services traceable to requirements)
  • Conformance testing linked through requirements and use cases to goals
• Provide a conceptual architecture framework to provide a starting point that is usable by the SGiP
• Harmonize with other architecture efforts
PROCESS (TO DATE)

- Collect all known use cases (complete)
- Sort use cases by NIST domain, functionality, and Duplication (Complete)
- Collect National Goal Documents and Pull Goals (Complete)
  - Goal Decomposition (Complete)
- Draft a goal white paper (Draft complete and posted)
- Get expert group together to do national goal decomposition (Complete)
- Gather Requirements from various bottom up documents (Complete)
  - More than 600 use cases reviewed
  - 20+ other source documents (e.g. OpenHAN, OpenADR)
  - 7500+ detailed requirements gathered
- Requirements mapped into families (complete)
  - Families tied to national goals (in process)
**PROCESS (FUTURE)**

- Use requirements to build a set of business services across smart grid
  - Include unregulated markets, building systems, etc as needed
  - Workshop Oct 11 – 14 at CAL ISO
- Create traceability matrix between requirements and services and combine with goal decomposition
  - Publish a strawman for wider inputs
- Create IS services from Business Services
  - Workshop TBD
- Run a set of meetings with organizations developing architecture models to align with the goal decomposition/requirements and the conceptual services
  - Most are at the logical/physical level and should map with little or no problem
  - Conceptual Architecture will be primary tool for identifying overlap and gaps
- Create a set of information services that run between the domains and the business services in the conceptual framework to show the requirements for interoperability
- Create a set of architecture templates for publication
SEMANTIC SUMMIT

● Plenary Session
  o SGAC Semantic Subcommittee proposed general notion for achieving consistency.
    • An overview ‘map’ of semantic standards.
    • Discussion of requirements for harmonization where semantic worlds touch each other.
  o Representatives of various semantic standards efforts introduced their work and described scope and status.
  o Representatives of PAPs introduced their work and described scope and status.
  o Specific presentations introducing the topics for the Working Sessions.

● Parallel working sessions
  o Working sessions discussed particular problem areas
PLenary Agenda – Tuesday 1:30P - 5:00P Cdt

• Semantic Model Framework (Jay) [20 min]
• Semantic Model White Paper (Steve, Marty)[10 min]
• Shared Meaning of Content – Abstract model (Steve)
• Semantics and the IKB (Marty) [5 min]
• Smart Grid CDMs [60 min]
  • IEC 61970, 61968 CIM (Greg)
  • IEC 61850 (Herb)
  • ANSI C12, BACnet
  • OASIS
• Semantics and the PAPs (TCs) [60 min]
• SGAC Semantic Subcommittee would propose general notion for achieving consistency [15]
  • An overview ‘map’ of semantic standards.
  • Discussion of requirements for harmonization where semantic worlds touch each other.
• Planning of Working Breakouts (for Thursday)
  • Plan lunch tables to correspond to breakouts to continue the discussion
  • Lessons learned and steps forward harmonizing and unifying semantic models – CIM/61850/Multispeak/OASIS
  • Ad hoc over the Tuesday results?
  • Generate a PAP proposal for coordination of modeling efforts relying on and contributing to the CIM from an SGIP perspective
  • How non-uml models can be presented in a UML tool, stylistic methods
  • Refinement of Steve Ray’s abstract layer (shared meaning of content in GWAC stack)
**HARMONIZATION: THE NEXT BEST THING FOR COORDINATING CDMs**

- **Definition**: two CDMs are harmonized if:
  - There is a lossless transformation defined between all duplicated semantics.
  - Both sides undertake to maintain the harmony, once established.

- **Define a PAP for CDMs coordination**
  - Produce a semantic framework document
    - Map of CDMs, ...
  - Layout architectural principles
  - Identify Contracts between SDOs
  - Developing analysis of mismatches between models
  - Development of an abstract model – but constrain what it means – to achieve the 1-N potential
The Semantic Framework needs to define where we unify and where we harmonize

● Pragmatic objectives:
  o Minimize the number of CDM domains.
  o Minimize complexity of inter-domain exchanges.
  o Clarify scope and eliminate overlaps between domains.
  o Create contracts between adjacent CDMs that define how to move information between domains.

● The Semantic Framework technical strategy includes:
  o Unify some domains (as CIM has done).
  o Harmonize others in a peer-to-peer contract for transformation -- this is the strategy that preserves existing investment.
  o Create a shared abstract model for common modeling fragments (calendar?, price?, address?, ...).
QUESTIONS

Steve Widergren
HOME AREA NETWORK TASK FORCE UPDATE

Brian Markwalter
ASSIGNMENT FROM JULY GB MEETING

• B. Markwalter agreed to put aside bigger question on gaps, and instead focus on what is needed for appliances/DR, to be prepared and reported during 9/9/2010 meeting

• Task force asked for continuance to the October GB meeting
HAN Task Force through the Ages

- Original impetus for task force was technical/architectural (overabundance of MAC/PHY HAN options)
- Delivered consensus points, recommendations and threats in May
- Emphasis shifted to state regulatory interaction, security, dynamic pricing
- Hand off consensus points to architecture and security experts
- Identify and deliver value of smart appliances
**Updated Consensus Points**

- There will be several PHY/MACs in the home
- IP at Network Layer with preference for v6
- To the extent consistent with a needed Cyber-Security Architecture and NTTAA, SEP 2.0 is an Application layer target for many near term HAN functions
- Bridging/routing will be necessary but should be minimized
CONSENSUS POINTS (2)

- ESI will be meter and non-meter based
  - Must be at least one ESI (not necessarily within consumer premises)
  - Should allow more than one ESI
  - Consumer should always have the option of third party ESI
**Consensus Points (3)**

- Don’t assume we will rely on adapters
  - Allow devices to respond directly to pricing signals
  - Devices may include built-in capabilities to communicate over multiple PHY media
  - While not assuming reliance on adapters, an optional standard adapter interface should be developed to provide additional flexibility

- Customers should have optional access to their power consumption data in near real time with an objective of less than a 10 second delay.*
  - The implications and cost/benefit require more study

- The Smart Grid architecture should allow pricing/DR information to be communicated through the meter or through non-meter paths. Grid operation and reliability must be considered.
## Matrix of Needs and Sources

<table>
<thead>
<tr>
<th></th>
<th>OpenHAN</th>
<th>NIST/SGIP</th>
<th>AHAM</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirements</td>
<td>☑️</td>
<td>☑️ HAN TF etc.</td>
<td>☑️</td>
<td></td>
</tr>
<tr>
<td>Architecture</td>
<td>☑️</td>
<td>☑️ SGAC</td>
<td>☑️</td>
<td></td>
</tr>
<tr>
<td>Terminology</td>
<td>☑️</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information model</td>
<td></td>
<td>☑️ PAPs, SEP 2.0, NASBE, ASHRAE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connectivity Standards</td>
<td></td>
<td>☑️ framework + PAPs</td>
<td>☑️</td>
<td>☑️ SDOs, EPRI and alliances</td>
</tr>
<tr>
<td>Security</td>
<td>☑️</td>
<td>☑️ CSWG</td>
<td>☑️</td>
<td>☑️ SEP2.0</td>
</tr>
<tr>
<td>Value Proposition</td>
<td>?</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Dynamic Pricing</td>
<td>?</td>
<td>?</td>
<td>?</td>
<td>☞ NARUC, PNNL, EPRI, AHAM etc</td>
</tr>
<tr>
<td>Consumer Education</td>
<td>?</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>

☑️ Indicates accomplished or in process
RECOMMENDATIONS

• SGAC should review consensus points and incorporate into conceptual architecture
• The OpenHAN architecture and terminology can be a reference for SGIP technical work related to the HAN
  • It is considered most advanced work in this area
  • HAN TF was concerned about prescriptively referencing OpenHAN
• Technical work for the HAN is progressing in the right venues, GB does not need continued oversight
RECOMMENDATIONS (2)

• Rate structures today and lack of consumer education are impediments to appliance/CE goods in SG market. GB should foster NARUC, PNNL, utility, RTOs, appliance/CE dialog.

• Maintain the HAN TF
  • Review AHAM industry document when available
  • Receive feedback from SGAC on consensus points
QUESTIONS

Brian Markwalter
INTERNATIONAL ACTIVITIES REPORT

Mark McGranaghan
IPRWG UPDATE

Paul De Martini
PMO PAP UPDATE

Wayne Longcore
Key SGIP Program Activities

- Standards Approaching Completion
  - Wireless Guidelines – October, 2010
  - OASIS EMIX Pricing Model – November, 2010
  - NAESB Energy Usage Information Model – December, 2010

- Upcoming Key Face-to-Face Meetings and Webinars
  - GridWeek (not a SGIP event) in Washington, DC – October 18-21
  - NARUC Annual (not a SGIP event) in Atlanta, GA – November 14 - 17
  - Grid-Interop in Chicago, IL – November 30 to December 3
    - Governing Board meeting November 30
    - NARUC Winter (not a SGIP event) in Washington, DC – February 13 - 17

- SGIP Meetings
  - 2011 proposed plenary schedules have been published
  - Grid-Interop schedule posted to www.grid-interop.com

- Additional Major Activities and Milestones
  - Completed SGIP Plenary Fall F2F in St. Louis
  - Continuing development for definition, process, and structure for SGIP Catalog of Standards
  - Electromagnetic Interoperability Issues WG has been formed
## PMO Monthly Quad Chart

### Activities and Accomplishments

- **PAP 2** Wireless Guidelines: NISTIR Report due October
- **PAP 4** Common Scheduling: OASIS WS-Calendar public review closes 23 Nov
- **PAP 5** Meter Data: AEIC Guidelines for Meter Interoperability drafted in September
- **PAP 10** Energy Usage Information: NAESB draft in formal review, complete in December
- **PAP 11**: electric vehicle requirements being incorporated into SEP 2.0
- **PAP 12**: potential 1 year schedule reduction for DNP/61850 mapping with IEEE/IEC
- PMO TWiki site
  - Modified PAP Project Lifecycle to include coordination with SGAC and CSWG
  - New descriptive content on PAP Timeline
- Actor normalization effort completed by Administrator and handed off to SGAC

### Deliverables

- SGIP Monthly Report published on September 15
- Issued SGIP Fall F2F Meeting Press Release

### Upcoming Key Milestones and Activities

- Grid-Interop: Nov 29 – Dec 03
- **PAP 7**: Finalizing IEEE 1547.4 and 1547.6 (December 2010)
- **PAP 11**: Electric Vehicle Models, nearly complete!
- Testing & Certification Action Plans: Investigating efficacy of standards testing and certification projects (ongoing)
- More project management support to integrate and track the milestones and timelines of the AC, TCC, and CSWG.
- **PAPs 3 & 9**: schedule and pricing standards approaching OASIS public comment phase
- Revised PAP (and other SGIP WGs) Consensus SOP from BOPWG is expecting approval in October

### Issues, Concerns, and Help Needed

- **PAP 8**, CIM for Distribution Grid Management, needs your help on CIM and 61850 message structure (contact John Simmins)
- IEC TC57 WG14 needs additional time from experts to update the CIM (contact Greg Robinson)
- CMEWG (Comm, Marketing, & Education) is looking for volunteers on SGIP website interfaces (contact Paul Molitor)
PAP CHART OF PLANNED COMPLETIONS
# PAP Planned Completions by Quarters

<table>
<thead>
<tr>
<th>PAP</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Highlights</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAP 0 – Meter Upgradeability Standard</td>
<td></td>
<td>X</td>
<td></td>
<td>Remote meter upgradeability (COMPLETE)</td>
</tr>
<tr>
<td>PAP 1 – Role of IP in the Smart Grid</td>
<td>X*</td>
<td>X</td>
<td></td>
<td>*First RFC - C12.19 Meter TCP/IP Communications complete in 2010</td>
</tr>
<tr>
<td>PAP 2 – Wireless Communications for the Smart Grid</td>
<td>X*</td>
<td>X</td>
<td></td>
<td>*Wireless Guidelines Report (NISTIR) complete Sept 2010</td>
</tr>
<tr>
<td>PAP 3 - Common Price Communication Model</td>
<td></td>
<td></td>
<td>X</td>
<td>Currently in public comment period at OASIS</td>
</tr>
<tr>
<td>PAP 4 - Common Scheduling Mechananism</td>
<td></td>
<td></td>
<td>X</td>
<td>Currently in public comment period at OASIS</td>
</tr>
<tr>
<td>PAP 5 – Standard Meter Data Profiles</td>
<td></td>
<td></td>
<td>X</td>
<td>Draft guideline almost complete</td>
</tr>
<tr>
<td>PAP 7 - Electric Storage Interconnection Guidelines</td>
<td></td>
<td></td>
<td>X</td>
<td>Requirements received from OpenADE, OpenHAN, EIS Alliance, and Zigbee</td>
</tr>
<tr>
<td>PAP 8 - CIM for Distribution Grid Management</td>
<td></td>
<td></td>
<td>X</td>
<td>Developing requirements affecting IEEE 1547 and IEC 61850-7-420</td>
</tr>
<tr>
<td>PAP 9 - Standard DR and DER Signals</td>
<td></td>
<td></td>
<td>X</td>
<td>Close to public review at OASIS</td>
</tr>
<tr>
<td>PAP 11 - Interoperability Standards to Support Plug-in Electric Vehicles</td>
<td></td>
<td></td>
<td>X</td>
<td>SAE &amp; IEC coordination - information models, standards analysis, connectors</td>
</tr>
<tr>
<td>PAP 12 - IEC 61850 Objects/DNP3 Mapping</td>
<td></td>
<td></td>
<td>X</td>
<td>IEEE and IEC currently working on standards development</td>
</tr>
<tr>
<td>PAP 13 - Time Synchronization, IEC 61850 Objects/IEEE C37.118 Harmonization</td>
<td></td>
<td></td>
<td></td>
<td>Requirements completed - currently vetting them.</td>
</tr>
<tr>
<td>PAP 14 - Transmission and Distribution Power Systems Model Mapping</td>
<td></td>
<td></td>
<td>X</td>
<td>Working on use cases and requirements</td>
</tr>
<tr>
<td>PAP 16 - Wind Plant Communications</td>
<td></td>
<td></td>
<td>X</td>
<td>Developing use cases and requirements</td>
</tr>
<tr>
<td>PAP 17 - Facility Smart Grid Information Standard</td>
<td></td>
<td></td>
<td>X</td>
<td>Facility Smart Grid Information Standard</td>
</tr>
</tbody>
</table>

Total:

1 0 0 0 2 3 3 7 3 2
QUESTIONS

Wayne Longcore
CMEWG PROGRESS REPORT

Mladen Kezunovic
BACKGROUND

• Latest GB reporting:
  - GB at the Sept 9 accepted the provisional Roadmap list of action items and deliverables
  - GB asked CMEWG to prioritize activities, deliverables and establish schedules for the Roadmap
  - The roadmap activity now has full support from CMEWG volunteers, NIST staff and Administrator staff

• Roadmap activity subgroups:
  - Administrative
  - Communication
  - Marketing
  - Education
## Earlier Version of Roadmap Deliverables

<table>
<thead>
<tr>
<th>Activity</th>
<th>Type</th>
<th>Frequency</th>
<th>Updates</th>
<th>Priority</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Administrative</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vision</td>
<td>Text</td>
<td>once</td>
<td>As needed</td>
<td>1</td>
<td>Input: SGIPGB M&amp;V WG</td>
</tr>
<tr>
<td>Mission</td>
<td>Text</td>
<td>once</td>
<td>As needed</td>
<td>1</td>
<td>Input: SGIP M&amp;V WG</td>
</tr>
<tr>
<td>OPMAN</td>
<td>Document</td>
<td>once</td>
<td>4 months</td>
<td>1</td>
<td>Operations and Procedures</td>
</tr>
<tr>
<td>WG Meetings</td>
<td>Conf. Calls</td>
<td>monthly</td>
<td>N/A</td>
<td>1</td>
<td>GoTo meeting</td>
</tr>
<tr>
<td>Videos</td>
<td>Video</td>
<td>3 months</td>
<td>N/A</td>
<td>2</td>
<td>To be posted on Internet</td>
</tr>
<tr>
<td>Presentations</td>
<td>PP slides</td>
<td>3 months</td>
<td>As needed</td>
<td>3</td>
<td>Official SGIP presentations</td>
</tr>
<tr>
<td><strong>C&amp;M</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SGIP Website</td>
<td>Website</td>
<td>once</td>
<td>As needed</td>
<td>1</td>
<td>Website updates</td>
</tr>
<tr>
<td>Newsletter</td>
<td>Text</td>
<td>2 months</td>
<td>N/A</td>
<td>2</td>
<td>In Addition to Admin.</td>
</tr>
<tr>
<td>Internatl. outreach</td>
<td>Various</td>
<td>4 months</td>
<td>N/A</td>
<td>2</td>
<td>Input: SGIPGB Intl. WG</td>
</tr>
<tr>
<td>Existing Flyers</td>
<td>Document</td>
<td>once</td>
<td>4 months</td>
<td>2</td>
<td>Not much change needed</td>
</tr>
<tr>
<td>New Flyer</td>
<td>Document</td>
<td>4 months</td>
<td>4 months</td>
<td>3</td>
<td>To be printed and posted</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NARUC Meetings</td>
<td>PP slides</td>
<td>4 months</td>
<td>N/A</td>
<td>1</td>
<td>Reports already in process</td>
</tr>
<tr>
<td>NARUC Webinars</td>
<td>PP slides</td>
<td>monthly</td>
<td>N/A</td>
<td>1</td>
<td>Regular or on demand</td>
</tr>
<tr>
<td>NARUC Techn. Conf</td>
<td>Sessions</td>
<td>6 months</td>
<td></td>
<td>1</td>
<td>Preparations already in process</td>
</tr>
<tr>
<td>Outreach in other</td>
<td>Various</td>
<td>4 months</td>
<td>N/A</td>
<td>1</td>
<td>Green Tech, Academia, public, state events, ISOS, etc</td>
</tr>
<tr>
<td>communities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seminars</td>
<td>PP slides</td>
<td>4 months</td>
<td>N/A</td>
<td>2</td>
<td>Check existing</td>
</tr>
<tr>
<td>DOE Clearing house</td>
<td>Web Links</td>
<td>4 months</td>
<td>N/A</td>
<td>3</td>
<td>If they do not cover, we will</td>
</tr>
</tbody>
</table>
SGIP CMEWG ROADMAP ACTION ITEMS

• High priority action items
  - Press releases (initiated by GB, NIST, Administrator, etc)
  - SGIP Portal that directs users to categories of information and related websites (extension of SGIP.org)
  - NARUC Interaction support with related CME artifacts
  - TCC report dissemination and promotion (when ready)
• Deliverables and schedules
  - Website&Newsletter content update (Q4,10)
  - Flyer#1: “What is the meaning of Interoperability” (Q1/11)
  - Flyer#2: “Public benefits of Interoperability” (Q2/11)
  - Flyer#3: “Testing process to assure interoperability” (Q3/11)
  - PP slides & videos for the “Speaker Bureau” (Q4/10)
  - OPMAN (procedures for Press releases and other activities)
SGIP CMEWG: Support Issues

• NIST
  - Webmaster for Portal development
  - Content developer for website, flyers, newsletter, etc
• Administrator (NIST Contractor)
  - Logistics of meetings and minutes
  - Collection of information
  - Production and dissemination of artifacts
  - SGIPweb.org website
• CMEWG (volunteer members)
  - Review the artifacts
  - Advise on content
QUESTIONS

Mladen Kezunovic
CONCLUDE MEETING

● Other Business
  ○ GB Roadmap Direction
GOVERNING BOARD ROADMAP DIRECTION

John Caskey
VMR Task Team Status Report

- Refine scope of task team - COMPLETE
- Review existing SG visions – COMPLETE
  - Adopted DOE Smart Grid R&D Vision
- Develop SG interoperability vision - COMPLETE
- Develop SGIPGB mission - COMPLETE
  - Adopted missions from SGIP Charter
- Develop timeline of major federal and state smart grid implementation milestones - COMPLETE
- Develop high-level strategy to reach milestones – currently developing a whitepaper on a Consumer Engagement strategy.
- Communicate mission, roadmap and strategy to stakeholders – plan to present in Chicago.
QUESTIONS

John Caskey
CONCLUDE MEETING

● Other Business (Cont.)
  ○ PAP Consensus Procedure (Matt Theall)

● Closing Remarks

● Next SGIP Meetings
  ○ Webinar: October 29: 1-3 p.m. Eastern
  ○ GB: November 30, at Grid-Interop

● Adjourn