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Smart Grid Interoperability Process Reference Manual

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Foreword

(This foreword is not part of ANSI/NEMA SG-IPRM 1-2016)

The Interoperability Process Reference Manual, or IPRM, is a key foundational element of the Smart Grid Interoperability Panel (SGIP). The SGIP Smart Grid Testing and Certification Committee (SGTCC) developed and issued the IPRM to detail its recommendations on testing and certification processes and best practices that enhance the introduction of interoperable products in the market place. These recommendations build upon international standards-based processes for interoperability testing and certification.

The strongly held belief is that implementation of the IPRM by Interoperability Testing and Certification Authorities (ITCAs) will increase the quality of standards-based, secure, and interoperable products in the smart grid marketplace. The SGTCC members also believe that implementation of the IPRM will lead to reduced deployment costs of smart grid systems and devices, and to enhanced product quality with respect to interoperability and conformance, ultimately providing increased end-user customer satisfaction, and confidence to the buyer through meaningful certification programs.

The IPRM enables the adoption of consistent and measurable certification and testing policies and procedures across standards-based smart grid products based on the conformance, interoperability, and cybersecurity testing experience and expertise of SGTCC participants, and the widely accepted International Organization for Standardization (ISO)/International Electrotechnical Commission (IEC) 17025 and ISO/IEC 17065 international standards for testing laboratory and certification body management systems.

These two ISO/IEC standards provide a solid foundation for the development and operation of high-quality testing and certification programs. The SGTCC also recognizes that additional technical requirements and best practices are necessary to help assure test program technical depth and sufficiency in meeting end user expectations for interoperability and cybersecurity. These additional recommendations are detailed in the IPRM.

History and Supercedence

Version 2 of the IPRM was publicly released in January 2012. The goal of Version 2 was to enhance the utility of the document to support implementation of the criteria and recommendations by an ITCA and to structure it in a way to better facilitate assessments of ITCA implementation both internal to the ITCA and for external independent assessments. The changes in structure and clarity between Version 1 and Version 2 were significant, although the technical content changes and intent were minor. Fundamentally, Version 2 had an operational focus, while Version 1 provided an informational focus. Most of the key informative material from Version 1 was retained in Version 2, and underwent only minor editorial changes in Version 3.

Version 3 forms the basis of this standard and retains much of the technical material of earlier versions. New material and revisions to the document approach are found in Version 3 based on:

a) Lessons learned from ITCAs as they have implemented the IPRM.
b) Clarification of issues that were unclear or confusing to ITCAs based on comments and questions received by the SGTCC.

Some of these revisions were addressed since the last version of the IPRM using interim documents prepared by the SGTCC, and these interim materials have now been incorporated into Version 3.

Key changes in IPRM Version 3 as compared to the prior version include:

a) A new section providing more detailed, step-by-step implementation processes recommended for use by ITCAs building programs based on IPRM.
b) A new section on ITCA business considerations that influence program structure and operations.

c) A revised section introducing the SGTCC Catalog of Test Programs recognition of IPRM implementation— this replaces information on the SGTCC Program List, which has been replaced by the Catalog of Test Programs with the transition to SGIP 2.0.

d) New material discussing Electromagnetic Compatibility (EMC) issues, their influence on interoperability and considerations relative to EMC criteria for ITCAs.

e) A revised and more focused Cybersecurity section providing guidance to ITCAs on the role of cybersecurity relative to testing and certification programs.

f) A compilation of Frequently Asked Questions on the IPRM, ITCAs, and testing and certification in general, collected by the SGTCC since the previous IPRM release.

With this publication, the draft third version of the SGIP document has been transferred to a National Electrical Manufacturers Association (NEMA) and SGIP joint sponsored American National Standards Institute (ANSI)/NEMA standard as embodied in this publication, which supersedes the formal Version 2 publication by the SGIP.

Long time readers of the IPRM will note significant formatting changes to the text they last viewed due to template differences and the significant effort spent in creating a consistent, referenceable text. Also, because of the joint sponsorship, many of the overt references to SGIP and SGTCC have been deprecated in favor of more generic language or stricken to comply with the ANSI/NEMA style.

To those readers looking for a history of the SGIP, its processes, and the related NIST smart grid efforts are encouraged to examine the Executive Summary of the publication entitled “NIST Framework and Roadmap for Smart Grid Interoperability Standards, Release 3.0,” available at www.nist.gov.

Recognition

NEMA and the SGIP would like to recognize the following for their work in developing the IPRM under the auspices of the SGIP SGTCC and the National Institute of Standards and Technology (NIST).

Leadership

Erich Gunther	EnerNex LLC	Chair, SGTCC
Dean Prochaska	NIST	Vice Chair, SGTCC
Rudi Schubert	EnerNex LLC	IPRM Past Project Chair and Past Editor
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For more information about the SGIP, please visit www.sgip.org. For more information about the SGTCC, please visit www.sgip.org/sgtcc.

Feedback

In the preparation of this Standards Publication, input of users and other interested parties has been sought and evaluated. Inquiries, comments, interpretation requests, and proposed or recommended revisions should be submitted to the concerned NEMA product section by contacting the:

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At the time of NEMA Codes and Standards Committee approval of this standard, the companies forming the sponsoring NEMA section were as shown below.

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Section 1
General

1.1 Scope

The Interoperability Process Reference Manual (IPRM) defines a process by which industry stakeholders may procure, test, and assert interoperability between disparate vendors of smart grid products to identified standards. This is accomplished by defining the relationships between smart grid stakeholders invested in this goal. This standard defines requirements and recommendations for general test policies, test suite specifications, test profiles, interoperability testing and certification authority technical programs, governance, laboratory qualifications, and (process) improvements. Finally, this standard describes an implementation approach.