

Architecture & Standards GridWise[®] Architecture Council

Ronald B. Melton, PhD
Administrator, GridWise[®] Architecture Council
PNNL



Pacific Northwest
NATIONAL LABORATORY

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Architecture & Standards

GridWise[®] Architecture Council

Objective

Advance interoperability to enable full-scale smart grid deployments by engaging stakeholders in defining interoperability principles, methods, and tools. Provide point of coordination for NIST in response to EISA 2007 legislation.

GWAC Stack

Organizational
(Pragmatics)

8: Economic/Regulatory Policy

7: Business Objectives

6: Business Procedures

Informational
(Semantics)

5: Business Context

4: Semantic Understanding

Technical
(Syntax)

3: Syntactic Interoperability

2: Network Interoperability

1: Basic Connectivity

Funding Summary (\$K)

FY09	FY10	FY11
\$700	\$700	\$700

Technical Scope

- GridWise Architecture Council (GWAC) administration
- Development and dissemination of smart grid interoperability related methods, tools and education
- Leadership and participation in national smart grid interoperability standards activities such as the NIST Smart Grid Interoperability Panel

FY10 Progress & Milestones

Hold Grid-Interop 09 forum <i>(Completed)</i>	Nov. 2009
Update Decision Maker's Checklist <i>(paper accepted for IEEE PES General Meeting)</i>	Feb. 2010
Draft interoperability maturity model <i>(paper accepted for IEEE PES General Meeting)</i>	Mar. 2010
Develop interoperability education and outreach plan <i>(Sessions held at Connectivity Week, GridWise® Global Forum, and GridWeek)</i>	June 2010
Support NIST in implementation of their interoperability standards panel and their progress report on consensus standards <i>(GWAC participates in Governing Board, PAPs, DEWGs, and SGAC, SGTCC, where GWAC members are chairs.)</i>	Sept. 2010
Hold quarterly GWAC meetings	Sept. 2010

Needs and Challenges

Needs:

- ❖ Maintain and support DOE involvement in smart grid interoperability and cyber security standards
- ❖ Broad, independent, strategic thinking about smart grid implementation and interoperability
- ❖ Engage the business, policy and regulatory dimensions
- ❖ Engage a balanced cross-section of key stakeholders
- ❖ Educate the broad community

Challenges:

- ❖ Focus – there are many problems to be solved
- ❖ Leverage – there are limited resources, especially human

Technical Approach

Methods and Tools

- ❖ GWAC has developed and continues to update and develop interoperability tools and guidance for the benefit of the community
- ❖ Best known of these is the “Interoperability Context Setting Framework” which contains the well known GWAC Stack
- ❖ These tools and methods give the community a common language, a way to talk about the challenges – especially important in the policy and regulatory groups

Strategic Vision

- ❖ GWAC provides an independent strategic vision to the community

Architecture and Standards Leadership

- ❖ PNNL staff provide leadership to the community on behalf of DOE, e.g., Steve Widergren’s position as Chair of the SGIP Plenary, Ron Melton as member of SGIP Architecture Committee

Technical Approach - Engagement

GWAC Engagement with the Industry

- ❖ GWAC Meetings
 - Held quarterly
 - Open to all interested parties
 - Outside speakers covering national and international topics of interest
- ❖ GWAC Member Liaisons
 - Individual GWAC members are engaged in their respective industry activities
- ❖ Grid-Interop Forum
 - Annual technical meeting focused on smart grid interoperability
 - FY10 will be the 4th Grid-Interop with over 750 participants expected
- ❖ NIST SGIP Activities
 - GWAC members serve on Governing Board and chair the Architecture Committee and Testing & Certification Committee
 - GWAC members are actively involved in DEWG and PAP activities, often in leadership positions

GridWise Architecture Council



▶ Who

- 13 respected experts
- Volunteers
- Cross-sector background

• What

- Principles of interaction
- Interoperability

Advocating

Facilitating

Eye on the Future

The Electricity Community:

→ The future is in the linkage of sectors across the electricity chain.

Prior-Year Progress & Accomplishments

2006 – Interoperability Constitution

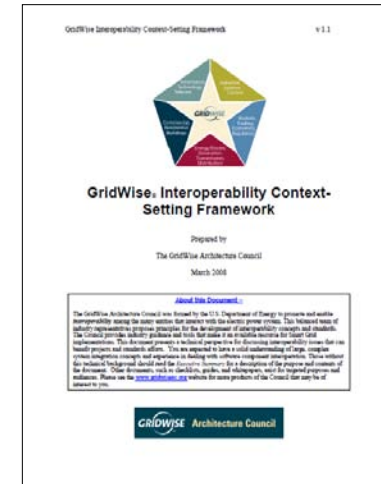
2007 – Interoperability Decision Maker's Checklist

2008 – Interoperability Context Setting Framework

2007-2009 – Grid-Interop Forum

2009 – Interoperability Benefits Papers

- *Environmental Benefits*
- *Financial Benefits*
- *Reliability Benefits*



FY10 Progress & Milestones

Grid-Interop Forum

3rd Forum was held in Denver

Nov. 2009

4th Forum planned for Chicago

Dec. 1 – 3, 2010

GWAC Community Engagement

ConnectivityWeek – GridWise Expo with session on
“Achieving Interoperability in Smart Grid Projects”

May 2010

NARUC Summer Meeting

July 17 – 21, 2010

IEEE PES General Meeting (SG IMM and Decision Maker’s Checklist papers
& Interop Panel)

July 25-29, 2010

Global Smart Grid Forum – Panel

Sep. 21 – 23, 2010

GridWeek – Interoperability Workshop

Oct. 18 – 21, 2010

NIST Support

BnP, H2G, T&D, I2G, AC, TCC chair or co-chair positions

Ongoing

Steve Widergren serves as the NIST SGIP Plenary Chair

Ongoing

FY10 Progress & Milestones (2)

Interoperability Decision Maker's Checklist Update

Survey of needs completed

Update Completed

Used in workshop at GridWeek 2010

GridWise Interoperability Constitution Update

Previous survey updated

Input to be gathered by GWAC members now

Update completion and rollout planned at Grid-Interop 2010

Interoperability Maturity Model

Work in progress

Workshop held during GridWeek 2010

Beta testing with Smart Grid Demonstration Projects

Initial results will be reported at Grid-Interop 2010

Final version during FY11

Out-year Planned Progress & Milestones

Interoperability Maturity Model

Completion planned in

June 2011

“Smart Grid Vision”

Completion planned in

Mar. 2011

Transactive Energy Workshop

Planned for

Mar. / Apr. 2011

Grid-Interop Forum 2011

(Phoenix, AZ)

Dec. 5-8 2011

GWAC Administration and NIST support

Ongoing

Impacts and Benefits

- ❖ GWAC instrumental in laying the foundation for the current SGIP activities
- ❖ NIST requests continuing GWAC involvement and coordination
- ❖ GWAC placing emphasis on the upper levels of the GWAC stack – those focused on business, policy and regulation – (in contrast to the near-term, low level focus of NIST effort)
- ❖ GWAC continues to look for opportunities to provide methods and tools to the industry to help develop and improve smart grid interoperability practices
- ❖ DOE related technical leadership within the interoperability architecture and standards efforts
- ❖ A base of knowledge, methods and tools that can be used by current ARRA projects and future DOE smart grid deployment activities

Interactions & Collaborations

NIST Smart Grid Interoperability Panel

- ❖ GWAC provided formal written comments on the NIST Smart Grid Interoperability Road Map and continues to work directly with the NIST staff responsible for the SGIP efforts. In addition, Steve Widergren serves as the SGIP Plenary Chair coordinating many of the SGIP activities.
- ❖ Support to DOE on interactions with NIST and SGIP
- ❖ Leadership of Business and Policy Domain Expert Working Group

NARUC

- ❖ GWAC has a history of involvement with NARUC through presentations at and participation in their meetings.

FERC

- ❖ There has been regular FERC attendance at GWAC meetings. GWAC has submitted formal comments on two FERC dockets over the past year and has had numerous phone conferences with FERC staff.
- ❖ Support to DOE in coordinating interoperability concerns with FERC

Contact Information

Ronald B. Melton, Ph.D.

Pacific Northwest National Laboratory
P.O. Box 999, MSIN K1-85
Richland, WA 99352

509-372-6777 – Office
509-531-5562 – Mobile
ron.melton@pnl.gov

www.gridwiseac.org



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