



## GridWise Architecture Council Meeting Austin, Texas

September 12-13, 2007

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### Meeting Minutes

The meeting was held from 8 a.m. – 5 p.m. on September 12 and 8:30 am – 4:30 pm on September 13, led by Mike McCoy in Jack Mc Gowan's absence. The following individuals were present:

#### Architecture Council Members

Ron Ambrosio, IBM T.J. Watson Research Center  
Joe Bucciero, KEMA Consulting  
David Cohen, Infotility  
Rik Drummond, Drummond Group  
Erich Gunther, EnerNex Corporation  
Stephanie Hamilton, Southern California Edison  
Dave Hardin, Invensys Process Systems  
Mike McCoy, Becker Capital Management  
Lynne Kiesling, Northwestern University  
Richard Schomberg, Electricite de France  
Alison Silverstein, Consultant

#### Architecture Council Support

Steve Widergren, PNNL  
Ruth Taylor, PNNL  
Ron Jarnagin, PNNL

#### Guests

Eric Lightner, DOE  
Anto Budiardjo, Clasma Events  
Tom Burke, OPC Foundation  
Michaela Barnes, GridPoint  
Milton Holloway, CCET  
Roger Duncan, Austin Energy  
Pat Snack, General Motors Executive Loan AIAG

#### Not Present

Jack Mc Gowan, Energy Controls, Inc.  
Russell Robertson, Tennessee Valley Authority

## Welcome and Introductions

Mike McCoy, as acting Chair, welcomed the guests and gave an overview of the agenda. Council members were reminded of upcoming GWAC meetings. Upcoming meetings dates are as follows:

- October 19, 2007 – web meeting from 9 - 11 am PT
- November 7-9, 2007 – Grid Interop Forum in Albuquerque, NM
- December 14, 2007 – web meeting from 9 - 11 am PT
- February (first week) 2008 – face to face meeting in New Orleans, LA
- March 28 or April 4 – web meeting from 9 – 11 am PT
- May 19 – face to face meeting, co-located in Santa Clara with the GridWise Expo

Action Item: Ruth Taylor will coordinate logistics with council members and invited speakers.

## Proprietary Information Notice

The members and guests were reminded of the proprietary information disclosure policy from the Bylaws.

## Meeting Minutes Approval

The minutes for the July 13, 2007 web meeting in were approved without changes.

## Mission and Structure Document

Ruth provided an update on the Mission and Structure document, and an action was made to assemble a team to review the document. The team includes Richard Schomberg, Joe Bucciero, Ron Ambrosio, Mike McCoy, Alison Silverstein, and Lynne Kiesling. Richard suggested altering some language for readability by those unfamiliar with the technical terminology.

Action Item: Richard Schomberg, Joe Bucciero, Ron Ambrosio, Mike McCoy, Alison Silverstein, and Lynne Kiesling will review the mission and structure document and send a new version to the council for final review.

## Liaison Reports and Outreach Activities

### GridWise Alliance (GWA)

Ron Ambrosio reported that the Alliance has gained 43 new members. Congressman John Hall (D-NY) has expressed an interest in GridWise activities, and will be joining Ron Ambrosio, Guido Bartels, and Steve Hauser at Watson Labs to discuss. Steve Widergren mentioned that he and Steve Hauser have been discussing a more formal relationship between the GWAC and GWA. Active council member organizations would be given complimentary (non-voting) membership in the Alliance. Ron responded that it has been considered to incorporate the GWAC as the technical core leadership and focal point of the Alliance. The focus of the Alliance has previously been on Capitol Hill impact, rather than technical, business, and regulatory activities. Alison also suggested that GWAC work with the Alliance to have members 'test drive' the checklist and framework documents.

### EPRI Intelligrid

Erich Gunther informed the Council of an upcoming meeting of advisors. Intelligrid continues the application of GWAC principles and is using GWAC framework concepts in their latest energy efficiency efforts.

Richard Schomberg reported that the EPRI IntelliGrid steering committee allowed an hour in their agenda to discuss the GWAC and potential collaboration.

### OpenAMI, OpenHAN

Erich Gunther reported that OpenHAN (Home Area Network) is using the GWAC framework for load control requirements and the programmable control thermostat.

### IEC TC8 – System Aspects for Electricity Delivery

Richard Schomberg reported that the IntelliGrid Reference document was approved as an IEC PAS. The document describes how to make use cases and other requirements methodology. Richard requested participation from the GWAC to consider the framework and other material within the IEC.

### Grid Modernization Collaborative

Erich Gunther will be presenting the framework document and checklist at Ohio PUC.

### FERC

Alison Silverstein will give a brief report on the decision-maker's checklist at the FERC-NARUC DR Forum in November. FERC also has a new Office of Innovation. Alison will schedule a presentation on the checklist to staff members of this office.

## Outreach Activities

Current and upcoming outreach activities were reviewed (see meeting slides).

Stephanie Hamilton, Lynne Kiesling, and Alison Silverstein to coordinate with Tony Mazy on 2008 IEEE T&D conference panel session on Smart Grid Architecture.

Jack Mc Gowan will participate in the DR Expo.

Planning for GridWeek 2008 is underway. This will become more of an industry driven event.

The GridWise Expo 2008 will occur the third week of May.

Action Items: Steve Widergren to send Intelligent Buildings Today – GridWise edition to the GWAC.

Widergren to send Tom Burke (OPC Foundation) GWAC articles that may be of interest to the industrial system community and work with him to promote the GWAC work and events (Grid-Interop).

## DOE OE Update

Eric Lightner announced that six project proposals will be awarded soon. The FY2008 budget (outside of earmarks) appears to be about \$70-80M. The office was elevated to a program level office with Kevin Kolevar as a confirmed Assistant Secretary. A Federal Advisory Committee for OE is being formed. DOE will be planning a Smart Grid Implementation Workshop early next year to define what comprises a smart grid, how to engage a broader audience to jumpstart activities, and how to measure progress toward actual implementation. Eric would like GWAC assistance with this workshop. PowerPoint slides about the Workshop will be placed on the GWAC SharePoint site.

Action Item: Council members should send suggestions for nominations to the Federal Advisory Committee to Eric Lightner.

Action Item: Council members should let GWAC staff know if they are interested in helping DOE with the upcoming Smart Grid Implementation Workshop.

### Grid Interop Forum

Ron Jarnagin (PNNL) gave the council an update on the Grid-Interop Forum planning activities. The planning committee, which includes Rik Drummond, Erich Gunther, Andreas Tolk, Ron Ambrosio, Terry Mohn, Anto Budiardjo, Thomas Yeh, Steve Widergren, and Ron Jarnagin, has been meeting via conference calls each week and conducted a face-to-face meeting at the Albuquerque meeting location the end of August.

The overall meeting flow graphic was presented as a reminder to the group of the high-level flow of the Forum.

Day 1		Day 2		Day 3	
Biz	Tech	Biz	Tech	Biz	Tech
		Opening Plenary		Session B4	Session T4
		Session B1	Session T1	Action Roundtables	
				B5	T5
Registration		Lunch		Lunch	
Seminars/ Tutorials		B2	T2	Closing Plenary	
		Action Roundtables			
B3	T3				
Welcome Reception		Dinner and Networking			

The council discussed the opening day of educational seminars which will lay the foundation for the rest of the event; see graphic below.

Time	Track 1 Architecture	Track 2 Business	Track 3 Technology
13:00-13:30	Registration		
13:30-14:45	Architecture, Model Concepts (Tolk)	Layman's Guide to Interoperability & the Framework (Mohn)	Field & Device Technologies (Gilchrist)
14:45-15:15	Break		
15:15-16:30	Methods & Tools (Drummond)	Decision-maker's Checklist (Silverstein)	Enterprise Technologies (Ambrosio)
16:30-17:00	Break		
17:00-18:00	Interop Challenge – Desired Outcomes		
18:00-19:00	Welcome Reception & Networking – Mayor Chavez		

Ron presented the agenda for days two and three. These days will include moderated panel sessions with 10-15 minute presentations by each panelist and a 30 minute discussion/question and answer period at the end to encourage audience participation.

Fifty-seven abstracts were submitted that will substantially cover the panel sessions. Several abstracts were moved to other areas of the Forum (seminars or roundtables) or combined with other abstracts to reach a total of 36 abstracts being assigned to sessions within three tracks (architecture, business and technology). With the high number of abstract submissions, the committee decided to increase the number of tracks from two to three to allow for more author participation. Track leads have been assigned and session lead recruitment is in progress.

The layout of the panel sessions (with tentative leads) was presented in the following graphic.

	Track 1 Architecture (Hardin)	Track 2 Business (Yeh)	Track 3 Technology (Ambrosio)
Kickoff	Keynotes & Mega Panel – FERC, Rogers		
Session Block 1	Architectural Concepts (Newman)	New Business Concepts (Berst)	Standards Benefits (Hughes)
Lunch 1	<i>Environmental Speaker</i>		
Session Block 2	Internet and IT Architecture (Considine)	Business Opportunities (Alliance member)	Communications Networking (Bell)
Action Roundtables- A	Appliance to Grid (Hammerstrom)	Building to Grid (Mc Gowan, Holmberg)	Home to Grid (Schoechele)
Session Block 3	Information Modeling (Robinson)	Overcoming Business Barriers (Kiesling)	Utility Operations (Robertson)
Dinner	<i>Out of the Box (Tesla?)</i>		

Comment	Track 1 Architecture (Hardin)	Track 2 Business (Yeh)	Track 3 Technology (Ambrosio)
Session Block 4	Distributed Systems (Cohen)	Smart Grid Interop Policies (Hauser)	Standards Adoption (Wacks)
Action Roundtables- B	Industrial to Grid (Hardin)	Consumer Side Harmonization (Wacks)	Multispeak/IEC Harmonization (Saint, Von Dollen)
Session Block 5	Secure Systems (Mix)	Utility Business Impacts (Johnson)	Demand Response (Harper)
Luncheon 2	<i>Economic Development</i>		
Closing Plenary	<i>Venture Capitalist, Glotfelty, DOE</i>		

Action Items: Lynne Kiesling will ask Michael Burr of Public Utilities Fortnightly to lead the “Managing Business Constraints” session (was “Overcoming Business Barriers”).

Alison Silverstein will contact Mary Beth Tighe of FERC to lead the “Demand Response” panel.

The council discussed the action roundtables scheduled between the panel sessions. The use of both moderators to lead the direction of the roundtable discussion as well as ‘champions’ to help bring the right people to the table was debated. Concerns about the champions coming with an agenda or taking over the roundtables were expressed as well as the fact that the champions are the best equipped to make sure the group leaves with actionable items.

The council also discussed the possibility of having 3 roundtables in each of two sessions or having 6 groups which cover both sessions to give the groups more time. The anticipated goal would be for the group to leave the last session with actionable steps to advance interoperability in the assigned topic areas.

The roundtable discussions concluded with the formation of a sub-committee to recommend an organization and instructions for the roundtable participants.

Action Items: Alison Silverstein, Joe Bucciero, Dave Hardin, and Ron Jarnagin will recommend an organization and instructions for the Grid-Interop roundtable participants.

Tom Burke will share the OPC Foundation’s informal rules for conducting roundtable discussions.

Anto Budiardjo, event organizer, reviewed the branding and outreach efforts for the event. The website is live and is receiving regular activity. The following graphic which depicts the diversity of the Grid-Interop audience was discussed by the council. Several groups were suggested by the council members and will be incorporated by Anto.



Holloway's presentation outlined active projects, and projects that will be realized in the near future. Alison will make a presentation about the GWAC to the CCET group in the near future.

## Benefits Studies

Steve Widergren discussed progress on the statement of work for the Financial Benefits paper for final council approval. Richard offered to add a paragraph on the implications of not embracing interoperability. Alison Silverstein recommended that Dave Turner of Gestalt be added as a possible performer.

Action Items: Richard will send additions to the Financial Benefits paper statement of work for the council to review.

Steve will finalize statement of work with final council revisions and get the RFP submitted to PNNL contracts.

## Presentation: OPC Foundation Standards Collaborative Vision

(Guest Speaker: Tom Burke)

Tom Burke, OPC Foundation President, presented an overview of the OPC activities and how they relate to GWAC activities. The OPC is an international industry standard organization. The trend in consumer electronics with the contrasting needs of users vs. suppliers and automation users vs. automation suppliers creates a gap that the OPC Foundation is attempting to fill. The organization is growing, with over 590 members, \$20M+ OPC installations, and over 3400 companies building OPC products.

## GWAC Impact Metrics Update

Ruth Taylor presented the initial population of the metrics spreadsheet. Items included the following:

- Citations of GWAC material
  - So Dakota PUC – Decision Maker's Checklist
- Projects applying GWAC principles, framework
  - SCE AMI, OpenAMI HAN Task Force
- Endorsements by organizations to GWAC principles and framework
  - US Conference of Mayors
- GWAC engagements (29 entries)
- Citations of GWAC in press and gatherings (22 entries since May 2007)

The council discussed ways to make sure items are communicated to GWAC staff to ensure all council activities get recorded.

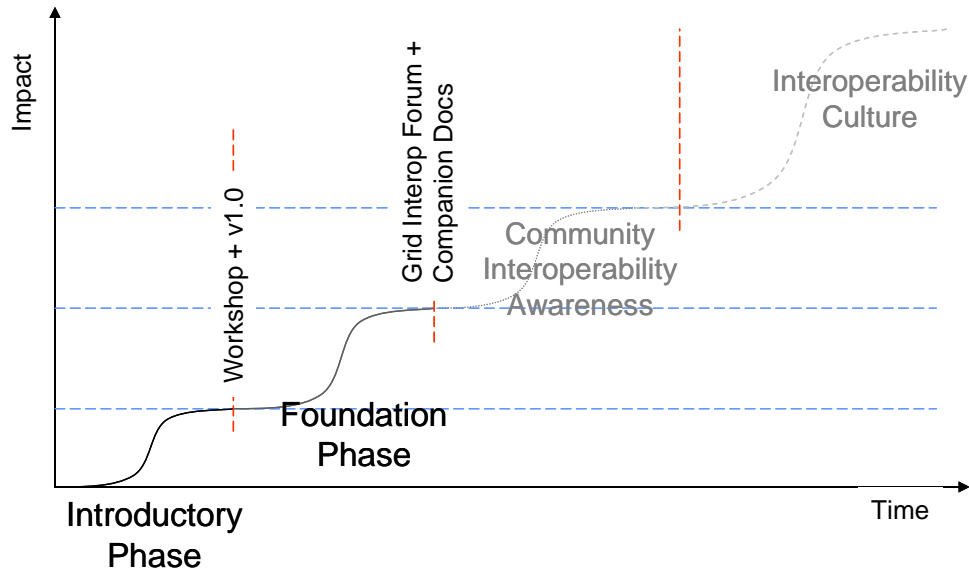
Action Item: Council members are to send outreach activities to Ruth Taylor for inclusion in the metrics. Ruth will send a link to the metrics spreadsheet so entries can be verified and augmented by council members.

## Beyond the Grid-Interop Forum

Steve led the council in discussions on the next steps in keeping the interoperability community involved including considerations for the future for the council and the use of council products in the



larger community. The following diagram was discussed extensively to help characterize this progress.



The following items were presented as a collection of potential items to help continue the work of the Grid-Interop Forum:

- Engage larger community to advance interoperability
  - Review proposals from action roundtables
  - Select projects/efforts to improve interoperability
  - Collaborate with other groups with stakeholder balance
- Review body for designs of smart grid interactions
  - GridApp, IntelliGrid, MGI, DOE as requested
- Initiate tools to advance interoperability
  - Framework, checklist, and benefits study companion material
  - Interoperability landscape
- Governance of material
  - Constitution principles, framework, checklist, etc.
- Articulate, detail interoperability issue topics
  - Example, NEHTA privacy and identity papers
- How does framework connect to
  - Various reference architectures (e.g., DODAF, RM-ODP)
  - Standards organizations, prescriptions
  - Regulatory/legislative progress
- Framework alignment with checklists

- Target audience outreach
- Education tools, interoperability awareness, how to apply the framework & adopt it
  - See NEHTA “Interoperability Maturity Model”
- Project/proposal review tools
- Conformance criteria to framework and checklists
- Application to critical infrastructure situational awareness & coordination

The next face-to-face GWAC meeting needs to devote a day to discuss “what success looks like.” This includes defining paths to achieve that success. The paths should show the perspective of past progress and where we are now as well as the future directions. Measurements should be defined that give proof to success.

A face to face GWAC meeting was called for on 6 November in Albuquerque prior to the Grid-Interop meeting to go over this material. Subsequent to the September GWAC meeting, the date was revised so that members and the planning committee can focus on Grid-Interop preparations and to better ensure high council member attendance.

## Targeted Interoperability Checklists

Alison Silverstein suggested to Eric Lightner that DOE-OE use the Decision Maker’s Checklist as part of the RFP review process. Other groups, such as public utility commissions, should also be using it. Alison is talking with BPA, PGE, and Northeast Utilities about this checklist. Joe Bucciero is asking PJM and National Grid to review and use it. The DOE RFP’s should also incorporate applications of the Principles and Framework. Lynne Kiesling commented that progress needed to begin on the Technologist (including developers and vendors) and End User Checklists. There was discussion among the Council whether to wait until feedback has been provided on the Decision Maker’s Checklist before proceeding. It was decided to begin the draft process.

Action Item – Eric Lightner will talk with OEDER management about using the Decision Maker’s Checklist as a prerequisite and screening tool for R&D project funding.

## Presentation: Austin Energy of the Future

(Guest Speaker: Roger Duncan)

Roger Duncan, Austin Energy Deputy General Manager, presented that Austin Energy has plans in place for climate protection, municipal operations, utilities, homes and buildings, and the community. Assigning priorities is their focus at this time. By 2011, they anticipate a new billing process after installing new communication and metering equipment and a reworked electrical grid. They expect to invest \$100M in this plan.

## Media Communications Plan

Ruth Taylor led discussions on the progress of communications activities for the Council. The latest update to the website was presented and Alison suggested that a link to a definition of interoperability be added to all uses of the word on the site. The GWAC complimented Ruth on the website improvements.

Previous discussions on communications assignments were reviewed to make sure council members were still willing to take these assignments. The assignments were as follows:

1-2 page paper volunteers:

- Prices to devices (Lynne Kiesling)
- Context-setting Framework (Dave Hardin)
- Buildings (Jack Mc Gowan)
- Why web services are important (Rik Drummond)
- Demand Response on home area networks (Erich Gunther)
- Cyber-security, SmartGrid, and utility practices (Joe Bucciero)
- Joint reliability agreements (Russell Robertson)
- Decision-maker's checklist (Alison Silverstein)
- Business models (Mike McCoy)

Short abstracts for targeted publications volunteers:

- Dave Hardin for Automation World and Control Engineering
- Erich Gunther for Power & Energy, Utility Automation, and Inside Energy
- Jack Mc Gowan for Energybiz and Building Operating Management
- Joe Bucciero for Distributed Energy

The process to select publications, research editorial calendars, and submit short abstracts to selected publications was also discussed. Assignments for the next SmartGrid Newsletter GWAC articles were also made as follows:

- Alison Silverstein – Decision Maker's Checklist - October issue
- Lynne Kiesling – Prices to Devices – February issue
- Erich Gunther – OpenHAN – May issue?

Discussions ended with plans to follow up with a communications team conference call on Monday October 24<sup>th</sup> to make more concrete outreach plans.

Action Items: Alison Silverstein will to write the next article for the SmartGrid Newsletter, draft target end of September.

Media Communications Plan Team (Kiesling, Silverstein, Bucciero, Drummond, Taylor) to hold a conference call 24 Sep 07 at 3 pm Eastern to review plan details.

## Presentation: Tools for Engendering Interoperability

(Council Member: Rik Drummond)

Rik presented introductory material on the Unified Modeling Methodology (UMM). Interoperability needs to be conceptualized and designed, and then implemented by industry. The challenge is to constrain the variety of solutions without inhibiting the Use Cases or prohibiting designer prerogative. The UMM goal is to “define a set of data objects that allow sharing in registries for later use by others of both semantics and choreographies.” This version of UMM consists of three views: Business Domain View, Business Requirements View, and Business Transaction View.

## Presentation: Building the Standards Foundation for Global Enterprise Integration

(Guest Speaker: Pat Snack)

Pat Snack, General Motors Executive Loan AIAG, presented an overview of the AIAG standards activities and how they relate to the work of the Council. AIAG is a globally recognized automotive trade association that solves problems at the industry level. They provide standards direction, and leadership for conducting electronic business. Their interoperability approach is to implement consistent use of international standards, to harmonize business vocabularies, and to provide consumable artifacts to run business. The issues the automotive industry faces in this area parallel the issues faced in the electric system. Their progress in this area with UN/CERACT Core Components is something that the GWAC can hope to engender in the electric system.

## Roadmap

The council roadmap was briefly discussed to review the council’s progress. This will be changed as the GWAC discusses their future directions.

## Summary of New Action Items

#	Item	Owner	Due Date
	Ruth Taylor will coordinate logistics with council members and invited speakers for upcoming meetings.	Taylor	
	Richard Schomberg, Joe Bucciero, Ron Ambrosio, Mike McCoy, Alison Silverstein, and Lynne Kiesling will review the mission and structure document and send a new version to the council for final review.	All	
	Steve Widergren to send Intelligent Buildings Today – GridWise edition to the GWAC.	Widergren	
	Widergren to send Tom Burke (OPC Foundation) GWAC articles that may be of interest to the industrial system community and work with him to promote the GWAC work and events (Grid-Interop).	Widergren	
	Council members should send suggestions for nominations to the Federal Advisory Committee to Eric Lightner.	All	
	Council members should let GWAC staff know if they are interested in helping DOE with the upcoming Smart Grid Implementation Workshop.	All	
	Lynne Kiesling will ask Michael Burr of Public Utilities Fortnightly to lead the “Managing Business Constraints” session (was “Overcoming Business Barriers”).	Kiesling	
	Alison Silverstein will contact Mary Beth Tighe of FERC to lead the “Demand Response” panel.	Silverstein	

	Alison Silverstein, Joe Bucciero, Dave Hardin, and Ron Jarnagin will recommend an organization and instructions for the Grid-Interop roundtable participants.	Silverstein, Bucciero, Hardin, Jaragin	
	Tom Burke to share the OPC Foundation's informal rules for conducting roundtable discussions.	Tom Burke	
	Alison Silverstein to contact Kliener-Perkins for a potential closing session speaker from the venture capital community.	Silverstein	
	Ron Ambrosio to ask Allan Schurr (IBM) to lead the Business Opportunities panel.	Ambrosio	
	Steve Widergren to contact Donna Glasgow to see if Commissioner Kelly will speak.	Widergren	
	Alison Silverstein to suggest a senior person at Public Service of New Mexico to speak.	Silverstein	
	Dave Cohen to contact John Nielson (Western Resource Advocates) as an environmental speaker.	Cohen	
	Richard Schomberg will send additions to the Financial Benefits paper statement of work for the council to review.	Schomberg	
	Steve will finalize statement of work with final council revisions and get the RFP submitted to PNNL contracts.	Widergren	
	Council members are to send outreach activities to Ruth Taylor for inclusion in the metrics. Ruth will send a link to the metrics spreadsheet so entries can be verified and augmented by council members.	All	
	Alison Silverstein will to write the next article for the SmartGrid Newsletter, draft target end of September.	Silverstein	
	Media Communications Plan Team (Kiesling, Silverstein, Bucciero, Drummond, Taylor) to hold a conference call 24 Sep 07 at 3 pm Eastern to review plan details.	Kiesling, Silverstein, Bucciero, Drummond, Taylor	