

**ISO/RTO Council**  
**Comments on National Institute of Standards and Technology**  
**Proposed Smart Grid Interoperability Standards**

Pursuant to the Notice posted in the Federal Register on June 9, 2009, the ISO/RTO Council (“IRC”) respectfully submits its comments on the preliminary set of smart grid interoperability standards and specifications identified for inclusion in the Smart Grid Interoperability Standards Framework by the National Institute of Standards and Technology (“NIST”).<sup>1</sup> The IRC is comprised of the ten functioning ISOs and RTOs in North America. The IRC’s mission is to work collaboratively to develop effective processes, tools and standard methods for improving the competitive electricity markets across North America. In fulfilling this mission, the IRC’s goal to provide a perspective that balances reliability standards with market practices so that each complements the other, thereby resulting in efficient, robust markets that provide competitive and reliable service to customers.

The IRC’s comments address the following list of standards and specifications identified for inclusion in Release 1.0 of the Smart Grid Interoperability Standards Framework

AMI–SEC System Security Requirements	Advanced metering infrastructure (AMI) and Smart Grid end-to-end security
ANSI C12.19/MC1219	Revenue metering information model.
BACnet ANSI ASHRAE 135–2008/ISO 16484–5	Building automation.
DNP3	Substation and feeder device automation.
IEC 60870–6/TASE.2	Inter-control center communications.
IEC 61850	Substation automation and protection.
IEC 61968/61970	Application level energy management system interfaces.
IEC 62351 Parts 1–8	Information security for power system control operations.
IEEE C37.118	Phasor measurement unit (PMU) communications.
IEEE 1547	Physical and electrical interconnections

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<sup>1</sup> The IRC is comprised of the Independent System Operators operating as the Alberta Electric System Operator (“AESO”), the California Independent System Operator (“CAISO”), Electric Reliability Council of Texas (“ERCOT”), the Independent Electricity System Operator of Ontario, Inc., (“IESO”), ISO New England, Inc. (“ISONE”), Midwest Independent Transmission System Operator, Inc., (“MISO”), New York Independent System Operator, Inc. (“NYISO”), PJM Interconnection, L.L.C. (“PJM”), Southwest Power Pool, Inc. (“SPP”), and New Brunswick System Operator (“NBSO”). The IESO, AESO and NBSO are not subject to NIST’s jurisdiction and these comments do not constitute agreement or acknowledgement that either can be subject to the NIST’s jurisdiction. Neither AESO nor NBSO are parties to this filing.

	between utility and distributed generation (DG).
IEEE 1686–2007	Security for intelligent electronic devices (IEDs).
NERC CIP 002–009	Cyber security standards for the bulk power system.
NIST Special Publication (SP) 800–53, NIST SP 800–82.	Cyber security standards and guidelines for federal information systems, including those for the bulk power system.
Open Automated Demand Response (Open ADR)	Price responsive and direct load control.
OpenHAN	Home Area Network device communication, measurement, and control.
ZigBee/HomePlug Smart Energy Profile	Home Area Network (HAN) Device Communications and Information Model.

The IRC understands these standards are intended to facilitate the development of technologies and products to provide communications and controls of electrical loads in a real-time and dynamic manner. Most of these standards are inter-connectivity standards that have been in existence and which have been found to be applicable for anticipated Smart Grid technologies. The IRC also understand that these standards do not propose any market products that may impact ISOs and RTOs, nor do the standards directly affect bulk power reliability such as the standards developed under the authority of the North American Electric Reliability Corporation (“NERC”) and the North American Energy Standards Board (“NAESB”).

The IRC offers the following specific comments for NIST’s consideration:

1. ISOs and RTOs desire to leverage the NIST standards and have provided initial input and recommendations through NIST workshops related to DNP, ICCP, NAESB, NERC, and WEB Services standards.
2. DNP and ICCP are well established and should be leveraged as fully as possible. Future implementations may also include WEB Services (“W3C standards”). The IRC will determine the relevancy and application of WEB Services as a viable option for communication between aggregators and ISOs and RTOs as products and services are further developed around Smart Grid.
3. As ISO/RTO products and services are further developed, the IRC expects that the Common Information Model (“CIM”) would be extended and standardized to support Smart Grid applications, products, and services. This will support CIM compliant payloads where appropriate between aggregators and ISOs and RTOs. The work of developing the CIM for distribution applications should be accelerated, including integration of a CIM profile for MultiSpeak interoperability. The IEC TC57 WG14 roadmap can be used as a starting point for this effort.

4. The ISO/RTO focus on Smart Grid Standardization is intended to consider the standards between the aggregator and the ISO/RTO and is not expected to address specific end point devices. This recognizes that the product and services that ISOs and RTOs provide around Smart Grid will influence the standards to the end point devices. Additionally, the ISO/RTO products related to Smart Grid will enable and support advances in Smart Grid.
5. Some of the proposed standards utilize terms such as “power quality”, “interconnection”, and “islanding” that may not be generally understood or which may be in conflict with known and commonly used terms in the electric power industry.
6. The IRC recommends that the Open ADR standard be endorsed as a smart grid standard after it has been published by the Organization for the Advancement of Structured Information Standards. It should be harmonized with the DR standard under development by NAESB. A common standard for communicating to both load control and supply control devices will help accelerate DR implementation and the development of DR products. The current Open ADR standard has not been endorsed by an official standards body and at this time is too immature to be endorsed as a smart grid standard.
7. The IRC believes there is value in having technical standards at the distribution voltage level that enable and foster innovation and commerce. The IRC cautions, however, that smart-grid standards, to the extent they impact the bulk power system, must be compatible with NERC reliability standards and NAESB business practices. The Federal Energy Regulatory Commission has recognized these organizations as being responsible for developing such standards which result in compliance obligations for members of the industry.
8. The IRC believes that NIST should give preference to open standards that are royalty free and prohibit the use of vendor owned intellectual property within a Smart Grid standard, unless that property is provided on reasonable and non-discriminatory terms to the community
9. The IRC believes that NIST should, as a first order priority, develop standards that are needed by power system control entities to seamlessly operate and plan the Smart Grid through the transition from a hierarchical to distributed control paradigm.
10. IEC 61970 is an abstract model for transmission (Common Information Model) with no mapping of the information model to communication formats and messages. As is, this information model does not support interoperability. If CIM format and messaging standards were developed based on the CIM model, then this standard could be implemented and would ensure operability.

The IRC and its member organizations look forward to continued participation in future activities related to the development of the Smart Grid standards and request that NIST consider the comments set forth herein in developing Smart Grid standards.

Respectfully submitted,

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