

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

Smart Grid Interoperability Panel (SGIP)

SMART GRID TESTING AND CERTIFICATION COMMITTEE (SGTCC)



Standards coordination across a multitude of organizations and technologies is essential to the long-term vision of Smart Grid interoperability. Beyond publication of a well-coordinated consensus standard, questions often remain: How do I determine if systems and devices conform to the standard? Does conformance to the standard assure interoperability? Am I confident that varied industry conformance and certification claims meet my needs and expectations?

The Smart Grid Testing & Certification Committee brings together a panel of individuals recognized for their industry testing expertise to address and answer these questions. With deep knowledge of the key characteristics of successful industry programs, the SGTCC has created and is enabling a framework for testing and certification programs and activities that will accelerate the deployment of an interoperable Smart Grid.

WHAT IS THE SGTCC?

The Smart Grid Testing & Certification Committee (SGTCC) is a standing committee within the Smart Grid Interoperability Panel (SGIP), the organization initiated by the National Institute of Standards and Technology (NIST) to coordinate standards development for the Smart Grid. The SGTCC mission is to coordinate the creation of organizational frameworks, methodologies, and documentation relating to compliance testing and certification to Smart Grid interoperability and cybersecurity standards.

The SGTCC is composed of a broad range of volunteers with expertise in testing and certification associated with utilities, vendors, independent test labs, accreditation bodies, associations and consortia that operate certification programs, standards bodies, and government. The SGTCC is open to all interested individuals with testing and certification expertise and responsibility, with leadership provided by an SGIP-elected panel of approximately 30 voting participants.

Testing, conformance, and interoperability require standards and standardized test methods and processes to assure consistent and repeatable results. A clear definition of what conformance or interoperability means relative to a specific standard or test program is also needed. Many standards do not provide explicit conformance definitions and leave those determinations up to end users and test laboratories.

The SGTCC works with industry stakeholders to identify test program gaps and needs that support key Smart Grid standards enabling interoperability. Collaboration with standards developers and industry organizations facilitates clarification and interpretation of existing standards transitioning to testing programs. Longer term, SGTCC advocates for standards developers to be cognizant that their efforts will lead to testing programs, and encourages the inclusion of necessary information to help transition from standard to conformance and interoperability testing.



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 composed of over 670 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.

INTEROPERABILITY BEST PRACTICES

The SGTCC has developed and issued an Interoperability Process Reference Manual (IPRM) detailing its recommendations on processes and best practices that enhance interoperability testing programs and help provide confidence to end users through meaningful certification programs. SGTCC experts agree that implementation of the IPRM recommendations by testing and certification organizations is a key element in helping to ensure that Smart Grid systems and devices will be interoperable. Based on the shared experiences of SGTCC experts, and grounded in widely accepted international standards for laboratory and certification program quality management systems, the IPRM provides valuable guidance to enhance existing program operations, and provides valuable direction for newly established certification programs as they develop to address identified industry testing needs.

CONFORMANCE, CERTIFICATION, AND INTEROPERABILITY

The terms conformance testing and compliance testing are loosely used across industry, generally with the same intent and meaning. In both cases, the terms refer to testing a system or device against a defined set of criteria, and evaluating the test results against the metrics defined within the criteria. Conformance or compliance to the criteria implies a passing or successful result. The term conformance is more widely used and generally associated with testing programs that are of a voluntary or market-driven nature.

Certification is a more specific term, and typically an extension of conformance/compliance testing. In most cases, programs offering certification against a set of criteria require that the system under test meet 100% of those criteria, or other specific definition of required results necessary towards the granting of certification. Certification programs often add an element of ongoing surveillance or quality checks to give greater value to the certification and help assure end users that products remain certified.

Interoperability testing involves connecting two or more systems and devices together and determines whether they can successfully communicate and operate with one another without significant manufacturer or user intervention. It is possible for two systems that conform to a standard to be unable to communicate. If they can communicate, it is possible that they cannot perform any useful functions. These situations arise because the implementations have conflicting interpretations of the specification, or because they have chosen conflicting options within the standard. Interoperability testing addresses these scenarios.

WHY SHOULD INTEROPERABILITY TESTING AND CERTIFICATION AUTHORITIES (ITCAs) GET INVOLVED?

Interoperability Testing and Certification Authorities (ITCAs) help to drive adoption of standards that enable rapid market introduction of interoperable products. However, the presence of an ITCA does not by itself assure automatic interoperability without rigorous process and testing expertise.

The SGTCC advocates the implementation of an ITCA within all standards to accelerate the transition from standards creation to market adoption of interoperable products based on standards. The IPRM and other SGTCC-developed tools are intended to provide a framework for rigorous process within existing ITCAs, as well as to provide a roadmap for emerging ITCAs addressing industry needs associated with standards not currently supported by an ITCA-type organization.

The SGTCC strongly encourages existing and emerging ITCAs to participate in enhancing the SGTCC's programs and tools through their experiences in implementing SGTCC recommendations. As technology deployments increasingly rely on industry certifications to provide confidence of interoperability, ITCAs will benefit from helping to influence and assure that their programs and those for related standards successfully meet the highest levels of industry expectations.

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 SGTCC follows a transparent, collaborative process for all of its activities. Information on SGTCC deliverables, activities, and working groups is readily available at the SGIP's collaboration site: <http://collaborate.nist.gov>.

The SGTCC Roadmap document, available on the collaboration site, provides a high-level description of the SGTCC areas of work, including both completed activities and those planned moving forward.

The SGIP includes a stakeholder category for "Testing and Certification Organizations," which is represented on the SGIP Governing Board by Rik Drummond, CEO, Drummond Group, who also chairs the SGTCC. Questions on testing and certification aspects of the Smart Grid and related SGIP activities can be directed to Rik at rikd@drummondgroup.com.



SMART GRID INTEROPERABILITY PANEL

