Meeting Minutes

Nov. 20, 2019

GWAC Members

David Forfia, GWAC Chair

Tanya Barham, Principal, Community Energy Labs

Ron Bernstein, President, RBCG, LLC

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

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

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

Leonard Tillman, Partner, Balch & Bingham, LLP

GWAC Members not present

Ron Ambrosio, Chief Scientist, Utopus Insights, Inc.

Joe Hagerman, Deputy Chief Scientist, NRECA

Doug Houseman, Grid Modernization Lead, Burns & McDonnell

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

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

GWAC Associates & Emeritus

Kay Aikin, CEO, Introspective Systems

Ron Cunningham, American Electric Power

Mark Knight, Burns & McDonnell

Jeff Morris, Principal, Energy Horizon Corp.

Aaron Snyder, EnerNex

Ken Wacks, Home, Building & Utility Systems

GWAC Guests

Ron Chebra, EnerNex

Jamie Coffel, Honeywell Smart Energy

Robert Burke, R. Burke Consulting

David Katz, Sustainable Resources

Stuart McCafferty, Black and Veatch

Larisa Dobriansky, General Microgrids

PNNL Support

Ron Melton, GWAC Administrator

Susan McGuire, GWAC Coordinator

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Administration

David Forfia called the meeting to order at 10:05 am PST.

Ron Melton reminded everyone that the GWAC call for candidates is up on the GWAC website and an email has gone GWAC distribution lists. A couple of emeritus members will be needed for the member selection committee. The call is open until Dec. 15 and GWAC participants are asked to help get the word out. Thanks to those who applied last year and have let us know that they would like to still be considered since last year's call has been on hold.

For the GWAC Activity matrix - GWAC history slide, Ron Melton has some ideas on about it and it will include some of more recent history but will do some compression of the timeline.

Review Meeting Minutes & Actions

- Sept. 18, 2019 – meeting minutes approval
- Oct. 16, 2019 – meeting minutes approval

- Action items from previous meetings
  - ➢ **All**: please let Ron know if you will be unable to attend a call ahead of time.

  - ➢ Action: Two Emeritus members could serve on the new member committee.
  - ✓ Action: Ron Melton will update the call for new members for 2020. Susie will send the announcement out to the GWAC lists.
  - ➢ Action: Ron Melton to schedule a meeting with Doug Houseman to further discuss IEEE and TESC
  - ➢ Action: Ron Melton to schedule a call with David Forfia and David Wollman to discuss what is needed regarding the Interoperability checklist.
  - ➢ Include a history slide on the GWAC accomplishment matrix for completed actions
  - ✓ Action: Ron Melton to post the GWAC new member call on the GWAC website.
  - ➢ Action: Ron Melton will contact current GWAC members regarding their intent for 2020.
  - ➢ Action: Ron Melton to create a history slide for the GWAC activity table.
  - ✓ Action: Susie and Ron to set up another SBETH or SBATH meeting for next week. (David Forfia asked to be added to the invite list). Done (Oct 21, and Nov 19)
  - ✓ Action: Ron Melton and Ron Bernstein to talk later this week about the AHR Expo and a talk on the smart buildings white paper
  - ✓ Action: Ron/Susie to send out a questionnaire to the GWAC on acceptance of the Resilience white paper. Completed: 3 yes votes
  - ✓ Action: Susie/Ron to send a letter to Ken Wacks regarding submission of the TE Framework to the IEC publication as an international document. Draft sent to Ron 11/18/19

Conferences and Events slide

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
- IEEE PES General Meeting 2020, Montreal, August 2 – 6, 2020

- GWAC Face-to-Face Meeting?
  - When – February 5 & 6, 2020
  - Where – Orlando, FL – in conjunction with AHR Expo
  - Workshop topic – Grid Future States Refresh and Deep Dive on High DER, DA & Storage Reference Architecture

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Ron Melton noted that Rahul Bahadur has confirmed that the Economic Resilience white paper has been accepted as a panel presentation at the IEEE ISGT meeting in February in Washington DC.

Ron Melton confirmed to Ken Wacks that the GWAC Face to Face meeting during the AHR Expo on Feb. 5 and 6 is confirmed. He meant to remove the question mark on the slide. Also, there is a GWAC presentation and panel discussion at the AHR Expo on the afternoon of Feb. 4.

Ken Wacks asked to add the Smart Energy Summit by Parks Associates will be Feb. 17 – 19, 2020 in Austin, TX to the conference list.

Action: Ron to add the Smart Energy Summit by Parks Associates to the GWAC conference list.

GWAC Call for New Members

⊙ GWAC Call for New Members

- Call posted to GWAC website and e-mailed to GWAC mailing lists
- Need to have 4 to 5 new members
- Please circulate to anyone you think might be interested
- Plan to complete by Feb. F2F meeting
- Plan to randomly assign 1- or 2-year terms due to delaying the refresh

For 2020 GWAC will have both 1- and 2-year terms since the slots last year were not filled.

The council will gain from 4 to 5 new members to have a 25% turnover as in the bylaws

All GWAC full members who would like to stay on in 2020 please take the action to contact Ron Melton regarding your intentions. The entire council is up for renewal. Ron plans to contact everyone but if you could take the action to communicate your plans to him it will expedite the process.

Tom Sloan's seat and Joe Hagerman's are sitting open right now.

Action GWAC Members: contract Ron Melton about your intention to remain on the GWAC or not in 2020

TESC 2020

Ron Melton has contacted Roseanne Jones, IEEE for an application for IEEE sponsorship again in 2020. Ron will talk with Doug Houseman about potential representatives of the IEEE technical committee who might want to be meeting organizers. Ron advised everyone to think about the location so that we can start working on firming this up. Once a location is selected, we will be ready to contact speakers with definite information and start the regular organizing calls. Another action to be working on is the selection of a theme so that technical papers needed can be outlined. All of this will enable us to get an early start with PR and speaker recruiting for the meeting.

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The goal is to have 4 to 5 GWAC members and friends on the TESC organizing committee. GWAC members, associates, emeritus and participants are welcome.

Steve Knapp, Gerald Gray and David Forfia volunteered for the organizing committee. Ron Melton will serve on the committee as the GWAC Administrator. Ron and Susie will get a message out for additional volunteers.

Ron Melton noted that some TESC20 locations have been proposed on the west coast; California or Portland have been suggested. Tanya Barham said that she has good contacts with PGE. Southern California is also a strong consideration. It would be good to have a couple of options to pursue. Ron had also thought about Arizona; the Salt River project or APS. Portland was noted as a beautiful city. Seattle might also be a good choice and possibly Seattle City Light would want to be involved.

Stephen Knapp asked if the GWAC needs to find a group help us such as SEPA. Ron said that we are not as dependent on that now that this is an IEEE conference.

Hotel room blocks was discussed if we need to rent a meeting room. If we had an industry partner for this arrangement that would be a consideration. Steve Knapp would be willing to investigate this possibility. He thought larger utilities might be able to help. They are having to evolve faster than they planned, and they are interested in these types of collaborative groups. Stephen would be willing to contact 3 or 4 of them and see if he can find an interested utility on the West Coast.

Ron mentioned that for a northwest location Jackie Flowers, Tacoma Public Utilities might be willing and able to help.

Tanya Barham agreed and suggested that the Portland General Electric could be considered. Bryce Yonker may not be able to help with it being an IEEE conference, but they may be willing to be a sponsor or with outreach. Ron confirmed that GridFWD is the new name for Smart Grid Northwest.

Tanya said that she may not be able to help as much this year as last year, but she will help as she can.

David Forfia suggested "Implementation Approaches" as a good topic for TESC20 in addition to the changing business model.

Action: Ron to talk with Doug Houseman about TESC20.

Action: Ron and Susie to send out a call for TESC20 organizing committee volunteers. Add Stephen Knapp, Gerald Gray and David Forfia to the organizing committee list.

GWAC Participants: Think of suggestions for a theme for the meeting and potential meeting locations.

David Forifa said that while at the Energy Blockchain conference last month he saw Alectra Utilities from the Toronto area present on their GRE&T initiative, the Grid Exchange Platform. David thought that one of their people might want to present this at a future GWAC meeting online or F2F. He suggested a 30-minute presentation on what they are currently doing to incorporate TE transactions.

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David Forfia confirmed the spelling is Alectra Utilities.

David Katz said Alectra is a merge of a couple of utilities north of Toronto. He has reached out to them to work with GWAC, but it might be possible. Ron Melton said that an online call could work and suggested the January GWAC meeting. David Forfia will also talk to the Independent Electricity System Operator, IESO, Ontario Canada, on the technology side, to see if they could join a future meeting. Ron suggested that David Forfia try to get them to join the January meeting since the February meeting agenda is already planned.

Action: David Forfia: Invite Alectra Utilities to be a guest presenter for the GWAC online meeting in January 2020.

David Katz said that Microsoft is interested in this work and suggested that they may want to participate if we hold the TESC in Seattle. They have been involved with Alectra.

David Forfia mentioned the McKenzie report related to renewable energy credits and how energy blockchain will help with that task. He agreed with council comments that the financial and practical aspects of TE are also important. There are security constraints in this area and that is a much longer discussion.

Kay Aiken asked about how energy blockchain will do that job and noted the trust factor in the utility grid commenting, that "the scenario is like a hammer searching for a nail."

Ken Wacks said there is a negotiation and financial settlement aspect in addition to the technological aspects of block chain.

Ron Melton reminded the group to return to the agenda topics and commented that Ron Bernstein had just joined the meeting, so a quorum has been met.

David Forfia sent out a link (below) to the McKenzie report suggested everyone read this report. There are several use cases where blockchain may add value. It covers renewable energy credits. It would be also be worthwhile to hear what Alectra has found. The title is, "Blockchain Beyond the Hype: What is the Strategic Business Value?"

https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/blockchain-beyond-the-hype-what-is-the-strategic-business-value?cid=eml-web

Approve Meeting Minutes

David Forfia noted that the online meeting minutes have previously been sent out to the council and he asked for a motion to approve the September and October GWAC online meeting minutes as distributed and edited.

Leonard Tillman gave motion to approve but asked all GWAC members to work with Ron and Susie to update their GWAC website information with their current employer name.
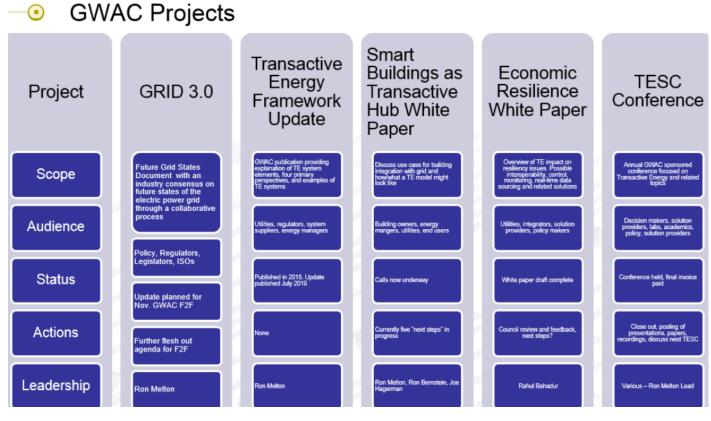
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David asked for a vote and it was unanimous as affirmative. David accepted the motion to approve both sets of meeting minutes.

Action Susie McGuire: Contact GWAC members with new employers to update their information.

Action GWAC Council and Associates: Please notify Susie McGuire and Ron Melton if your contact information or biographical information has changed.

GWAC Activity Matrix

GWAC Projects

Project	GRID 3.0	Transactive Energy Framework Update	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 providing explanation of TE system elements, four primary perspectives, and examples of TE systems	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		Utilities, regulators, system suppliers, energy managers	Building owners, energy mangers, utilities, end users	Utilities, integrators, solution providers, policy makers	Decision makers, solution providers, labs, academics, policy, solution providers
Status	Policy, Regulators, Legislators, ISOs	Published in 2015. Update published July 2019	Calls now underway	White paper draft complete	Conference held, final invoice paid
Actions	Update planned for Nov. GWAC F2F	None	Currently five "next steps" in progress	Council review and feedback, next steps?	Close out, posting of presentations, papers, recordings, discuss next TESC
	Further flesh out agenda for F2F				
Leadership	Ron Melton	Ron Melton	Ron Melton, Ron Bernstein, Joe Hagerman	Rahul Bahadur	Various – Ron Melton Lead

Smart Buildings White Paper

Ron Bernstein noted that the white paper group for Smart buildings as a Transactive hub met yesterday and are making good progress on the paper's content. The document is now at seventeen pages before editing. The goal is to have a draft by early January, and they are on track. The goal of the group is a five-page narrative document.

Action Ron Melton: Send out another SBATH meeting notice for the week after Thanksgiving. Ron will try to schedule 2 meetings before Christmas. (Kay not able to attend the week right after Thanksgiving)

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Economic Resilience White Paper

Ron Melton noted that Rahul Bahadur is not on the call today but that a GWAC Poll had gone out for approval for the Economic Resilience paper to be published as a GWAC paper and three affirmative responses came back. Ron will take that as an approval and proceed with clearing the paper and publishing it.

Stephen Knapp gave an update for the team. He said the content needs to be published as written. Ron Melton assured Stephen Knapp that the paper will be as written. It will only be reviewed for formatting issues. Stephen also noted that the paper has been accepted by IEEE ISGT for the Feb. 17 – 20, 2020 conference in Washington DC as a panel session. The group is working on a 150-word submission for this conference.

Action: Ron and Susie to review the white paper, get it into proper format, but no text changes, and get PNNL Information Release approval IR and then publish it on the GWAC website as a GWAC publication. *NOTE: The PNNL Information Release is pending.*

GridWise Decision-Maker's Interoperability Checklist

Regarding the checklist refresh, feedback from the NARUC meeting last week indicated that an update would be useful. A committee to start the process has been formed; Leonard Tillman, David Forfia , Ron Melton, and David Wollman, NIST, need to meet on the Checklist refresh. Ron asked Susie to set up a coordination call with this group.

Susie Action: Schedule a call with the four people noted (Leonard Tillman, David Forfia, Ron Melton, David Wollman)

TESC 2020 Technical Agenda Planning

◉ TESC 2020

- TESC Future Planning
  - Time to get started
  - IEEE Advanced Technology and SBLC as partners
- Ron Melton will contact Houseman to coordinate on IEEE side
- Roseanne Jones has been contacted – next steps are the conference application and forming the organizing committee
- Location?
- Theme?
- Who from GWAC wants to be on the committee?

David Forfia noted that the Grid 3.0 – Future States call was held recently, and his notes were distributed.

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David Forfia noted that Avi Gopstein has just returned to NIST from time off, so the SmartGrid framework 4.0 should be out before the end of the year. NIST is working on reliability and loads at the distribution level.

David Forfia is gathering materials from Gridwise for the SEPA 51st State Next Steps from organizations including SEPA, CISRO, AMO, and including Mark Patterson Australia's presentation at TESK.

Larissa Dobriansky asked if David and his team are looking at EPRI future states materials also.

David asked Gerald Gray if there is publicly available information that he could post. Gerald replied that he does have a lot of material. Larissa asked about the Integrated Energy Network and how it plays into the future state, she thought that was excellent.

Gerald said nearly every EPRI group has material. He will do some digging and see what can be sent over.

Liaison Reports

ISO/IEC JTC 1/SC 25 - Ken Wacks said that the GWAC TE Roadmap doc will be for sale soon. Next meeting will be April 20 and will be hosted by the Telecommunications Industry Association (TIA).

They are moving ahead with work on Cyber Security. They are expecting a proposal from China is Blockchain and voice recognition to be added to the protocols system.

David Forfia will talk with Aaron (SEPA) about the next Generation technical advisory council.

Ken asked if he could get some attention to the technical committees at SEPA. There are a lot of people putting faith in Aaron, but they feel he is overwhelmed. Please encourage him to keep working with them.

Ken Wacks noted that the SEPA customer grid edge is about to launch a blog on economics such as real time pricing, AI on-premises, open ADR. Ken said that some people objected and dropped off when discussing economics.

David Katz said that Dave LaVee is bringing 40 years of testimony on markets is a lot to take in, he is trying to get this information about there. He is trying to simplify it. David LeVee has been populating the blog.

Mark Knight - SEPA TE Working group – the block chain papers are coming together slowly and likewise, the conceptual model that Duke Energy is working with them on. They are trying to keep things at a high enough level that they are useful.

Gerald Gray - EPRI The common information model (CIM) and the UCAIUG have had some differences. The CIM user group maintains the UML model. The IEC had some issues with the CIM model regarding IP. EPRI originally created the first version of this 25 years ago. EPRI has released their IP via an APACHE license. UCAIUG board meeting just today voted today to accept that. It is a situation that is still

evolving in the area of licensing and costs to use it. The APACHE is open source. IEC sells paper standards, not work products used to create those. People have had to become CIM users to access the CIM model in the past (or just an account). Discussions revealed some uncertainties about access and downloads.

ASHRAE - Ron Bernstein – Cyber Security conference last week held by DOD regarding Cyber requirements for facilities. They have a draft of requirements and basic architecture, and the roles and responsibilities. Most attendees were designers from large, engineering firms. Their intense focus was on cyber security from a DOD risk management framework model perspective and IP related controls. There were good discussions.

There was an attack recently on a renewable energy site that touched on these concerns and Ron Bernstein has forwarded a message about it to some of you but will put the link in the chat area. It's short but informative about the incident and provides tips on avoiding such vulnerabilities. https://www.nerc.com/pa/rrm/ea/Lessons%20Learned%20Document%20Library/20190901_Risks_Posed_by_Firewall_Firmware_Vulnerabilities.pdf

Ron Bernstein also noted that a new standard on controlled networking RF meshing, RF networking model called the ISMRF. This will go into ANSI.

Also, a newer powerline standard passed in October. People can now run fiber optic, IP, twisted pair, co-ax, powerline, RF and others all on the same network using simple routers instead of gateways. This is a new capability.

ASHRAE - hopes to have a guide specification draft including a fault detection diagnostic section, and cyber security section ready by the AHR conference.

It is in line with the GWAC white paper on Smart buildings. They hope to have that ready in time for the GWAC face to face meeting at AHR in February.

IEEE PES – Ron covered today – PES has been giving attention to multi energy systems, the convergency of different energy structures especially electricity and gas in urban settings. This relates to PNNL grid arch work in this area. It includes energy systems in addition to water, transportation and other systems. GWAC will discuss in the future.

David Forfia – EBC – the Energy Block Chain conference was held 3rd week of October. There were 35~ presentations and over 100 attendees. They are working on use cases and soliciting for volunteers. They are working to become a 503 corporation to become fully independent and not dependent on NIST for funding. David expects to work with the EBC board of directors in the future.

Brief review of actions

Action GWAC Members: contact Ron Melton about your intention to remain on the GWAC or not in 2020

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Action All GWAC participants – help get the word out about the GWAC new member call

Action: David Forfia to contact Alectra about speaking at a future meeting.

Action: Ron Melton to follow up with Doug Houseman about IEEE about TESC20.

Action: Ron Melton and Susie McGuire to send out an announcement about the GWAC F2F and the GWAC Smart Buildings white paper seminar that Ron Bernstein is organizing. Susie Ron M and Ron B to be on a call next Monday

Action: Susie to set up a call with Ron Bernstein and Ron Melton for Monday.

Action: Tanya to talk with PGE about 2020 TESC meeting. She will copy Ron on the email if it's by email.

Adjourn

David Forfia asked for a motion to adjourn. Leonard Tillman gave the motion and Stephen Knapp seconded the motion. Hearing no objections, David adjourned the meeting.