

SGIP

Smart Grid Interoperability Panel

Building2Grid Integration

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SGIP Mission

- * The SGIP was explicitly established to support NIST in fulfilling its responsibilities pursuant to the Energy Independence and Security Act of 2007 (“EISA”). SGIP 1.0: NIST-funded, SGIP 2.0: Member-funded
- * **SGIP’s mission is to provide a framework for coordinating all Smart Grid stakeholders in an effort to accelerate standards harmonization and advance the Interoperability of Smart Grid devices and systems.**
- * SGIP fulfills this mission by:
 - Facilitating standards development for Smart Grid interoperability
 - Identifying necessary testing and certification requirements
 - Overseeing the performance of these activities & continuing momentum
 - Informing and educating Smart Grid industry stakeholders on interoperability
 - Conducting outreach to establish global interoperability alignment

SGIP Members

- * Electric Utilities
 - * Investor Owned Utilities, Rural Electric Cooperatives, Municipal
 - * Renewable Power, Transmission System Operators, Retail, Financial Market
- * Governments & Regulators
 - * Federal & State agencies
- * Manufacturers
 - * Appliance, Industrial, Vehicle, Power Equipment, Communications, Information Technology, Integrators
- * Associations and Standards Development Orgs (SDOs)

SGIP Organization

Membership

Domain Expert Working Groups (DEWGs)

Building to Grid

Industry to Grid

Home to Grid

Transmission &
Distribution

Business & Policy

Distributed
Renewables,
Generation & Storage

Priority Action Plans (PAPs)

Wireless Comm - 02

Energy Storage
Interconnect - 07

Distribution Grid
Mgmt - 08

Standard DR & DER
Signals - 09

Map IEEE 1815 to
IEC 61850 - 12

Power Line
Comm - 15

Wind Plant
Comm - 16

Facility Smart Grid
Info Std - 17

Wholesale Demand
Response - 19

Green Button ESPI
Evolution - 20

Weather Info - 21

EV Fueling
Submetering - 22

Standing Member Committees

Architecture

Cybersecurity

Implementation
Methods

Testing & Certification

Conceptual Models
& Roadmaps

Requirements

Use Cases

Whitepapers

Standards
Evaluations

Catalog of
Standards

SGIP B2G Accomplishments

- * Roadmap for Integration of C&I facilities/systems into the Smart Grid
- * Energy Services Interface (ESI) white paper
- * Use Case and Gap Analysis resulting in Priority Action Plans leading to
 - * OASIS Energy Interoperations and EMIX
 - * OpenADR 2.0
 - * SEP 2.0
 - * OpenADE/Green Button
 - * Facility Smart Grid Information Model
 - * OPC Unified Architecture
- * Customer Storage white paper
- * ...

SGIP B2G Projected Work

- * Working closely with Industry to Grid (I2G) on
 - * Interoperable Low-Cost Automation Ecosystems
 - * Move Retail Electricity Markets forward
 - * Interoperability with other Energy Ecologies

Thanks!

Building2Grid Integration

- * **Scope:** Commercial building interaction with the electric grid, including the energy service provider as well as other grid-side service partners.
- * **Vision:** Enable commercial buildings to participate in energy markets and perform effective energy conservation and management. More broadly, to identify and enable every role that the commercial building can play in the future smart grid to better the energy future of the US.

B2G Roadmap

- * **Stage 1: Foundation for C&I-Grid Interaction**
 - * Lay the **foundation** for C&I grid interaction. Buildings add Distributed Energy Resources, and become grid-aware as Electric Vehicle integration and automated Demand Response with load shedding/shifting grows.
- * **Stage 2: Easier and Smarter C&I-Grid Interaction**
 - * **Widespread deployment of grid-aware** C&I systems participating in grid supply/demand balance through demand response.
- * **Stage 3: Bi-directional C&I-Grid Interaction**
 - * Growth of **grid-interactive** systems: price-based facility response to grid needs, market transactions, and intelligent facility energy management that uses energy storage and renewable generation to enable peak shifting.
- * **Stage 4: Intelligent C&I Collaboration**
 - * Facility operates as a **grid-collaborative** system with integrated systems and intelligent energy management.

B2G Roadmap Categories

- * Energy Management
- * Architecture
 - * Architectural structure, boundaries, gaps
- * Standards and Technology
- * Business, Policy and Markets

Potential Retail Energy Market Project

- * Goals

- * Achieve an economic win-win for energy producers and consumers
- * Utilize existing standards and technology
 - * TEF, OpenADR 2.0, EMIX, TEMIX,...
- * Identify roadblocks inhibiting growth
- * Leverage Philadelphia Naval Yard's unregulated energy market to design, develop and prototype the integration of retail energy markets with energy control