

Meeting Minutes
March 11-12, 2014
PJM, Norristown, PA

Members

Ron Ambrosio, IBM T.J. Watson Research Center (Remote)
David Forfia, Electric Reliability Council of Texas (ERCOT)
Jeff Gooding, Southern California Edison
Doug Houseman, EnerNex
Mark Knight, CGI
James Mater, QualityLogic
Heather Sanders, CA-ISO (Remote)
Ken Wacks, consultant to Sensus Metering Systems Inc.

Support – Pacific Northwest National Laboratory (PNNL)

Sherry Kowalski, PNNL
Ron Melton, GWAC Administrator
Rob Pratt, PNNL
Carl Imhoff, PNNL
Andrew Steckley, PNNL
Abhishek Somani, PNNL

Speakers and Guests

Jim Calore, PSE&G
Radhakrishna Canchi, Kyocera Communications, Inc.
Ed Cazalet, TeMix, Inc.
Bill Cox, Cox Software
Susan Covino, PJM

Jack Eisenhower, Nexight Group, LLC
Aryeh Fishman, Edison Electric Institute
Chris Gomperts, Burns & McDonnell
Jarrid Hall, CSG Systems
Terrance Hill, Passive House Institute
Chris Irwin, U.S. Department of Energy
Mark Kerbel, Regen
Stephen Knapp, Power Generation Services, Inc.
Larry Lackey
Esrick McCartha, PJM
Jason McDonald, LBL
Donna Pratt, New York Independent System Operator
Farrokh Rahimi, OATI
Don Von Dollen, EPRI

Members – not present

Ward Camp, Landis+Gyr
Tracy Markie, Engenuity
Tom Sloan, Kansas State Legislator
Jeff Taft, PNNL

Members Emeritus

Paul De Martini, Newport Consulting Group
Erich Gunther, EnerNex Corporation

Day 1

Proprietary Information Notice

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

PJM Welcome and Introductions

Ron Melton, GWAC Administrator, Mark Knight, GWAC Chairman, Stu Bresler, VP Marketing Operations, PJM

Mark Knight called the meeting to order at 8:24 am. Mark reviewed the agenda, discussed the changes in format, and asked for any additions.

Stu Bresler welcomed the Council and guests to PJM and introductions were made.

Welcome and Administrative Business

Ron Melton reviewed the action items with the council.

- Aryeh Fishman to coordinate with Mark Knight about Edison Electric Institute's input on the Transactive Energy Framework. Aryeh shared that there is an interest in providing feedback to the Council but no action has been taken on this to date.
- Ron Melton reported that the December 2013 TE Workshop Proceedings will be completed and published on the GWAC website by the end of March.
- Mark Knight will provide an update on the progress of the SGIP MOU later in the meeting.

Ron Melton reviewed the calendar for the GWAC meetings and asked the Council for date and venue suggestions for face-to face meetings.

Meetings:

- **April 9:** Web Meeting
- **May 14:** Web Meeting
- **June 18:** Web Meeting
- **July 23:** Web Meeting
- **August 20:** Web Meeting
- **Fall** Face-to-Face meeting at CAL-ISO, Folsom, CA

Conference and Meeting Planning

Fall Face-to-Face Meeting

Ron Melton, GWAC Administrator

The Council is working to find the best time to maximize attendance of Council members. CAL-ISO has the September 10-11 or 22-23 dates available for the meeting. Sherry Kowalski sent out a Doodle Poll to the active GWAC members, and Ron encouraged all the members to participate in the poll as soon as possible.

Key topics for the meeting are as follows:

- Distribution side of TE Roadmap
- Final discussions of draft TE Roadmap
- Finalizing December TE Conference

Transactive Energy Conference

Ron Melton, GWAC Administrator

Ron Melton provided an update on the Transactive Energy Conference. The date has been set for December 10-11, 2014 at the World Trade Center, Portland, OR. The event is hosted by Smart Grid Oregon. The proposed format will include a Department of Energy focused transactive energy rollout, will have tracks with submitted papers, and will contain facilitated workshops similar to the workshops last year.

The conference is approved in the Department of Energy conference management system. A press release was released on 2/10/14 announcing the conference and encouraging potential participants to save the date.

The planning and program committee met and are focused on basic planning and identifying candidate keynote speakers.

EnergyBiz has approached the TEC Planning Committee regarding collaboration with sponsorships and attendees. The planning committee is currently reviewing their proposal.

Technical

SGIP Memorandum of Understanding

Mark Knight, GWAC Administrator

The Memorandum of Understanding between the GWAC and the Smart Grid Interoperability Panel should be completed by the end of March. The MOU led to a discussion of a mutual aid interoperability position statement prepared with SGIP and GridWise Alliance. Discussion continued on mutual aid interoperability. The Council agreed that scoping the dimensions of the problem would be a good place to begin with this task. Mark Knight suggested that we create a slot to discuss mutual aid interoperability at a future GWAC meeting.

Special Presentation

Price Responsive Demand in PJM

Paul Sotkiewicz, Chief Economist, PJM

Paul Sotkiewski, Chief Economist at PJM, presented PJM's efforts to put demand back on the demand side of the market by focusing on the relationship between price of energy and quantity of energy demanded. The presentation can be found at the link below.

http://www.gridwiseac.org/pdfs/workshop_031114/sotkiewicz_pjm_prd_overview_20140311.pdf

Transactive Energy Workshop

GWAC members and subject matter experts participated in a workshop to take steps to begin an outline on a potential roadmap/decision guide for transactive energy.

ISO/RTO Council Feedback

David Forfia, GWAC Member

David Forfia presented IRC coordinating formal response on the Transactive Energy Framework. Below is a link to the presentation.

http://www.gridwiseac.org/pdfs/workshop_031114/forfia_irc_comments_overview_gwac.pdf

Transactive Energy infographic

Jack Eisenhauer, Nexight Group, LLC

Jack Eisenhauer and Lindsey Kishter developed and distributed an infographic on transactive energy to the council prior to the workshop. The infographic is a one-page visual representation to help communicate transactive energy with various stakeholder groups. The council and workshop participants reviewed the document and provided feedback for Lindsey to revise the infographic. The revised document will be discussed at the Transactive Energy working call on Monday, March 17.

Problem Statement Discussion and Agreement

Ron Melton, GWAC Administrator, Doug Houseman, EnerNex, Inc. & GWAC Member

Doug Houseman gave a presentation on the need for transactive energy, possible solutions, and how and why transactive energy is the most flexible of the all the choices including pricing, rebate, incentive and direct load control programs. He also shared that transactive energy includes many things that we already do today, and also provides the flexibility to choose where one wishes to participate. Below is a link to the presentation.

http://www.gridwiseac.org/pdfs/workshop_031114/houseman_gwac_why_te.pdf

Ron Melton proposed that we clearly articulate what the problems are facing the power system today that are motivating the need for transactive energy. These problems are summarized in

chapter 2 of the Transactive Energy Framework and also listed in the Transactive Energy Infographic. Discussion continued on the problem statement and the changing nature of both the production and consumption. Further notes were captured and recorded in the workshop facilitator's notes. The link to the notes can be found on page 6 of the minutes.

End-to-End Power System Operation under the Transactive Energy Paradigm

Farrokh Rahimi, OATI

Farrokh Rahini presented on the Paradigm shift due to enabling technologies allowing for greater participation of demand side resources and closing the Gap between bulk power and distribution system operations. The presentation included:

- The possibilities and limitations of extending wholesale/bulk power transactive techniques to retail/distribution operations.
- The classification of prosumer-to-grid transactive energy products and services.
- Distribution system operator (DSO) as market agent and transactive energy facilitator.
- A new transactive node technology completing the end-to-end missing link.

http://www.gridwiseac.org/pdfs/workshop_031114/ipakchi_endtoend_pwr_sysm_oper_te_paradigm.pdf

Operational Implications of the Convergence of Bulk Power & Distributed Energy

Paul De Martini, GWAC Member, Newport Consulting, LLC

Paul De Martini presented the operational implications of the convergence of bulk power and distributed energy. By 2020, the power system could have a significant amount of distributed energy resources (depending on region) that could be tapped into, and there are many stakeholders interested in managing and leveraging resources. Effectively, all the incremental growth in capacity will come from customers. The presentation included:

- The range of services that may be available to incentivize the DERs
- The multiple DER constituents
- Transformation operation challenges
- Distributed system operations functional responsibilities
- Planning and investment

The full presentation can be found by clicking the link below.

http://www.gridwiseac.org/pdfs/workshop_031114/demartini_tef.pdf

Recap and Day Two Objectives

Ron Melton, GWAC Administrator

Ron Melton recapped the day's discussion and instructed the workshop participants to return for day two of the workshop.

Adjourn

Mark Knight adjourned the meeting for the day at 5:00 pm.

Day 2

Proprietary Information Notice

Meeting resumed at 8:00 am. Ron Melton read the proprietary information disclosure policy according to the bylaws to the members and guests. Tom O'Brien, Vice President of Information Technology at PJM, welcomed the Council and guests.

Transactive Energy Workshop continued

Mark Knight, GWAC Administrator, Ron Melton, GWAC Administrator

Workshop participants recapped the results from the previous day's discussions. Some of the outcomes from day one were:

- Mutual assistance which morphed into emergency response and resiliency warrants a separate session in a future meeting.
- Infographic and defining and explaining transactive energy is challenging and very similar to the struggles the council had describing interoperability in the past.
- Paul De Martini's slide "What Transactive Energy Can Do" is easy for people to understand, but it's difficult to take it to a level above and describe transactive energy in one sentence.
- A suggestion was made for a company-style on-line slogan for Transactive Energy. A 5-6 word tagline for transactive energy would help by creating interest, but it would not necessarily explain transactive energy.
- The fact that transactive energy means much more than money needs to be communicated.
- Ron Melton suggested that the word transactive remains because of the history of this group. The transactive energy concept could be labeled something else; for instance, "Advanced control of dynamically changing grid".

Roadmap purpose, structure, and Outline

Ron Melton, GWAC Administrator

Ron Melton discussed the purpose, structure and the proposed outline for the roadmap with the Council and workshop participants. The purpose for the roadmap is to provide broad direction for the industry and for it to be used as a focal point for grid evolution. The roadmap can document the needs of the industry's stakeholders and provide a unified element that supports decision making. In addition, the roadmap can provide input to the Department of Energy for future program planning.

The GWAC Transactive Energy Roadmap is of a loose structure that allows the coordination of efforts of many. It should consist of a common framework that the industry and stakeholders can follow and it should not be deterministic. The objective of the roadmap is to provide resolution of the ambiguity over time. The roadmap needs to be dynamic and should help the industry chart its path through the unknown.

The roadmap will be part of a family of documents that will include the GWAC Transactive Energy Framework and transactive energy case studies.

The proposed outline is as follows:

1. Purpose Scope and Use
2. Transactive Energy in the Modern Grid
3. TE Framework and Principles (organized by):
 - a. Objectives (reliability, efficiency, sustainability, affordability)? This gained most consensus.
 - a. Key issues/problem
 - b. Stages
 - c. What stakeholders need to know

Facilitated Discussion and Workshop Recap

Jack Eisenhower, Nexight Group, LLC

Discussion continued regarding the Transactive Energy Roadmap target audience, goals, allowances and the need to create a starting set of guiding principles. It was decided a small working group be formed to develop a complete set of guiding principles for transactive energy. David Forfia and Stephen Knapp volunteered to participate. Please see the link below for a detailed set of workshop notes.

http://www.gridwiseac.org/pdfs/workshop_031114/te_031114_mtg_notes_r1_lk.pdf

Transactive Energy Policy Paper

Mark Knight, GWAC Chairman, CGI

The Transactive Energy Policy paper is intended to fill the gap articulated by the community that is direct and cogent and can be provided to help people understand transactive energy. Discussion continued on the value of the paper. One topic that reappeared during Transactive Energy discussions was the need for a Policy paper.

Liaison Reports

Ron Melton, GWAC Administrator

The Council will reinstate formal liaison reports for future meetings. Discussion continued on the organizations and committees that current Council members can regularly provide reports to.

- Don Von Dollen has agreed to be the Electric Power Research Institute (EPRI) liaison to GWAC.
- Ken Wacks: International Organization for Standardization International Electrotechnical Commission (ISO/IEC) Consumer Electronics Association (CEA).
- Doug Houseman: Institute of Electrical and Electronics Engineers Power and Energy Society (IEEE PES), Standards Association (SA) and eMerge.
- Ward Camp: National Association of Regulatory Utility Commissioners (NARUC)
- David Forfia: IRC and Smart Grid Interoperability Panel (SGIP)
- James Mater: OpenADR
- Mark Kerbel: Open ADR
- TBD: GridWise Alliance

- TBD: National Rural Electric Cooperative Association (NRECA)

Liaison Reports

- Ken Wacks:
 - ISO/IEC - IT for home and building system committee met last week in Europe. About 20 people from around the world attended.
 - Ron Ambrosio is editor for Guidelines for Product Interoperability. He is developing a proposal for two new parts of the standard; one on Lexicon and the other on event and coding. These standards will be known as ISO/IEC 18012 parts 3-4.
 - Tim Schoecler is the project editor on a gateway standard ISO/IEC 15045. He is currently working part 3 the privacy volume. The activities to protect consumer privacy have much stronger emphasis in Europe than in the US.
 - New proposal on energy management from Korea for organizing energy management in an apartment complex. This follows on from a standard that Ken Wacks edited, called Model of an Energy Management System (ISO/IEC 15067-3), that focuses on demand response and distributed energy resources.
 - Proposed standard from the United States on a modularized communications physical interface for devices. The project proposal has been approved and 8 countries agreed to participate.
 - The group has wandered into the Internet of activities. IoT is primarily remote connection of the devices without people in the path.
- Doug Houseman:
 - IEEE
 - Interoperability Context Setting Framework as an IEEE document is in process. Erich Gunther is the lead on this project.
 - P2030.1 which is an architecture level for demand response and the standard is close to the final ballot. If the Council members wish to provide input, please go to IEEE.org and sign-up for the balloting list.
 - IEEE 1547 Power and Energy Society (PES) is planning a jumpstart writing group meeting in April to get the interconnection standard to the grid moving more quickly.
 - Doug Houseman is the Chair of DC in the Home. It's commercial activity is being sponsored by IEEE at the corporate level. For more information please see http://standards.ieee.org/email/2013_10_cfp_dchome_web.html
 - Upcoming meetings
 - IEEE T&D Show in Chicago, April 14-17, 2014
 - IEEE PES General Meeting in Washington, D.C., July, 2014. This meeting will have a review of the stimulus grant funded demonstrations. Farrokh Rahimi will be organizing a session on transactive energy and GWAC participation is anticipated.
- Mark Kerbel/James Mater:
 - OpenADR
 - Open ADR 2.0B specification has been approved for an IEC publicly available specification.
 - 2.0B is going live at utilities, primarily in California, but also in Hawaii.

- The main concern now is Title 24, a CA building code WRT. What building inspectors are supposed to expect was not mapped out and was left up to the discretion of individual municipalities.
- Over the past year, there has been increasing interest in OpenADR with Korea and Japan. Japan's focus is relative to the radical restructuring, and how they can use experience from the US. Korea is also making a wholesale adoption of OpenADR and SEP 2.0.
 - OpenADR is out for an SGIP catalog of standards vote.
 - Bill Cox is working with PC118, PAS on some software for Open ADR 2.0B and is also developing UML models being used for the simulation adapter for OpenADR.
 - SGIP Testing committee is reviewing a European document on interoperability document. GWAC material SGIMM was referenced.
- Chris Irwin:
 - Department of Energy
 - DOE is planning to lobby for research funds for transactive Energy for fiscal year 2015 for both OE and EERE.
 - There is still a tremendous focus on grid resilience and reliability. EPSA, attached to S-1, is coming alive. They are a good possible receptacle for TE impact on policy.

Action Items

Ron Melton, GWAC Administrator

- Ron Melton is to continue gathering feedback on Transactive Energy Framework and write a revision following the March GWAC workshop.
- Create supporting materials for TE Roadmap.
- Start grid resiliencies and emergency preparedness discussions.
- Summary for Policy Makers (Mark Knight & James Mater).
- Cyber-Security Implications (Mark Knight & Doug Houseman).
- Infographic (Ron Melton & Jack Eisenhower).
- Create and Edit a Set of TE Principles – (Volunteers Ron Melton, Stephen Knapp, Ken Wacks, Jack Eisenhower).
- Create GWAC Marketing Plan.
- Bill Cox will send information regarding the IEC PC 118 requirements for emergencies related to smart grid to be distributed to the Council.

Adjourn

James Mater moved to adjourn the meeting/workshop, Doug Houseman seconded the motion and the meeting/workshop adjourned at 3:50 pm.