

Meeting Minutes

Dec. 10, 2019

GWAC Members

David Forfia, GWAC Chair

Ron Ambrosio, Chief Scientist, Utopus Insights, Inc.

Tanya Barham, Principal, Community Energy Labs

Ron Bernstein, President, RBCG, LLC

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

Stephen Knapp, Vice President of Quality Assurance & Energy Markets, Power Analytics Corporation

Leonard Tillman, Partner, Balch & Bingham, LLP

James Mater, Co-Founder and Director, QualityLogic, Inc.

GWAC Members not present

Joe Hagerman, ORNL

Doug Houseman, Grid Modernization Lead, Burns & McDonnell

Lorenzo Kristov, Principal, Electric System Policy, Structure, Market Design

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

GWAC Associates & Emeritus

Kay Aikin, CEO, Introspective Systems

Mark Knight, Burns & McDonnell

Jeff Morris, Principal, Energy Horizon Corp.

Ken Wacks, Home, Building & Utility Systems

GWAC Guests

Jamie Coffel, Honeywell Smart Energy

Ron Cunningham, AEP

Dave LeVee, PwrCast

Robert Burke, R. Burke Consulting

David Katz, Sustainable Resources

Stuart McCafferty, Black and Veatch

Larisa Dobriansky, General Microgrids

PNNL Support

Susan McGuire, GWAC Coordinator

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Administrative

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David Forfia called the meeting to order at 12:02pm Central Time and read the proprietary information.

Ron Bernstein noted that the GWAC seminar at AHR should be part of today's agenda.

David reminded all current GWAC members that have not yet done so to let Ron Melton know if they will be staying on with the GWAC.

Ken Wacks asked about the status of the ISO/IEC letter from Ron Melton regarding submission of the TE Framework document for consideration as an international document. Susie McGuire commented that it had not yet been approved.

Review of Past Meeting Action items

David Forfia confirmed that Alectra has agreed to speak at the March GWAC online meeting.

Action: Ron Melton and Susie McGuire to add Alectra to the March 2020 GWAC meeting agenda.

David Forfia confirmed that Tanya Barham has talked to PGE about their support for TESC20. This will be discussed later in the meeting today.

Noting that a full quorum was been reached, David asked for a nomination to approve the November meeting minutes. Ron Ambrosio gave the motion to approve the minutes and Stephen Knapp seconded the motion. Hearing no objections, David confirmed that the November meeting minutes were approved with no changes or corrections.

Upcoming Meetings and Conferences

David Forfia reviewed the list of meetings and conferences relevant to the GWAC.

David Katz asked that the CABA Smart Buildings Summit (SBS) to be held May 3 – 5, 2020 in Florida be added to the conference list.

The invite is out for the GWAC Face to Face meeting Feb. 5 and 6, 2020. It will be held in conjunction with the AHR Expo in Orlando.

Action: Ron Melton to add CABA Smart Buildings Summit to the GWAC list of meetings and Conferences. May 3 – 5, 2020 in Florida. It is for the owners and suppliers of smart buildings. <https://www.caba.org/sbs> (according to the website this is by invitation only and travel will be covered by AGORA for those that are invited)

GWAC New Member Call update

David Forfia reminded the group that the GWAC Call for new members is open through December 15th and asked the group to be actively recruiting new members. The goal is to have the new slate

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completed and approved in time for the GWAC Face to Face meeting Feb. 5 and 6, 2020. GWAC will assign random 1- and 2-year terms due to the delay from last year. Some new applications this year as well as some refreshed from last year are coming in.

Gerald Gray introduced a colleague - Andy Bordine on the call today. Mr. Bordine was formerly at Consumers Energy. He is interested in being considered as a GWAC candidate. Andy introduced himself and reiterated his desire to be considered as a candidate noting that he has a strong telecom background as well as in rates and regulation.

David Forfia reviewed the GWAC matrix and noted that the TE Framework is now complete.

The white paper on Smart Buildings as Transactive Hubs will be discussed later today.

The TESC20 Conference will be discussed, also.

GWAC Activity Matrix review

David noted that it might be time to add the Refresh of the Decision Maker's Checklist to add to the matrix. He noted that it is not on the chart at this time but is being considered as a new action.

Otherwise the matrix looks complete.

Action: Ron Melton will look at removing the TE Framework from the GWAC matrix and at adding the Decision Maker's Checklist 2020 revisions to the GWAC matrix before the next meeting.

It was noted that the two white papers are well underway.

David Forfia and Ron Melton did talk with IEEE in late November. They are working toward a date late in 2020 for the TESC conference with IEEE hosting as last year. Portland Oregon is the anticipated location and Tanya Barham is making a contact with PGE regarding a venue. The location would have economic advantages for the meeting.

David Forfia asked if there are other GWAC members and friends interested in helping. Ron Bernstein, and Jeff Morris offered to join the committee for the conference.

Action: Susie to add Ron Bernstein and Jeff Morris to the TESC20 Organizing committee list (complete)

David Forfia asked the group about a TESC20 theme. Gerald Gray proposed "Under the Sea" as a theme.

Ron Bernstein suggested that we look at the themes from previous events including the TE Systems TESC conference at MIT in 2018, and at the follow-on conference at the University of Minnesota in 2019. Themes have progressed from Framework to Theory to Practice.

Action: Susie McGuire compile a list of TESC themes starting from 2013 forward and see what is next in the progression. (complete and distributed)

Stephen Knapp suggested a crossover from vision to applications. David Katz suggested the decarbonization of buildings and net 0 to include how that relates to transactions. How transaction

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allows us to implement and manage flexibility throughout the grid not just in distribution and at the edge (Ambrosio).

Stuart McCafferty also proposed additional topics related to vehicle to grid – such as cars that can be both users and chargers for example? He asked if the GWAC is moving forward in this direction? David Forfia suggested GWAC include changes in disrupter technologies with grid architecture of the future. He noted that Lorenzo has talked about disrupters in the past and might have some input.

Larissa Dobriansky said that she sees increasing interest on the regulatory side in platforms and platform development in relation to evolving grid architecture.

David thought we should be close to having the theme and dates by the next meeting. The TESC conference application submission has been submitted to IEEE and is in progress. He and Ron Melton will start organizing the calls and hope to have one before the end of December.

Action: Susie/David schedule the organizing committee and get a meeting in before the end of the year. (complete)

Action: David suggested getting a list of suggested themes out to the group before the January meeting of the organizing committee. (Ron, David, Susie) Suggestions will be included in the meeting minutes and distributed prior to the meeting.

Stephen Knapp thought we are in a good spot with what we have so far.

David Forfia agreed to be the “evil program manager” who will start pushing everyone now.

White Papers

Smart Buildings as TE hubs

Ron Bernstein has asked his team to get their input in by this Friday and noted that the group is three quarters of the way through the content now. Then they will start the editing process.

The next call is December 20. The target size is 12 pages. They hope to have the major content done at that time.

David Forfia thanked Ron Bernstein for taking on the task of championing the white paper.

Update: The title of the AHR presentation of this paper will be “Smart Buildings as a Smart Grid Transactive Energy Hub: Enabling New Approaches for Greater Energy Efficiency. Presented by US DOE’s GridWise Architecture Council”

Economic Resilience White paper

Rahul Bahadur told the group that the GWAC white paper has been accepted by ISGT. Currently PNNL is doing some formatting edits for publication. They are presenting it as a panel session at the meeting in DC in Feb. 2020. That is their next step.

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Interoperability Decision Makers Checklist

David Forfia noted that the current document is loaded on the GridArch Sharepoint under 2019 meetings.

At the NARUC workshop in Austin feedback to GWAC about the document said that the paper was excellent but somewhat out of date since it was last published in 2011. Chris Villarreal had hosted a workshop and received the feedback. David Forfia referred to the memo that Chris sent him from that workshop and commented that the material will help the refresh team with the edits that are needed. David noted that Chris needs to be added to the refresh working group.

David would like to have the update done in the first quarter of 2020.

Action: Susie to schedule the first meeting of the Checklist Refresh group and add Chris Villarreal to the list. (complete)

GWAC F2F

David Forfia reviewed a draft of the proposed agenda for the GWAC F2F meeting in Orlando, during the AHR Expo.

Ken Wacks noted that there is a SEPA technical advisory meeting is scheduled over the top of the GWAC Face to Face meeting on Day 2. Ken said he had sent a letter to SEPA right away to inform them of this conflict for GWAC members. He copied Ron Melton, Mark Knight and Chris Irwin. He received a reply from SEPA to apologize for the overlap and it went on to say that SEPA hopes to have GWAC members join future calls and meetings.

David Forfia said he didn't know how many people would need to forgo the GWAC meeting to attend this SEPA advisory meeting. Ken noted that the meeting starts at 6:30pm on Day 1 of the GWAC meeting (Feb. 5).

Ron Bernstein reminded the group of the AHR educational seminar which is based on the GWAC Smart Buildings white paper. It will be held on Tuesday, Feb. 4 from 4:30pm to 6:00pm in room W311C.

Dates for the GWAC F2F will be on Feb. 5 and 6.

GWAC members and friends are asked to consider if they are planning to attend, and please let Ron Melton and Susie McGuire know. Ken Wacks noted that he plans to attend. Others please send an email.

Ron Bernstein noted the Embassy Suites and the nearby Hampton are offering government rates and there are shuttle buses from major nearby hotels to the OCCC for Feb. 4 and 5. However, Feb. 6 is not an official AHR date.

The ASHRAE meeting starts the weekend before, it is co-located with the AHR Expo but they are separate meetings.

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Ron Bernstein highly recommends that everyone take some time to walk through the control automation section, saying he it is primarily is about the interface of buildings to the grid. Ron offered to set up a walking tour (he has attended for the last 20 years). He could do some introductions for GWAC attendees. Please let him know if you are interested.

David Katz said that he plans to attend.

Rob Bernstein recommended everyone to take advantage of free seminars and training sessions on IOT, web services, data analytics, and more. Attendance is expected to be around 40 to 50K. He advised everyone to use the AHR website to help plan your schedule in advance.

Ken Wacks said some of the booths are enormous – you will see commercial HVAC systems for buildings at the show.

Kay Aiken said look at the construction expo in Las Vegas – where they bring in bulldozers.

Ron Bernstein noted that Wi-Fi is not great at the show. Cell phone hot spots might be needed at the show for people to check email. He also noted that GWAC will not provide extension cords and power strips to attendees. Please bring your own. AV at the meeting is quite expensive.

Farrokh joined the call. He noted that he will not be able to attend in person in Orlando, but he will join remotely.

ACTION: Susie McGuire to look for restaurants near the OCCC for Tuesday night for a no-host dinner.

Kay Aiken told the group that her partner and business partner Dr. Carol Johnson, died a week ago Friday of complications from a cancer. Kay noted that Dr. Johnson attended the TESC19 meeting this past summer at the Univ. of Minnesota. It was unexpected. Her work was in Transactive Energy Controls. Introspective Systems plans to continue moving forward. The memorial is this Saturday at the Introspective Systems office. In the scientific community there has been an outpouring of love which has been phenomenal. A seismic journal will do an article on her career. Kay will cover scheduled presentations of hers on seismic work. Kay thanked everyone for their well wishes.

Liaison Reports

NIST – David Wollman not able to attend today.

ISO/IEC – Ken Wacks– his group is about to start a ballot to apply AI to energy management.

South Korea offered a proposal to apply the concept of interacting Energy Management Agents (EMAs) to an apartment complex. Each apartment, each building, and the management office in the complex would have EMAs that interact to allocate energy efficiently and economically.

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This would be local agent that considers the price of energy including real time prices from the public energy supplier and couples it with locally generated power in real time or from storage, whether stationary or mobile batteries. It allocates according to the appliance needs, preferences and budgets of the occupants. AI is involved in the processes. These are the first standards are being developed in this area.

Ken also mentioned that the GWAC TE Framework is being submitted to ISO and IEC as the third in a series of international technical publications by GWAC.

SEPA - David noted that since he is no longer with an ISO so he can't be involved with a technical committee advisory board. His current company is not a SEPA member. He confirmed to Ken Wacks that he is still working in the energy space.

James Mater asked about the SEPA technical committee with Aaron Smallwood and offered to be the GWAC liaison.

David Forfia appreciated James offer of support but noted that several GWAC participants are chairs of SEPA technical working groups. David was chair of the technical advisory council and so he thought that the liaison should have a broader involvement in SEPA if possible. James said that he might be able to recruit someone in that aspect. OR perhaps Aaron Smallwood would be willing to call in to fill that role. David will ask Aaron about this.

Action: David Forfia to ask Aaron Smallwood about becoming the GWAC SEPA liaison.

EPRI – Gerald Gray noted that the EPRI advisory meeting is the week after the GWAC F2F. He will have an announcement soon regarding IP related to the utility common info model and relative to the UCA IUG – he may have that announcement at one of the next meetings. Margaret Goodrich now president of the UCAIUG.

ASHRAE - Ron Bernstein noted that the ASHRAE guide specifications for building interactions and the cyber security aspects of it . He spoke with the ASHRAE general council about ASHRAE polices in education around cyber security. There seems to be some new ideas regarding control systems and large equipment cyber security issues.

IEEE-PES -Farrokh Rahimi for Doug Houseman noted they have a couple of Transactive Energy panel sessions scheduled at the IEEE ISGT in Washington DC Feb 17 – 20, 2020. Also, a couple panel sessions at the IEEE General Meeting in August in Montreal on TE Eco Systems, Smart buildings, loads and custom systems. David Forfia gave Farrokh some background on what has been done for TESC2020. Farrokh is listed as a member of the organizing committee for TESC20. The first meeting will be this month.

David Forfia invited anyone else interested in being part of the TESC20 organizing to committee to let Ron Melton, Susie McGuire and David Forfia know. The conference application for IEEE is being prepared. The conference is currently about one year away.

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Farrokh noted that SEPA is currently working on some new standards related to Transactive Energy and block chain.

EBC - Ward Camp is not on the call today. David Forfia will cover – Tony Giroti has asked David to be part of the advisory board for EBC as a not for profit. He did some work on their utility and ISO use cases. The Block Chain Consortium will be a 503, hopefully, by the end of first quarter 2020.

Chris Villarreal is not on the call.

James Mater – Open ADR – they are getting global traction since they sell and support certification test tools. They have seen an increase in the number of companies that are developing an open ADR interface. Calif. Title 24 requires buildings in many instances to support an open ADR interface with utilities. As of Jan. 1, 2020. It is written into law. Title 24 is California's building codes; it consists of two big volumes. They go in three-year cycles. The first one requires all new residential buildings to have solar and communicating inverters. That is 80,000 to 100,000 new homes per year.

James Mater asked if we should add another liaison contact on the work on interoperability – specifically the DOE GMLC work on an IEEE 2030.5 eco-system steering committee headed by Steve Widergren and David Narang. It is moving to the next phase of getting an IEEE agreement with SunSpec Alliance on IEEE 2030.5 testing and certification. It would take on the ownership of that standard. It's an interesting case study on how an eco-system develops and evolves.

Action: Ron and David to discuss adding a Liaison report on Interoperability as noted by James Mater.

David asked if there are any other missing liaison reports; none were put forth.

Chris Irwin, DOE told the group that he had been listening in today – he wanted the group to know that he got a last-minute solicitation from IEEE from someone looking to do a smart grid panel at the IOT IEEE World Congress in Florida – he is interested in that. He noted that it relates to a \$7M university grant they got recently on how to deal with Internet of Things at the Grid Edge. They have gotten proposals from that solicitation and will down select for awards in the Jan/Feb timeframe. This will add to the IEEE Liaison and to the block chain liaison relationship. He has four SBIR awards to blockchain companies exploring a couple of different use cases grounded in the energy sector needs and also a GMLC project centered around block chain technology that will be kicking off. Chris said his program also has GMLC investments – they announced some \$90M in new GMLC investments a month ago. He will be leading this or at least participating in leadership Interoperability, Block Chain and one on Co-Simulation Frameworks.

Action: Ron and David to consider how to address Chris's request. The meeting appears to be the IEEE RFID 2020 in Orlando FI April 28 – 30. <http://2020.ieee-rfid.org/>

Reminder all – let Ron and Susie know if you plan to attend the GWAC F2F at AHR...there is a concern with SEPA Technical Advisory Council overlap (in the minutes earlier) those who joined late.

SEPA TAG will be in Washington DC. AHR Expo and GWAC F2F will be in Orlando.

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No additional liaison report information was put forward.

The next online GWAC meeting will be Jan. 15. We hope to have the organizing committee formed and the Orlando F2F agenda fixed for the SEPA conflict.

David Forfia asked for a motion to adjourn 28 minutes early. Tanya Barham gave the motion and Stephen Knapp seconded the motion. No objections were made, and David adjourned the meeting and wished everyone happy holidays.