Meeting Minutes – GWAC F2F Orlando
Feb. 6, 2020

GWAC Members

David Forfia, GWAC Chair

Ron Ambrosio, Chief Scientist, Utopus Insights, Inc.

Tanya Barham, Principal, Community Energy Labs

Ron Bernstein, President, RBCG, LLC

Andrew Bordine, Vice President, Energy Markets and Innovation, Anterix (new member)

Ron Cunningham, AEP (new member)

Lorenzo Kristov, Principal, Electric System Policy, Structure, Market Design (online participant)

Gerald R. Gray, Sr. Program Manager, Electric Power Research Institute (EPRI)

Stephen Knapp, Vice President of Quality Assurance & Energy Markets, Power Analytics Corporation (online participant)

Stuart McCafferty, Managing Director, IoT Architect, Black & Veatch (new member)

James Mater, Co-Founder and Director, QualityLogic, Inc. (outgoing member)

Farrokh Rahimi, Senior Vice President, Open Access Technology International, Inc.

Aaron Synder, EnerNex (new member)

Leonard Tillman, Partner, Balch & Bingham, LLP

GWAC Associates & Emeritus

Kay Aikin, CEO, Introspective Systems

Rahul Bahadur, VMware

Mark Knight, Burns & McDonnell (online participant)

Ken Wacks, Home, Building & Utility Systems

Mark Paterson, Strategen

Chris Villarreal, Assoc. GWAC, Plugged In Strategies (online participant)

GWAC Guests

Larisa Dobriansky, Presenter, General Microgrids

Avi Gopstein, NIST

David Katz, Sustainable Resources

Elizabeth Sisley, Calm Sunrise Consulting

David Wollman, NIST

PNNL Support

Ron Melton, GWAC Administrator

Karen Studarus, PNNL

Jamie Lian, PNNL

Jeff Taft, PNNL

Meeting Minutes – GWAC F2F Orlando
Feb. 6, 2020

David Forfia noted that the meeting reached a quorum with members present at the meeting in Orlando and two members participating by phone. He noted edits to the minutes that had been submitted and were pending, and asked for a motion to approve the January 2020 meeting

Farrokh Rahimi gave a motion to approve with the submitted edits. Ron Ambrosio seconded the motion. There were no objections, David Forfia accepted the motions and the minutes were approved.

Ron Melton requested the next order of business to be to select a GWAC Chair for 2020. He asked for nominations to be made. David Forfia received several nominations from the group. Ron Bernstein offered to be the Vice Chair if David were absent.

David Forfia told the group that he would be happy to serve for another year.

Ron Melton heard no objections and noted that David Forfia will serve as the GWAC Chair for 2020.

Ron Melton read the Proprietary Information Notice and announced that the meeting would be recorded.

Ron Bernstein asked about the next GWAC F2F meeting.

Ron Melton said that the next F2F GWAC meeting will be discussed in the afternoon portion of the meeting.

Ron Melton reviewed the action items -

Don Hammerstrom, Steve Widergren and Ron Melton will meet next week to discuss the Resilience white paper.

Meeting Minutes – GWAC F2F Orlando
Feb. 6, 2020

GWAC March 18 meeting – Alectra will join the meeting, details forthcoming. David Forfia is facilitating their participation.

GWAC Matrix – Ron Melton noted this is now complete.

James Mater's suggestion to add an Interoperability Liaison is not yet complete.

Aaron Smallwood will be taking the role as the GWAC SEPA liaison; David Forfia confirmed.

Jamie Kolln, PNNL will be taking over for Ron Melton on the refresh of the Decision Maker's Checklist. He will schedule the next meeting with the committee. David Forfia will try to call Jaime this week.

David Forfia located a previous GWAC history slide and Ron Melton will review it as a starting point for the new history slide. This slide will be added to the GWAC Matrix.

⊙ Conferences and Events
(**Bold** indicates GWAC speakers)

- AHR Expo, Orlando, FL, February 3 – 5, 2020
- NARUC Winter Policy Summit, Washington, DC, February 9 - 12, 2020
- IEEE ISGT 2020, Washington, DC, February 17 – 20, 2020
- Smart Energy Summit by Parks & Assoc., Austin, TX Feb. 17-19, 2020 (NEW)
- CABA Smart Buildings Summit, Florida, May 3 – 5, 2020 (new)
- IEEE PES General Meeting 2020, Montreal, August 2 – 6, 2020

- **GWAC Face-to-Face Meeting**

Ron Melton will add the IEEE T&D Expo April 22- 25 2020 in Chicago to this list.

Aaron Synder has a meeting to add to the list. He will send it to Susie McGuire.

GWAC Projects

Project	GRID 3.0	Decision Makers Checklist Refresh	Smart Buildings as Transactive Hub White Paper	Economic Resilience White Paper	TESC Conference
Scope	Future Grid States Document with an industry consensus on future states of the electric power grid through a collaborative process	GWAC publication will provide decision-makers with background information	Discuss use case for building integration with grid and how/what a TE model might look like	Overview of TE impact on resiliency issues. Possible interoperability, control, monitoring, real-time data sourcing and related solutions	Annual GWAC sponsored conference focused on Transactive Energy and related topics
Audience	Policy, Regulators, Legislators, ISOs	Utilities, regulators, transactive platform providers, service providers, consumers	Building owners, energy mangers, utilities, end users	Utilities, integrators, solution providers, policy makers	Decision makers, solution providers, labs, academics, policy, solution providers
Status	Update planned for Nov. GWAC F2F	Last published in 2015. Update published July 2019	Calls now underway	PNNL Review prior to release	Planning started for 2020
Actions	Further flesh out agenda for F2F	None	Currently five "next steps" in progress	PNNL Review identified need for extensive edits	Complete application, engage PES Committees
Leadership	Ron Melton	Ron Melton	Ron Melton, Ron Bernstein	Rahul Bahadur	Various – Ron Melton Lead

GWAC Orlando F2F:

GRIDWISE

⊙ Agenda

Day 1
- 8:30am - 8:45am Introductions
- 8:45am - 9:15am Seat new GWAC members
- 9:15am – 10:30am NIST SG Framework 4.0 Overview
- 10:30 - Noon Refresh of Grid 3.0 Future States
  - Background
  - Panel Session – Emerging Trends and systemic issues (Grid, End Uses, Other Infrastructures, Regulatory)
  - Breakouts, Report Back, Next Steps
- Noon – 1pm – Lunch Break (on your own)
- 1pm - 4:30pm Discussion of High DER, DA, Storage Reference Architecture
  - Presentation of the reference architecture (ARID process

Day 2
- 9am - noon Reference architecture discussion
  - Key concepts – detailed discussion (ARID continues)
  - Relationship to other reference architectures (ARID continues)
  - Opportunities and challenges for applying the reference architecture
  - Candidate GWAC White Papers related to the reference architecture
- Noon – 1pm – Lunch break (on your own)
- 1pm - 2pm Conclusion
  - Bring reference architectures and future states discussions together – any changes to future states from reference architecture discussion?
  - Next Steps
- 2pm - 4pm GWAC Administrative Business

TESC20

There are four technical working groups with IEEE that are interested in assisting with TESC20.

Action: Ron to send a TESC20 conference description to the IEEE working group contacts.

"TE – Making it Real" is the topic that will be discussed later today for the TESC20 theme.

Ron Melton confirmed that he has submitted the conference application to IEEE.

The meeting dates and location are confirmed.

The call for abstracts needs to be drafted soon and then announced. This will build on today's discussions.

The Technical Program will then need to be roughed out and keynote speakers identified and invited; the GWAC Foundational Session also needs to be planned.

Ron Melton noted that the afternoon of December 8th will be a tutorial session as previously discussed. He noted that the TESC20 organizers had talked earlier about a TE 101 session, but he said they should also consider a hosting a Grid Architecture Tutorial. He said that David Wollman and others from NIST might have some ideas for a GridArch tutorial. He also mentioned that he and Jeff Taft are scheduled to give a Grid Architecture talk at the IEEE PES General Meeting and that could also be presented at TESC20.

He also noted that the TESC20 Organizing committee is working to get the plenary speakers identified because the sooner they are announced then the sooner TESC20 can start attracting northwest sponsors such as tech companies and utilities like Microsoft, Amazon, Google, and Intel.

⊙ TESC 2020

- IEEE Advanced Technology -PSOPE Power Systems Operations, Planning & Economics and SBLC as partners, and AMPS – *send the conference description*
- GWAC Organizing Committee Members: *Stephen Knapp, Gerald Gray, Leonard Tillman, Ron Bernstein, Farrokh Rahimi, Mark Knight, Jeffry Morris, David Forfia, Karen Studarus, Ron Melton*
- Location – *Portland General Electric agreed to host, confirming dates are available (Dec 8 – 10)*
- Theme – *"TE – Making it Real" (note that Mark Paterson has suggested – "Grid architecture – beyond TE"*
- *Conference Application submitted to IEEE on 02/04/2020 with Karen Studarus as Treasurer*
- *Next Steps:*
  - *Get dates confirmation from PGE (e-mail reminder sent)*
  - *Get organizing committee members from outside of GWAC (send conference description from IEEE PES Application*
  - *Draft Call for Abstracts*
  - *Rough out program and begin planning for keynotes*

Smart Buildings White Paper

GRIDWISE
⊙ Smart Buildings as Transactive Hubs Update – Ron Bernstein

- Series of meetings held in preparation for this week's workshop
- Document is shaping up well – lots of material at this point that will be edited down
- Consider this as a possible first application of Grid Architecture reference architecture (High DER)
- Target is a narrative document - ~12 pages (now in GWAC Template)
- Next call to be scheduled
- Discussion

Ron Bernstein who heads Smart Buildings white paper effort said he hopes to be done this week or at least have a draft. Right now, it has a bit too much information, so some editing is needed. They got some good feedback at the AHR seminar yesterday. He hopes to have it all done in the next couple months. Another call will be set up soon. The working copy of the paper is located on gridarch.org. Ron asked that anyone who does edit it keep track changes on and please don't delete anything.

Once the document is done it should be sent out to the GWAC for comments and feedback before publication.

Ron Melton noted that the Resilience white paper was not well reviewed by the Council and does now require some edits for consistency. It was approved for publication without a thorough review.

Meeting Minutes – GWAC F2F Orlando
Feb. 6, 2020

Tanya Barham brought up workload issues related to GWAC activities. She asked the GWAC – as a teamwork issue – set an expectation that each council person edit at least one paper each year. She thought if there was a defined expectation that it might work well toward spreading actions around evenly rather than having a few members do most of the work. It could tie in with the GWAC matrix to keep the group apprised of progress and hold people accountable for their GWAC commitments.

David Forfia agreed and suggested that the revamped website might be a good place to post work teams, actions, and activities with status updates and due dates listed as well.

Ron Bernstein said that council members should say no if they don't think they can get their task done in the requested time frame.

Ken Wacks commented that he remembers contributing 20% of his time toward GWAC for the eight years that he was a member. He made it a priority. Ron Melton agreed and said that is still the standard listed in the membership materials.

Farrokh Rahimi asked if GWAC members have reviewed the Resilience paper for presentation at IEEE ISGT. Ron Melton said that PNNL's Don Hammerstrom and Steve Widergren have reviewed it and have not approved it to be published. They will be sending their comments to Ron Melton and then he will forward those to the white paper team. It is fine for presentation next week but not for publication.

In the discussion it was suggested that having a smaller set of people assigned to edit and review each paper would be more efficient rather than asking everyone on the GWAC to review every paper.

David Forfia gave an example of a couple of small groups that reviewed some documents within the needed timeframe rather than ask everyone to participate in everything. He said there are models that we can refer to and discuss more in depth to see if this would be good approach for the GWAC.

Tanya said she didn't mean to propose public shaming.

Ron Bernstein suggested a carrot on a stick as another way to motivate the team to participate and complete actions on time.

Decision Makers Checklist

Jamie Kolln, PNNL is drafting the Decision Maker's Checklist update that David Forfia had started and posted to the gridarch.org site. Ron Melton reminded everyone that this document had last been updated in 2011 so it would understandably be out of date. At a recent NARUC meeting last year, Lynn Kiesling had noted that it was quite dated in terminology and technology.

The current DMC committee members are Leonard Tillman, David Forfia, David Wollman, Chris Villarreal, and Ron Melton.

Another call will be scheduled soon.

Meeting Minutes – GWAC F2F Orlando
Feb. 6, 2020

Liaison reports

⊙ Liaison Reports

- NIST – David Wollman
- ISO/IEC JTC 1/SC 25 – Ken Wacks
- SEPA – TBD
- EPRI – Gerald Gray
- ASHRAE – Ron Bernstein
- IEEE PES – Doug Houseman / Farrokh
- EBC - Ward Camp
- NARUC – Chris Villarreal
- OpenADR – James Mater

NIST – David Wollman – NIST hopes to get the Framework out soon. Ron Melton asked David to be sure to tell Avi Gopstein that his presentation here in Orlando was very well done and very motivating. Other meeting participants noted their agreement.

Ron Bernstein asked David Wollman if he could provide a copy of Avi Gopstein's talk from earlier today – he would like to have that and a copy of Jeff Taft's presentation.

ISO/IEC Ken Wacks -the TE Framework has been submitted as an international technical report. Ken processed some additional paperwork and it has now been submitted it to ISO/IEC as 15067-3-8 as the GridWise Transactive Energy Framework. He noted that he got an inquiry from Geneva Switzerland checking to be sure that it can be published as a public document. Ken said he had replied that it is a public document. Ron Melton noted that the proper acknowledgement must be included, it is noted within the report. May 11 is the next scheduled international standards meeting where it will likely be when it is discussed. The standard meeting will be held in conjunction with the Consumer Technology and Standards Spring Forum in San Francisco. Anyone who would like to be involved with the group should talk to Ken Wacks.

SEPA – David Forfia has spoken with Aaron Smallwood and he will be the new GWAC liaison.

David Forifa asked for a round of applause for Ron Cunningham's work to take SGIP I to SGIP II and then onto the Grid Architecture working group. He said the document is now published, noting that it was a 7-year journey. It is published on GitHub.

EPRI - Gerald Gray – the standards on interoperability by EPRI has published a set of test scripts and software artifacts for CIM standards with meter reading controls, DER and DMS terms that might be used, they are working with EPRI legal to give the Apache license to UCA IUG for compliance testing.

Ron Bernstein - ASHRAE AHRI is the heating and refrigeration institute and CTA, IAS (Integrated Automation Specification group) and DLC (Design Lights Consortium) will meet next week. They all deal with interoperability. They will develop a spec model for things in the build environment. It is the Division 25 Integrated Automation Construction Institute Specifications model. DLC is the Design Lights Consortium for lighting systems and controls. Lighting systems don't' just integrate with lighting – they will look at what it would it if directly connected to the Grid and how they can be better managed.

Meeting Minutes – GWAC F2F Orlando
Feb. 6, 2020

Requirements for manufacturers and utilities is what is driving the creation of better lighting systems. They hope to offer industry a free version of their report. They are developing more than a product – it's about policy and people. AHRI is working on cyber security and how IOT is influencing products and systems. It is more about policy and people rather than on the product.

IEEE PES Farrokh – the ISGT will be Feb. 17 – 20 and there are a couple of panels on Transactive Energy (TE) there. Ron Melton is a panelist. The Economic Resilience paper will be presented and a block chain for energy technology panel and regulation and policies. There are several other panels and talks on these topics.

Ron Melton noted that there will be a Grid Architecture panel at IEEE ISGT later this month. He also noted an architecture subcommittee panel that Steve Widergren had been chairing, someone else has taken it over. It is part of the Smart Buildings and Loads subcommittee.

David Forfia – EBC; the Energy Block Chain Consortium is working with the Dept. of Defense and with Arizona State Univ. They have updated ISO use cases for block chain.

Chris Villarreal – Earlier this week NIST released a report on the roundtable regarding the meeting series of 2018 with NIST and NARUC. It is a summary of the four meetings held in 2018. This was in advance of the update of the Interoperability Framework update. There were speakers from regulatory commissions in the participant regions. The report is a summary of the talks and discussions. This might help us to know how other parts of the country think about this.

The NARUC winter policy summit is next week – a there will be resolution up for vote to recommend that all states consider updating their regulations on tariffs and interconnections to comply with UL1547-S2018 and utilize UL 1749. It is not a requirement but only a recommendation. Minnesota PUC commissioner Matt Schuerger will host a meeting this Sunday on UL 1547 and the updates related to that. Minnesota is the first state to officially adopt UL1547-S2018 for their interconnection tariff. Minnesota is being looked at as the first state to officially adopt these standards for interconnection tariffs. It is being looked to as a model for this. There is also an effort coming from Arkansas. This shows that it is a vital standard that regulators are relying upon to govern future policies related to interconnection.

OpenADR – David Forfia has several forums coming up.

David Forfia recognized Ron Bernstein for his contributions to this F2F meeting including the AHR Tour that he conducted.

Ron Melton invited anyone that is interested to stay in the room after this meeting adjourns for a meeting on TESC20 theme.

Adjourn

GWAC Chair David Forifa asked for a motion to adjourn. The motion was given by Aaron Synder and a second was made by Leonard Tillman. Hearing no objections, the meeting was adjourned.