

NIST -- Smart Grid Testing and Certification Activities

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NIST Three Phase Plan

PHASE 1

Identify an initial set of existing consensus standards and develop a roadmap to fill gaps

PHASE 2

Establish public/private Interoperability Panel to provide ongoing recommendations for new/revised standards

PHASE 3

Testing and Certification Framework

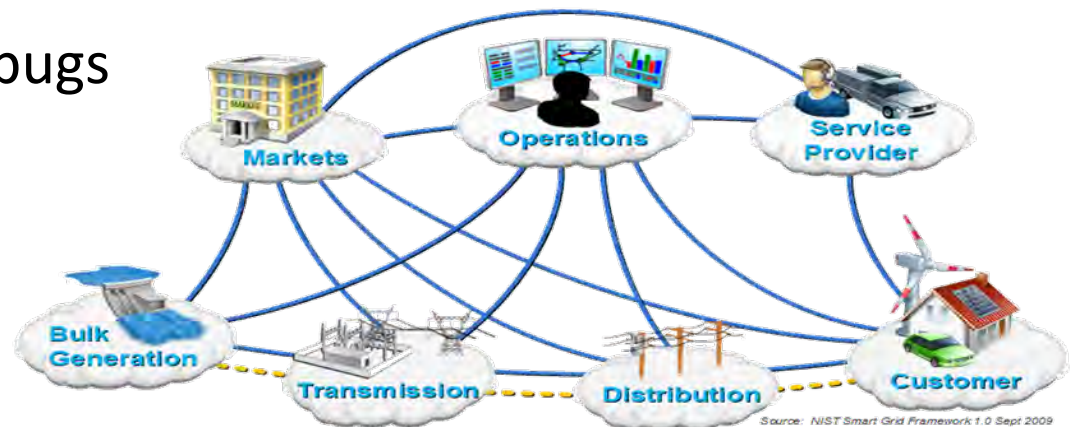


NIST SG Testing and Certification Activities

- Need For Testing and Certification
- NIST ITL Led Meter Upgradeability Security Test Program
- Testing and Certification Framework
- Smart Grid Interoperability Panel Testing and Certification Work

The Need For Conformance Testing

- Must work end to end
- Provide Interoperability in a multi vendor environment
- Plug and play required for specific products
- Prime focus on inter-domain operations
- Standards contain many options
- Standards may contain optional ways to support a feature
- Testing helps correct bugs
- Feedback to SDOs



NIST ITL SG Testing Acceleration

- AMI meter upgradability standards was identified as an important and critical Use Case
- Will develop security test cases around meter upgradability standard
- Contract selection and award expected within the next 30 days
- Goal is to have the initial test methodology developed and ready for deployment within 12 months from the contract award date
- Additional NIST security test case work expected based on other AMI standards

NIST Testing and Certification Framework

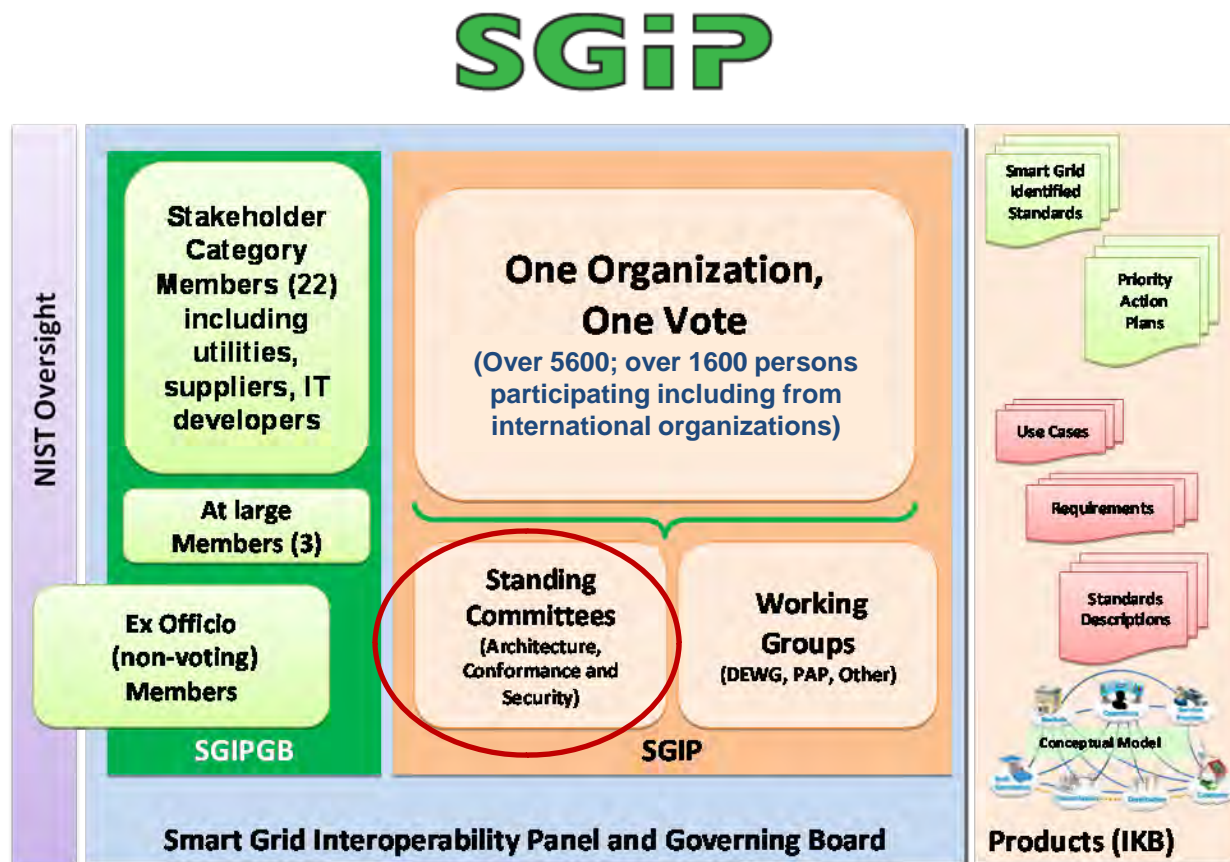
- Goal: Ensure seamless interoperability between Smart Grid components
- How: Provide guidance on coordination of multiple CA programs
- Audience: Input to SGIP Testing and Certification Committee
- Details:
 - *Prioritization of Standards*
 - *Level of Testing Required*
 - *Cost Metrics*
 - *Profile Concept*
 - *Conformance versus Interoperability*

NIST Testing and Certification Framework

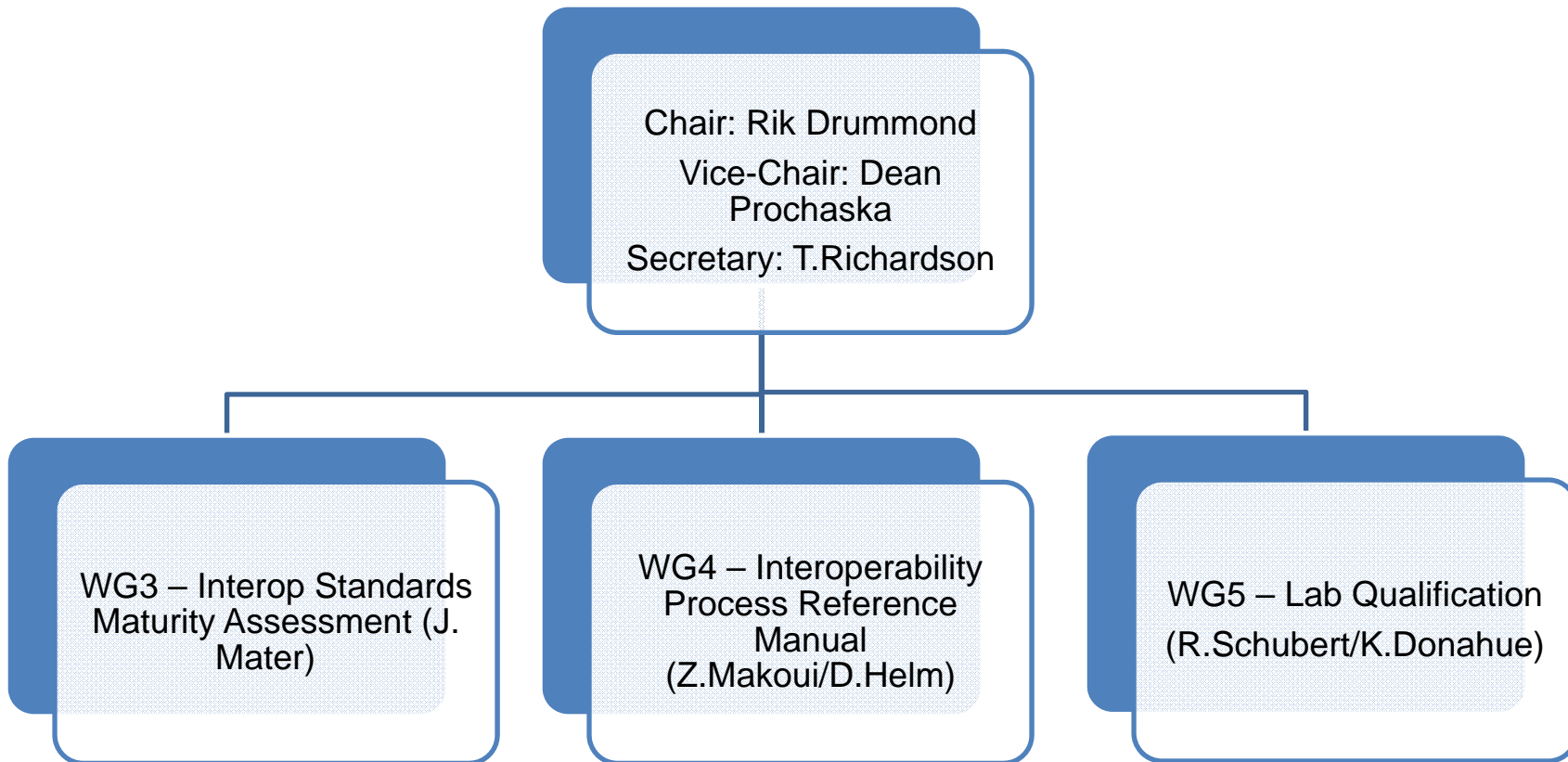
- Details Cont'd:
 - *Results Consistency*
 - *Single Test Agency/Authority per Standard*
 - *Open and Published Test Cases*
 - *Validation and Thoroughness of Test Cases*
 - *“Golden” Reference Products*
 - *“Golden” Test Tools*
 - *Lab Qualifications*
 - *Gap Identification*
 - *SDO Feedback Mechanism*
 - *SGIP Approved Test Agency Catalogue*

Smart Grid Interoperability Panel and Governing Board

- Public-private partnership, started in Nov. 2009
- Over 620 organizations, over 1,700 representatives
- Supports NIST in coordinating standards
- Governing Board elected
- SGIP Chair elected
- Committees established, SGIP meetings ongoing
- Electronic collaboration tools, newsletters / communications
- Project management office
- Open, transparent process
- International participation welcome



SGTCC Organizational Structure



SGIP Testing & Certification Committee (TCC)

- Purpose is to Coordinate Existing SG Test and Certification Programs to Ensure Interoperability
- NIST the vice-chair
- Leverage Standards Testing Programs
 - Not interested in duplicating programs
- Need to Identify Existing Gaps
 - Some SDOs do not write test cases
 - Many test programs not defined
- What Type of Testing
 - Range of testing options from vendor self testing to independent third party
 - Validation Process to Confirm Test Cases & Test Equipment
 - Protocol Testing
 - Inter-Operability Testing
 - ISO 65 and 17025 as basis plus best practices
- Closer coupling with standards development
- Test Agency SGIP Approved Catalogue



SGIP TCC Deliverables 2010 & 2011

- 2010 Deliverables:
 - Interoperability Program Reference Manual (IPRM) for use by individual Standards (70+) and test authorities to facilitate the production of interoperable products in the market place
 - Interoperability Maturity Assessment Tools for assessing a standards degree of interoperability
 - IPRM and Maturity Assessment Tools will both be used as an evaluation guide by the SGIP
 - Expecting to find 2-3 which meet the requirements. These will be deemed 'SGTCC approved interoperable Standards' in December
- 2011 Deliverables:
 - Facilitating the expansion of the 'SGTCC approved interoperable Standards' list by helping individual standards in their assessment to achieve approval
 - Expansion of the published 'SGTCC approved interoperable Standards' list to many more standards
 - Expansion of the IPRM with more IOP best practices

Further Information

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