



NARUC Winter Meeting

NIST Standards Development Update

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Project Focus - Selected NIST Standards Activity

Proposed Standards		Application
14	Open Automated Demand Response (Open ADR)	Price response and demand response.
15	OpenHAN	Home Area Network device communication, measurement, and control
16	ZigBee/HomePlug Smart Energy Profile	Home Area Network (HAN) Device Communications and Information Model

Priority Action Plans (PAP)

- 3 Common Pricing Model**
- 4 Standard Scheduling Mechanism**
- 9 Standard DR Signals**
- 10 Standard Energy Usage Information**

- 1. Phenomenal level of activity, conference calls, webinars, meetings, email, and products**
- 2. Compressed time schedule creates participation challenges, limits product development, and representation in working groups**
- 3. Emerging use cases, requirements and specifications, especially for new evolving processes, are exposing coordination and other issues**

Recent Reports / Products Released



- ❑ Smart Grid Cyber Security Strategy and Requirements 2/04/2010
- ❑ UCAlug Home Area Network System Requirements Specification , V2.0 1/30/2010
- ❑ **NIST Framework and Roadmap for Smart Grid Interoperability Standards, Release 1.0** 1/29/2010
- ❑ Energy Information Standards (EIS) Alliance: Customer Domain Use Cases, V1.0 1/29/2010
- ❑ Framework for Integrated Demand Response (DR) and Distributed Energy Resources (DER) Models, V1.3 11/12/2009
- ❑ PAP 3: Requirements Specification for Common Electric Product and Pricing Definition 2/03/2010
- ❑ PAP 4: Requirements Specification for Common Scheduling Mechanism for Energy Transactions 12/08/2009
- ❑ PAP 9: Requirements for Wholesale Standard DR Signals 1/12/2010
- ❑ PAP 10: Security Profile for Third Party Data Access 1/29/2010

NIST Standards: Framework Update January 29, 2010



1

Initial ~~16~~ 25 NIST Recommendations



2

Supplemental ~~15~~ 50 NIST Recommendations



3

Priority Action Plans (15)

Open Automated Demand Response (OpenADR)

OpenADR is an open standards communication data model that provides Internet-based price, reliability, or event signals to automated commercial and industrial energy management and residential control systems in support of retail and wholesale applications.

Status

- Still under review by UCAIug OpenADR Task Force
- Work proceeding to complete use cases and to harmonize OpenADR with related Priority Action Plans
- Honeywell and several utilities implementing OpenADR under Smart Grid Investment grants

Home Area Network (HAN) System Requirements

OpenHAN defines guiding principles, use cases, system requirements (hardware, software, security, etc.) and policy for establishing a secure utility controlled communication gateway / platform embedded in the utility revenue meter.

Status

- **UCAIug Home Area Network System Requirements report released January 29, 2010**
- **OpenSG review meetings conducted February 1st – 4th**
- **Comments due to OpenHAN task force by February 16, 2009**
- **Ratification by UCAIug expected Q2 2009**
- **Office of Science and Technology Policy (OSTP) – Notice of Request for Public Comment on OpenHAN elements (issued February 9th)**

Office of Science and Technology Policy Notice of Request for Public Comment

1. Should the smart meter serve as the primary gateway for residential energy usage data, price data, and demand response signals?
2. Should a data gateway other than the smart meter be used for all or a subset of the data described in question 1?
3. If the smart meter, via the utility network, is the primary gateway for the data described in question 1, will consumers and their authorized third-party service providers be able to access the data easily and in real time?
4. Who owns the home energy usage data? Should individual consumers and their authorized third-party service providers have the right to access energy usage data directly from the meter?
5. How are low-income consumers best served by home-to-grid technology?
6. What alternative architectures involving real-time (or near real-time) electricity usage and price data are there that could support open innovation in home energy services?



ZigBee HomePlug Smart Energy Profile (SEP)

ZigBee HomePlug is the brand name for a low-power and power line carrier communication standard being developed to support pricing, demand response, device registration and monitoring in conjunction with OpenHAN.

Status

- **No Priority Action Plan working group**
- **Development of Smart Energy Profile 2.0 is being led by the ZigBee HomePlug Alliance, private industry consortium**
- **SEP 2.0 release anticipated May 2010**

Common Specification for Price and Product Definition

Priority Action Plan 3 is developing a common price model that will define how to exchange energy prices, characteristics, availability, and schedules for both retail and wholesale markets.

Status

- **Recommendation to NAESB Executive Committee released for comment on February 3, 2010**
- **Broad requirements to support combinations with and without open wholesale and retail markets**
- **Attributes for various rate forms and applications but no requirements identified**
- **Key assumption: Retail pricing models are complex. Attempts to standardize price signals must not hinder regulatory changes or market innovations**

Common Scheduling Mechanism for Energy Transactions

Priority Action Plan 4 will define the requirements for communicating date, time, schedule, and interval by smart grid actors, with particular attention to demand response (DR) applications.

Status

- **Recommendation to NAESB Executive Committee released for comment on December 8, 2009**
- **Three classes of information identified:**
 1. **Events within the power management and distribution grid**
 2. **Financial or business transactions concerning #1**
 3. **Schedules and interval information for energy flows**
- **Requirements rationalized with existing industry standards**
- **Detail to be addressed by CalConnect and OASIS**

Standard DR and DER Signals (6.2.1)

Priority Action Plan 9 will define control and pricing signals for demand response and distributed energy resources.

Status

- **Recommendation to NAESB Executive Committee released for comment on January 12, 2010**
- **Complex use cases and common ‘actors’ interrelated with PAP 3 and 4 and OpenADR**
- **Broad requirements identified for retail and wholesale applications**
- **Schedule slipping and task completion subject to some uncertainty**

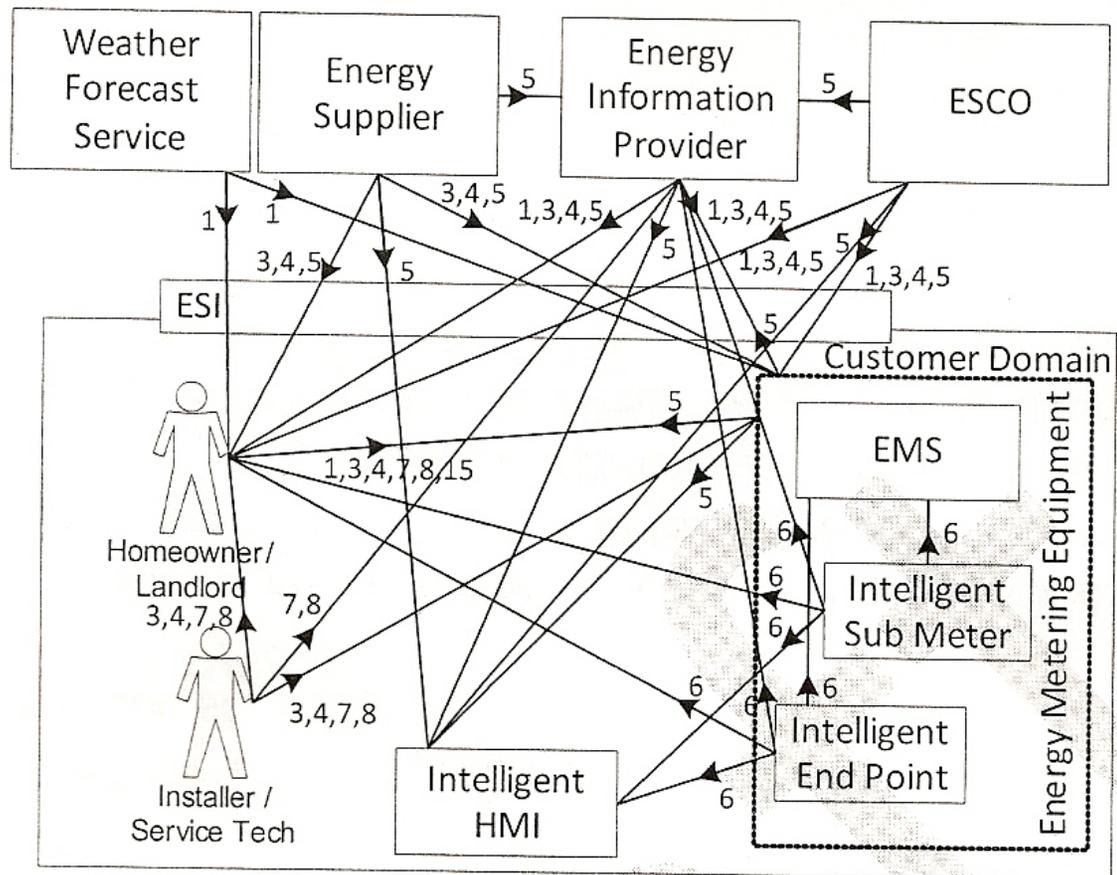
Standard Energy Usage Information

Priority Action Plan 10 will determine information needs, customer access to meter usage data, and an information model that can support residential as well as commercial and industrial applications.

Status

- **Customer domain use cases released for comment on January 29, 2010**
- **Complex use cases for 19 scenarios, covering wide range of known and new applications**
- **Broad requirements identified for retail and wholesale applications**
- **Schedule slipping and task completion subject to some uncertainty**

Figure 19.1 Choose Response to DR Signal Use Case Diagram*



* EIS Information Standards (EIS) Alliance Customer Domain Use Cases, V1.0, pp.87, 01/29/2010