

Meeting Minutes February 05-06, 2013

Members

Ron Ambrosio, IBM T.J. Watson Research Center
Ward Camp, Landis + Gyr
Paul De Martini, Newport Consulting Group
Erich Gunther, EnerNex Corporation
Alex Levinson, Lockheed Martin
Tracy Markie, Engenuity, Small Box Energy
Ken Wacks, consultant to Sensus Metering Systems Inc.
Mark Knight, CGI
Tom Sloan, Kansas State Legislator
David Forfia, Electric Reliability Council of Texas
Jeff Taft, Cisco (R)
Jeff Gooding, Southern California Edison
James Mater, QualityLogic

Associates

Doug Houseman, EnerNex

Support – Pacific Northwest National Laboratory (PNNL)

Sherry Kowalski, PNNL
George Hernandez, PNNL
Ron Melton, PNNL & GWAC Administrator
Andrew Nicholls, PNNL
Robb, Pratt, PNNL
Dennis Stiles, PNNL
Steve Widergren, PNNL

Speakers and Guests

H. Neal Allen, Southern Company Services

Ed Cazalet', TeMix, Inc. (R)
William Cox, Cox Software Architects
Gail Dean, Southern Company
Vish Ganti, Lawrence Berkeley National Laboratory
Jerry Gibson, Alternate Energy Systems
Joe Hagerman, U.S. Department of Energy
Barry Hasser, Open ADR
Ali Ipakchi, Open Access Technology International, Inc. (OATI)
Chris Irwin, U.S. Department of Energy
Ben Kroposki, National Renewable Energy Laboratory - NREL
Ben King, BSH Home Appliances Corporation
Larry Lackey
Colin McCormick, U.S. Department of Energy
John McDonald, GE Digital Energy
William Miller, Lawrence Berkeley National Laboratory
Terry Oliver, Bonneville Power Administration
Christopher Prince, GE Energy Management
Farrokh Rahimi, Open Access Technology International, Inc. (OATI)

Members – not present

Members Emeritus

Tony Giroti, 10X Venture Partners
Bob Saint, NRECA

Proprietary Information Notice

Ron Melton read the proprietary information disclosure policy according to the bylaws to the members and guests.

Introductions of New Chairman and Council Members

Ron Melton introduced the new Council members, David Forfia, Jeff Gooding, James Mater and Jeff Taft to their first face-to-face Grid-Wise Architecture Council meeting and workshop.

Welcome and Administrative Business

John McDonald, General Electric Digital Energy and Mark Knight, GWAC Chairman

Mark Knight called the meeting to order at 8:02 am. Mark reviewed the agenda, discussed the changes in format, and asked for any additions.

Minutes from the web meeting that was held on January 23, 2013, were presented to the council via e-mail. Ward Camp motioned to accept the minutes as presented, Ron Ambrosio seconded the motion and the minutes were approved.

Ron Melton reviewed the calendar for the GWAC meetings and the upcoming outreach dates:

- **March 20, 2013:** GWAC web meeting
- **April 15, 2013:** GWAC web meeting
- **May 21-23, 2013:** GWAC face-to-face meeting in Portland, OR
- **May 23-24, 2013:** Pacific Northwest Transactive Energy Workshop
- **June 24, 2013:** GWAC web meeting

First International Transactive Energy Conference

James Mater, GWAC Member

James Mater provided the meeting participants with the history leading up to the First International Transactive Energy Conference that will be held in Portland Oregon on May 23-24, 2013. The first GridWise Architecture Council workshop was held at OATI in Redwood Shores, California in May, 2011. The following year a second workshop was hosted at IBM T.J Watson Research Center in March, 2012. From the workshop a growing community of interest has developed facilitated by GWAC.

This year's conference will be hosted by Smart Grid Oregon, Portland General Electric and Bonneville Power Administration. Other key conference sponsors will possibly include NIST, SGIP, Pacific Northwest Regional Project, Department of Energy and others.

The goal of the conference is to bring together:

- Researching, developing and deploying Transactive Energy techniques and business models
- Continue developing a Transactive Energy Framework based on the GWAC Stack
- Facilitate accelerated development of Transactive Energy

The planned tracks include:

- 1A: Business and Policy Architecture (theory)
- 1B: Business and Policy in Practice (Implementing Markets/Value/Pricing)
- 2A: System Control Architecture (theory)

- 2B: Control Architecture (Commercial Implementations)
- 3A: Enabling Cyber-Physical Infrastructure (theory – Grid Integration)
- 3B: Enabling Cyber-Physical Infrastructure (practice - Implementation Elements, M&V);
- 4A: Transactive Energy Cross-Cutting Issues (theory - Probabilistic Planning Decisions, Algorithms and Analytics)
- 4B: Transactive Energy Cross-Cutting Issues (Observability, Controllability)

Ron Melton (TEC Program Chair) asked the Council to volunteer to be track leads. The responsibilities of track leads are as follows:

- A GWAC member to lead/monitor/report on the framework progress from each session, probably also moderator
- A scribe who takes notes and helps the GWAC members synthesize the discussion
- 2-4 domain experts
 - Session 1 experts would be leading theorists and researchers
 - Session 2 experts would be leading implementers
- Possible small workgroup sessions after the context-setting comments by domain experts

The following Council members volunteered:

- Business and Policy – Jeff Gooding
- Business Models and Pricing – Paul De Martini
- Transactive Control Architecture – Ron Ambrosio
- Cyber-Physical Infrastructure – Erich Gunther
- Cross Cutting Issue – Integrations of Commercial and Residential Resources – Ken Wacks & Tony Giroti
- Cross Cutting Issue – End-to-End Considerations – Mark Knight

Ron Melton reviewed the conference program and schedule.

Lunch Presentation

Chris Irwin, DOE-OE, Joe Hagerman, DOE-EERE, George Hernandez, PNNL (assigned to EERE), Andrew Nicholls, PNNL (assigned to EERE), Rob Pratt, PNNL (assigned to OE)

To help frame the Transactive Energy Framework discussion, representatives from DOE-OE and DOE-EERE were invited to give presentations on the topic of transactive energy during a working lunch preceding the workshop portion of the meeting.

Their slides are available separately. A summary of the discussion for this part of the meeting is as follows.

Chris Irwin made a general introduction of DOE-OE's interest in this topic. One particular idea from Chris's remarks was a recommendation that something should be developed on reliability control valuations. If a building can participate in helping achieve improved reliability then you have another path of value for a high-performance building.

Colin McCormick from the DOE Undersecretary's Office also made general comments. In particular, he brought up the concern that when we talk of transactive control, there is a common assumption that one must have dynamic pricing and / or that the utilities have to implement a new pricing model. Colin recommended the Council flesh out other transaction value streams. For example, some people just want to purchase green power, so if a signal can send out when the power is greener on the grid, the user might respond to that signal and transact at that time. It would help DOE's case if they could demonstrate that there were also behavioral benefits and opportunities.

Joe Hagerman, Senior Advisor, DOE/EERE's Building Technologies Office, and George Hernandez and Andrew Nicholls of PNNL, both of whom support BTO, presented material on DOE-EERE's interest in Transactive Energy. Joe began by providing an overview of EERE's Grid Integration vision and some examples of how end-use loads could contribute to the vision via transactions-based techniques (given that buildings loads dominate electricity use). He concluded by giving a summary of the BTO workshop on this topic held last December at NREL, including DOE takeaways.

Joe requested that the Council consider how to explicitly include the application of transactive energy methods within buildings. Though one can consider buildings as an example of an energy system, as is the electric power system, and approach the discussion academically, he believes there is value and benefit to direct discussion of the challenges and benefits for building energy management and the interface of buildings to the electric power system.

George described opportunities for applying transactive energy methods within and between buildings to coordinate the action of different systems such as HVAC roof-top packaged units (RTUs). He further discussed the need for a "cookbook" for plug-in-play and standards so when a consumer installs a product, it is recognized, it generates power and people get their intended value. It is important that all the value isn't eaten up with the difficulty of getting the device installed. Home solar systems are another example of distributed energy resources that can buy and share transactive value but that need to be simple to install and enable.

Bob Saint shared that plug-and-play solar systems are scary for utilities. The NRECA has partnered with the FREEDM Center (Future Renewable Electric Energy Delivery and Management) to make sure that they realize the true impact when they launch a product. Bob stated that we will never have true plug-and-play solar system because the utilities and building inspectors must be involved with the installation and therefore it will never be automatic.

George Hernandez stressed that such concerns are why it is important to engage the utilities in these efforts and his belief that the problems are solvable.

Discussion continued about security and Cloud operations and communication protocol. It is implied that security will be addressed at every single shift.

Ken Wacks noted that an international standard for automated energy management was released in the summer of 2012. This standard is ISO/IEC 15067-3, "Model of a demand-response energy management system."

<http://webstore.ansi.org/RecordDetail.aspx?sku=ISO%2FIEC+15067-3%3A2012>)

"This new standard introduces an Energy Management Agent (EMA).

The EMA has the responsibility for learning the energy needs of customer appliances, customer time preferences for using these appliances, the customer's budget for buying electricity, the availability of electricity from local generation and storage, and the price or availability of electricity from a public utility.

The EMA helps the customer decide which appliances to operate while balancing the customer's desires and constraints."

"This standard is a framework document and does not specify the details of the Energy Management Agent. A major update to this standard is planned to begin this year. Concepts from GWAC could be the basis for additions to this standard."

Andrew Nichols provided an overview of the objectives and proposed outline of a BTO Building to Grid Integration Technical Opportunities Report to be developed this fiscal year. He asked the Council to think about objectives and to see if anything was missing and also if the report would be of value to the industry. Suggestions brought up included:

- James Mater recommended that the report include non-technical barriers. For the report to be useful or used, he would like to see inclusion of non-technical barriers.
- Ron Melton believes that most of the technology needed probably already exists, and it is a question of identifying the requirements that need to be met to have an effective building to grid integration. Also, it would be beneficial to identify technical gaps if they exist.
- Ron also recommended that the report consider value chains and all the interested parties in this integration to identify what is missing, and what is causing value not to be properly realized. Identifying misalignments and conflicting values.
- Farrokh Rahim discussed the value of ancillary services such as implementing a technology that may not necessarily benefit the distribution company but could benefit the complete grid. So, during the times the distribution company is not providing the service, they should be getting aid for the ability to commit to provide that service. This aid would help compensate the distribution company for the loss of income from providing and implementing that specific technology. One has to look at the different layers and different compensations at those layers.
- Jeff Taft suggested including the issues and opportunities of what happens when the project goes to a larger scale, especially at the distribution level. Sometimes when things are done in a pilot they do not have an effect but when scaled up they have a severe effect.
- Jeff Taft suggested addressing what happens with couplings through the grid.
- Most operators are under the impression that their products will scale and they need to be forced to address the barriers of scalability.
- Doug Housman suggested that there needs to be a macro case study that goes on the outside of this template. This needs to be put in the context, numbers, regions they exist in, and the value of being able to push this to scale.
- What is the level of disruption to the function of the building? There are actions that tenants would not notice and then there are the actions that completely disrupt the function of the building. This is something that would be important to point out in the template.

- Thomas Sloan recommended that we need to address the treatment of risk; what is the risk of the technology succeeding or not succeeding to the level of performance promised. Look at how to minimize the risk of an early adopter.
- Bill Cox pointed out that building integration may not be building owners' level of business focus. Where does it fit into the business scheme, what are the value streams and the value drivers and are they worth paying attention to? A business perspective or business comments would be useful in a brief summary.
- Paul De Martini suggested we consider a definition of what we mean when we talk about the attributes of scale.
- One of the major barriers to the adoption of early technology is risk. Recent studies have pointed out that commercial and residential customers have an implied higher discount rate with respect to energy efficiency.

Finally, Rob Pratt gave a presentation summarizing work at PNNL over the last decade and the drivers and opportunities for the application of transactive techniques within the electric power system and within other energy systems such as buildings.

Transactive Energy Framework Workshop Introduction and Objectives

Ron Melton, PNNL & Mark Knight GWAC Administrator

During their face-to-face meeting held February 5 – 6 at the General Electric Grid IQ Experience Center in Atlanta, GA, the GridWise Architecture Council (GWAC) continued their practice of having a technical workshop as the core of the meeting. This workshop continued the Council's work on transactive energy. Forty two people attended this workshop.

Background

This workshop was the 4th on the topic of transactive energy. The first was held at OATI in Redwood Shores, CA, May 18 – 19, 2011. A group of twelve people from academia, national labs, and industry participated. The proceedings of that workshop may be downloaded from the GWAC website via the following link:

http://www.gridwiseac.org/pdfs/tew_2011/tew_2011_proceedings.pdf

As a result of that workshop, a panel on transactive energy was included in Grid-Interop 2011 and a plenary and regular panel on transactive energy were included in the 2012 IEEE Innovative Smart Grid Technology Conference.

The second GWAC Workshop on Transactive Energy took place March 28 – 29 at IBM's T.J. Watson Research Center. For this workshop, the number of participants grew to over 20. Participants were from academia, national labs, government and industry. A key result of this workshop was consensus on a working definition of transactive energy: The term "transactive energy" is used here to refer to techniques for managing the generation, consumption or flow of

electric power within an electric power system through the use of economic or market based constructs while considering grid reliability constraints. The term “transactive” comes from considering that decisions are made based on a value.” The proceedings of this workshop may also be downloaded from the GWAC website via the following link:

http://www.gridwiseac.org/pdfs/tew_2012/tew_2012_proceedings.pdf

During the Council’s face-to-face meeting October 31 – November 1, 2012, a third workshop on Transactive Energy was included as the core of the meeting. In this workshop, the discussion focused on the drivers for considering transactive energy approaches with presentations on Pacific Northwest National Laboratory’s work on Transactive Control, the “Grid 2020” report from CalTech’s Resnick Institute, and a white paper from Cisco on “Ultra Large-Scale Power System Control Architecture”. The discussion may be summarized that there are several drivers for considering transactive approaches to managing, coordinating or controlling elements of the electric power system. Those drivers include:

- Introduction of renewable resources introducing uncertainty on the supply side of the system,
- Proliferation of distributed energy resources throughout the power system
- Deployment of increasing numbers of sensors and intelligent communicating devices, for example, synchro-phasors, throughout the system, and
- Increasing numbers of communicating and/or intelligent devices and systems associated with consumption of electricity.

As a result of the October workshop, the GWAC decided to undertake development of a Transactive Energy Framework. The Transactive Energy Framework is intended to be a sister document to the “Interoperability Context Setting Framework” published by the Council in March 2008.¹ The “Interoperability Context Setting Framework” is the source of the so-called GWAC Stack shown below. As can be seen, the GWAC stack may be summarized in three summary layers: Technical, Informational and Organizational. For purposes of developing the Transactive Energy Framework, these are relabeled as: Organizational, Informational and Cyber-Physical. The Transactive Energy Framework is envisioned as being organized with these three layers being split into two columns: Architecture and Implementation / Functionality along with a set of cross-cutting elements. This structure is summarized in the following table:

Architecture	Implementation and Functionality	
Policy and Business Models	Valuation / Pricing	Organizational
System Architecture(s)	Functional Requirements	Informational
Grid Integration	Implementation Elements	Cyber Physical (Technical)

¹ Available for download at: http://www.gridwiseac.org/pdfs/interopframework_v1_1.pdf

In addition, cross-cutting elements such as observability, controllability, algorithms, probabilistic planning, etc. are also included.

The agenda for the February 5-6 workshop was as follows:

Workshop – Transactive Energy Framework – Day 1

10:45 – 1:00 pm	Working Lunch DOE Views on Transactive Energy (<i>Lunch served 12:00 to 1:00pm</i>) Chris Irwin, DOE-OE Joe Hagerman, DOE-EERE George Hernandez, PNNL (assigned to EERE) Andrew Nicholls, PNNL (assigned to EERE) Rob Pratt, PNNL (assigned to OE)
1:00 – 1:15 pm	Workshop Introduction and Objectives Ron Melton, GWAC Administrator
1:15 – 2:15 pm	Framing the Framework Paul De Martini, GWAC Member
2:15 – 4:15 pm	Break into smaller groups to work on annotated outline of Transactive Energy Framework
4:15 – 4:45 pm	Report back from smaller groups

Workshop – Transactive Energy Framework – Day 2

8:00 – 8:30 am	Meet and Greet
8:30 – 8:45 am	Day 2 Welcome and Recap of Objectives <i>Ron Melton, GWAC Administrator & Mark Knight, GWAC Chairman</i>
8:45 – 10:00 am	Integration of small group results <i>Ron Melton, GWAC Administrator & Mark Knight, GWAC Chairman</i>
10:00 – 11:00 am	TE Framework Next Steps <i>Ron Melton, GWAC Administrator</i>
11:00 – 11:30 am	Workshop Wrap-up <i>Mark Knight, GWAC Chairman</i>

The purpose of the February 5 – 6, 2013 workshop was to:

- Build consensus on meaning of “transactive energy”
- Begin creation of GWAC Document “Transactive Energy Framework”
- Create annotated outline of document building on structure of GWAC stack
- Define two key questions for each TE Conference workshop session – to drive content of TE Framework document

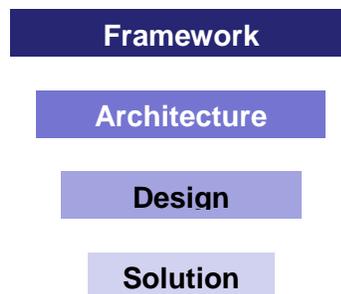
Framing the Framework

Paul De Martini, GWAC Member

Paul De Martini discussed the definition of the term “transactive” which comes from considering that decisions are made based on a value. These decisions may be analogous to, or literally economic transactions.

Transactive energy refers to the techniques for managing the generation, consumption or flow of electrical power within an electric power system through the use of economic or market based constructs while considering grid reliability constraints.

The GWAC “Context Setting Framework” is the model the Council will be using to apply to the transactive energy space and use to create the “Transactive Energy Framework”. The framework will be of a high organizational level context-setting that provides neutral ground upon which a community of stakeholders can discuss issues and concerns related to integrating components of a large complex system. This framework will provide a broad conceptual level context for more detailed technical aspects of interoperability. From the framework, an architecture can be developed which identified a particular problem space and defines technology independent analysis of requirements. A design maps model requirements into a particular family of solutions based upon standards and technical approaches. Lastly, a solution manifests a design into a particular technology ensuring adherence to designs, architectures, and frameworks.



Annotated outline of Transactive Energy Framework

Ron Melton, GWAC Administrator

Summary and Day 2 Objectives

Ron Melton, PNNL & GWAC Administrator

Ron Melton thanked the special speakers and workshop participants that made GWAC's workshop a success. Ron asked that the meeting participants consider the day's presentations overnight and be prepared to contribute to the next day's discussions as the workshop continues.

Adjourn

Mark Knight adjourned the meeting for the day at 5:15 p.m.

Day 2 Welcome and Administrative Business

Ron Melton, GWAC Administrator and Mark Knight, GWAC Chairman

Mark Knight called the meeting to order at 8:00 am.

Ron Melton read the proprietary information disclosure policy according to the bylaws to the members and guests.

Recap of Breakout Session Results and TE Framework Next Steps

Ron Melton, GWAC Administrator

Workshop participants recapped the results from the previous day's break-out sessions. A workspace will be created on the GridWise Architecture Council Transactive Energy Workshop SharePoint site and the materials created at the meeting will be posted to the site under the appropriate category. Versioning will be used on all documents. The use of the calendar feature will be available to post upcoming meetings.

<https://spteam1.pnnl.gov/sites/TEW2011/default.aspx>

Workshop, meeting minutes, reference and completed work products will be posted on the GWAC website.

Sherry Kowalski to add all meeting participant to the Transactive Energy email list, (gwac-te@lyris.pnl.gov).

Below is the proposed timeline:

- 15 weeks to work on prep for May meeting
- Immediately - need the names of the five people with 2 or 3 to give short presentations
- May 1 - questions for the breakout sessions are due.
- 2/2/13 to 3/13/13 - Outline materials from Atlanta meeting
- 3/13/13 to 4/17/2013 - Flesh out the outline sections
- 4/17/13 to 5/17/13- Integrate materials and socialize the Transactive Energy Framework to a larger community for reference at the First International Transactive Energy Conference May 23-24 in Portland, Oregon.

Energy IQ Center Tour

Christopher Prince, General Electric – Digital Energy

Christopher Prince facilitated a tour of the General Electric Energy IQ Center, which is a state-of-the-art interactive center that educates utilities, consumers, regulators and policy makers about the global energy landscape and the GE technologies that modernizes the electrical grid to empower energy suppliers and consumers.

NIST Framework Release 2.0 GWAC Input

Ron Melton, GWAC Administrator

The GridWise Architecture Council was asked to provide input on the NIST Framework Release 2.0 relative to the GWAC and DOE smart grid visions. Ron Melton gathered all the feedback and comments from the Council's discussions and submitted the below feedback to NIST on Friday, February 8, 2013.

GridWise® Architecture Council Comments for NIST Framework 2.0 update review February 8, 2013

The GWAC members have reviewed the current version (2.0) of the document with attention focused on the smart grid vision in Chapter 2. The following comments are offered for NIST to consider in the current document revision cycle.

- The GWAC has been working for the past two years on the activities associated with “Transactive Energy.” The Council proposes that the discussion of smart grid technology and the future of the grid should include a material about the emerging Transactive Energy technology. Suggested edits for including this in the existing structure of the document are included below. The GWAC would also be willing to provide a short section on this topic.
- Within the industry there is some confusion about the relationship between the standards listed in the NIST Framework document and the SGIP Catalog of Standards. The Framework document should clearly describe (or define) the relationship between these lists and how they are intended to be used. In addition, the relationship between these lists and the PAPs and DEWGs of the SGIP should also be clarified.
- Chapter 2 talk about linking into home and building systems – a home as a gateway and a building as a gateway. There should be some reference to home and building systems automation. One possible statement is: “Among the smart grid benefits are the interconnection of smart grid communication networks with home and building networks. This would enable the delivery of energy management services such as demand response and the interconnection of distributed energy resources (local generation and storage) with microgrids and the larger grid.”
- There is a heading on “International Efforts” but no reference to international standards groups such as ISO-IEC. In addition to the discussion of trade groups the major, established, international standards bodies should be mentioned as they are later in a Chapter 4 table. Section 2.4 should list the officially recognized international standards bodies:
 - IEC: International Electrotechnical Commission

The IEC writes voluntary international standards for electrical products including transmission and distribution equipment. The IEC has established a study group (SG3) to investigate the need for standards to support smart grids.

- JTC 1: Joint Technical Committee 1 of ISO/IEC
The IEC and ISO (International Organization for Standardization) formed JTC 1 in 1988 to focus on information technology standards. In 2010 JTC 1 established a special working group on smart grid to survey existing standards that can apply to smart grids. Ron Ambrosio of IBM, who is also the chair of the SGIP Architecture Committee, currently heads this working group. JTC 1 has issued many standards applicable to smart grids, as summarized in an article in the June 2012 issue of "ISO Focus+" by Kenneth Wacks, "Sync your home: Smart grid standards for residential customers."
- ITU: International Telecommunications Union
The ITU-T is the Telecommunications Standardization Sector of the ITU. The ITU is an agency of the United Nations for information and communications technology. It was formed from the International Telegraph Union, which had been established in 1865. The ITU-T started a smart grid initiative in May 2010.
- This revision will create the third version of the NIST Framework document. The GWAC suggests that NIST add a new section summarizing how the document has been used and the impact of the document.

Suggested edits for inclusion of Transactive Energy in the current document structure.

Unfortunately several excellent places to insert additional text are in places where the text is quoted from other publications and thus does not afford us the opportunity to edit it. In some instances we suggest adding a footnote. **Additions in red.** ~~Removed text blue with strikethrough.~~

Page 16

Moreover, standards enable economies of scale and scope that help to create competitive markets in which vendors **and service providers** compete on the basis of a combination of price, ~~and~~ quality, **and value.**

Page 28

- Enables new products, services, and markets (**add footnote: such as described in the Transactive Energy Framework currently being developed by GWAC**)

Page 30

- Better alignment of economic incentives to boost development and deployment of Smart Grid technologies (**add footnote: including transactive energy markets. The term transactive refers to techniques for managing the generation, consumption or flow of electric power within an electric power system through the use of economic or market based constructs while considering grid reliability constraints.**)
- Innovation is catalyzed. Shared standards and protocols help reduce investment uncertainty by ensuring that new technologies can be used throughout the grid, lowering transaction costs and increasing compatibility. Standards also encourage

entrepreneurs by enabling a significant market for their work (**add footnote: including transactive energy markets. The term transactive refers to techniques for managing the generation, consumption or flow of electric power within an electric power system through the use of economic or market based constructs while considering grid reliability constraints.**)

Page 36

Large, integrated, complex systems require different layers of interoperability, from a plug or wireless connection to compatible processes and procedures for participating in distributed business transactions, **and in emerging areas such as transactive energy**. In developing the conceptual model described in the next chapter, the high-level categorization approach developed by GWAC was considered.⁶³

Page 51

Individually and collectively, these use cases are helpful when scoping out interoperability requirements for specific areas of functionality—such as on-premises energy management or predictive maintenance for grid equipment. When viewed from a variety of stakeholder perspectives and application domains, combining the actors and interactions from multiple use cases permits the Smart Grid to be rendered as a collection of transactional relationships, within and across domains **as they relate to energy and/or information**, as illustrated in Figure 3-2.

NIST Update

Gerald FitzPatrick, NIST

Gerald FitzPatrick called in to the meeting and provided an update of the recent NIST activities.

- George Arnold has taken on a new role as the Director to the Standards Coordination Office and is now responsible for coordinating all of NIST's standards activities.
- NIST is in process of updating draft of the NIST framework assembled with the goal of the draft completed by the end of the calendar year.
- George Arnold is the technical program chair for the upcoming 2013 IEEE Innovative Smart Grid Technologies conference.
- George Arnold and Mary Ann Swanson recently participated in a meeting with the SGIP 2.0 Technical Committee that focused on privacy. The outcome of the meeting drove a request for a mapping of activities of the SGIP 2.0 working group's activities (including external groups) that might be working in the same areas.

NIST recently released a new guide for implementers that allow the development of Green Button web tools. The User Guide is available via the NIST website

GWAC Stack as IEEE Standard Update

Erich Gunther, GWAC Member & Doug Houseman, GWAC Associate

Erich Gunther reported that the IEEE had this request on the agenda at the last IEEE Governing Board Meeting and an IEEE PAR in place to make this an actual project. The request has also been on the IEEE PES Technical Meeting agenda and discussed. The main difference between the two paths is that the PAR based process is that the GWAC stack will be assigned an IEEE number that is easily referenced, whereas the PES technical report will have an official title, but not an IEEE number. Discussion continued and the Council determined by a show of hands that the best path to accomplish this is as a PES technical report

Erich and Doug Houseman will format the GWAC Stack in the IEEE format, formally initiate the process of having the GWAC stack as IEEE PES technical report, and report back to the Council at the March GWAC web meeting.

Ken Wacks requested permission to socialize the Transactive Energy Framework and topics that GWAC generates internationally and recommend guidance of what is worthy of an international standard. Ron Melton suggested that the transactive energy discussion be socialized, but it is not ready to be looked at in the international standards arena. It was suggested that Ken Wacks invite the group to the Portland transactive energy conference in May.

BnP DEWG Update

Ward Camp, GWAC Member

The Business and Policy Domain Working Group (BnP DEWG) submitted a needs assessment. BnP DEWG is increasingly coordinating with the implementation Committee.

SGIP Update

John McDonald, GE

John McDonald provided a review of NIST SGIP 1.0 accomplishments, SGIP 2.0, Inc. formation, transition plan and membership campaign.

Details of the discussion can be found in the following presentation.

http://www.gridwiseac.org/pdfs/gwac_tew_020513/gwac_john_mcdonald_020613.pdf

Updates

Ron Melton, GWAC Administrator

- Ken Wacks
 - Ken Wacks gave a key note presentation on home systems and energy management at the ClimateTalk Alliance meeting held at the AHR Expo

January 2013 in Dallas. The ClimateTalk Alliance focuses on the impact of connected HVAC equipment (heating and cooling) and water heaters on installers.

- The ISO/IEC international committee that develops standards for home and building systems, including energy management, is scheduled to meet the week of April 22, 2013 near Washington, D.C.
- Work will continue on enhancing the published documents that cover the gateway, energy management, and product interoperability. Ken Wacks was invited to be on the panel of the Smart Energy Summit hosted by Parks Associates. Ken will be speaking on consumer products manufacturers' interests in energy management products. Also the use of products in the home versus the products in the Cloud for managing energy.
- The United States will be hosting an IEC PC118 meeting in March that deals with a proposal from China for a smart grid user interfaces.
- Tracy Markie
 - AHR Expo – Along with GWAC Chairman Emeritus Jack McGowan, Tracy Markie lead two education sessions sponsored by GWAC that provided an opportunity to do outreach. Tracy Markie's session was titled Next Generation VAS Integration of Smart Grid.
- Tony Giroti
 - TTIECON East is the annual flagship conference on entrepreneurship organized by TiE-Boston. This year the theme of the conference is '**Empowering Entrepreneurs**' and will be held at the **Cambridge, Marriott on May 02 - May 3rd, 2013**. Tony is the track lead for clean technologies and energy and he will be looking for panelists and asked if anyone from the Council would be interested in participating.
- Mark Knight
 - IEEE ISGT – Steve Widergren, James Mater, Austin Montgomery and Mark Knight have a poster session to discuss their white paper: "Maturity Model for Advancing the Smart Grid Interoperability"

Action Items

Ron Melton, GWAC Administrator

- Transactive Energy Conference Track Lead Assignments and Tasks
 - Assigned Track Leads:
 - Policy and Market Design: Jeff Taft
 - Business Models and Value Realization: Paul De Martini
 - Transactive Energy Management Architecture: Ron Ambrosio
 - Cyber-Physical Infrastructure: Erich Gunther
 - Cross-Cutting Issue (Integration of Commercial and Residential Resources): Ken Wacks and Tony Giroti

- Cross Cutting Issue (End-to-End Consideration): Mark Knight
- Track Lead Responsibilities and Deliverable Deadlines:
 - To lead/monitor/report on the framework progress from each session. Probably also *moderator*
 - To *scribe* who takes notes and helps the GWAC member synthesize the discussion
 - To identify and recommend 2-4 *domain experts* to the TEC Program Chair as soon as possible
 - Session 1 experts would be leading theorists and researchers
 - Session 2 experts would be leading implementers
 - Define two key questions for each TE Conference workshop session
 - Possible - to create *small workgroup sessions* after the context-setting comments by domain experts
- Other GWAC Members TEC Tasks
 - Help Identify/recruit sponsors
 - Promote conference
 - URL for Conference:
<http://www.pointview.com/pv/online/?site=131#home>
 - Participate in event
- PNNL to create and distribute a Transactive Energy Conference press release
- Create a space on the existing Transactive Energy Workshop SharePoint site as an area to collaborate on TE workshop results and documents
 - Poll workshop participants for interest in TEW SharePoint access and grant as approved.
- Ron Melton take the information captured on the MindMap and create a draft outline for the Transactive Energy Framework and place on the TEW SharePoint Site
- Ron Melton to Provide NIST feedback on the NIST Framework 2.0 by Friday, February 8, 2013
 - Key areas discussed by the Council to address:
 - Include a paragraph about the emerging Transactive Energy technology
 - Ask for clarification for the NIST Framework list of standards, the
 - Reference home and building systems automation
 - Reference ISO-IEC and the JTC1
 - Create a clear explanation for the need/reason for the NIST Table of Standards and the SGIP Catalog of Standards
 - What is the relationship between the table and list
 - What is the relationship between the PAPs and DEWGs
- Create a Memorandum of Understanding between SGIP and GWAC referring to the areas of coordination
- Erich Gunther and Doug Houseman continue to facilitate the process of submitting the GWAC Stack as a new IEEE technical report and will report back to the Council at the March web meeting
- Respond to the DOE request for feedback

Adjourn

Erich Gunther moved to adjourn the meeting/workshop, Ron Ambrosio seconded the motion and the meeting/workshop adjourned the meeting at 2:38 p.m.