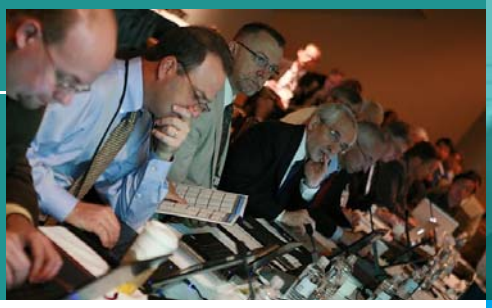
An open forum for collaboration, the SGIP establishes stakeholder requirements, sets priorities, and coordinates development of the standards for Smart Grid interoperability and cyber security.

Smart Grid Interoperability Panel (SGIP)

SMART GRID STANDARDS & IMPLICATIONS FOR UTILITY REGULATION

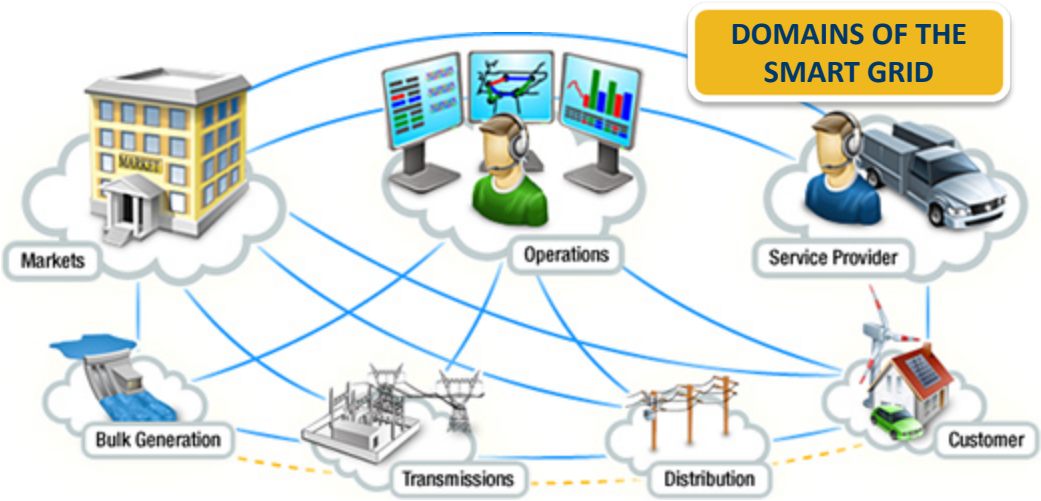


WHAT IS A "SMART GRID?"

By integrating an end-to-end, advanced communications infrastructure into the electric power system, a Smart Grid can provide consumers near real-time information on their energy use, support pricing that reflects changes in supply and demand, and enable smart appliances and devices to help consumers avoid higher energy bills. A more intelligent grid can also:

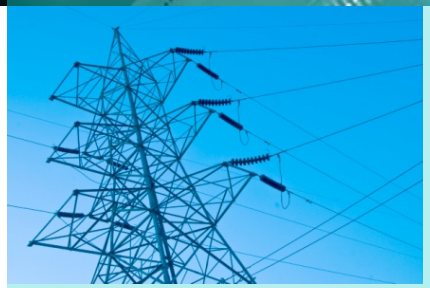
- reduce the duration and frequency of power outages
- lower generation requirements by reducing inefficiencies in energy delivery
- facilitate efficient charging of electric vehicles
- better integrate wind and solar resources
- provide more effective management of distributed generation and storage.

A Smart Grid uses information and communication technology to make the power grid more efficient, reliable, secure, and resilient while minimizing costly investments in new generation capacity.



WHAT IS INTEROPERABILITY?

Interoperability is the capability of different systems and devices to communicate and operate effectively with one another without significant user intervention. Devices that are fully interoperable may have "plug and play" characteristics: i.e., connect them and they work together.



WHAT IS THE SMART GRID INTEROPERABILITY PANEL?

The National Institute of Standards and Technology (NIST) initiated the SGIP to support NIST in fulfilling its responsibility, under the Energy Independence and Security Act of 2007, to coordinate standards development for the Smart Grid. Established in late 2009, the SGIP is a public/private partnership that defines requirements for essential communication protocols and other common specifications and coordinates development of these standards by collaborating organizations.

The SGIP is comprised of nearly 600 member organizations representing 22 stakeholder categories, including federal agencies as well as state and local regulators. More than 1,700 individuals are participating in SGIP activities. Membership is free and open to all organizations interested in achieving the Smart Grid vision.

WHY ARE INTEROPERABILITY STANDARDS IMPORTANT?

Agreed upon definition of terms, communication protocols, common interfaces, and other standards enable different systems and devices from multiple vendors to work together. As a result, interoperability standards reduce costs, increase consumer choice, and promote competition. Such competition can accelerate innovation and realization of additional consumer benefits. Standards also will make it easier for consumers to use smart devices, prevent premature obsolescence of Smart Grid investments, facilitate future upgrades, ensure that systems can be scaled up for larger deployments, and by making information more readily available to system operators, improve the reliability of the electric grid.

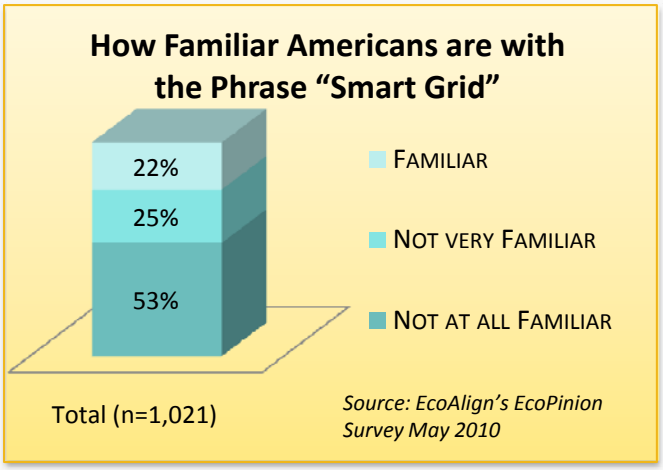
An accelerated standards development process is underway to support early Smart Grid deployments. As the capabilities of the Smart Grid evolve over time, additional interoperability standards will be developed to support new functions to realize all of the anticipated benefits.

WHAT ARE THE ROLES OF REGULATORY AGENCIES IN THE DEVELOPMENT AND IMPLEMENTATION OF SMART GRID STANDARDS?

First and foremost, standards and regulatory policies must be consistent. The SGIP encourages regulatory agency participation in its committees and working groups to ensure that state and local views are represented in setting priorities and guiding actions.

The Energy Independence and Security Act of 2007 (EISA) directs the Federal Energy Regulatory Commission (FERC), after sufficient consensus is achieved, to institute a rulemaking proceeding to adopt standards necessary to ensure Smart Grid functionality and interoperability in the interstate transmission of electric power and regional and wholesale electricity markets. However, EISA did not extend FERC's authority to enforce standards to areas outside the Commission's existing jurisdiction.

A significant portion of Smart Grid investments will be in distribution and retail applications that are under the purview of state utility regulatory agencies which may elect to adopt standards identified by NIST. Appropriate reliance on such standards can reduce the cost and risk of Smart Grid investments.



Additionally, the SGIP will be undertaking assessments that have important state and federal regulatory policy implications, including:

- Preparing guidance for the protection of consumer privacy and consumer access to usage data;
- Developing cyber-security standards that may be incorporated in power system reliability rules; and
- Identifying performance and reliability requirements for smart grid communications.

The SGIP's work will impact a range of energy, environmental, consumer, and telecommunications issues.

WHY SHOULD UTILITY REGULATORS GET INVOLVED?

The SGIP is where a broad cross-section of stakeholders is developing consensus about how to build a smarter grid. Regulatory agencies have the opportunity to provide guidance in this process and play a key role in achieving the benefits of a smart grid. The identification and development of standards for the smart grid should reflect regulatory policies, while providing a foundation for educating and engaging consumers to enjoy its benefits.

RESOURCES TO LEARN MORE

The starting point for the SGIP's development of interoperability standards is the *NIST Framework and Roadmap for Smart Grid Interoperability Standards, Release 1.0*. The *Roadmap* can be downloaded at *www.nist.gov/smartgrid/*.

The SGIP follows a transparent, collaborative process for all of its activities. Information on SGIP committees and working groups is readily available at the SGIP's collaboration site, *http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/SGIP*.

The SGIP includes a stakeholder category for "State and Local Regulators" which is represented on the SGIP Governing Board by Commissioner Paul Centolella of the Public Utilities Commission of Ohio. Questions on regulatory aspects of the Smart Grid and related SGIP activities can be directed to Commissioner Centolella at *paul.centolella@puc.state.oh.us).*

The SGIP will be proposing a webinar series to brief regulatory agencies on a routine basis. More information will be posted to *www.sgipweb.org*.