

Meeting Minutes

October 30, 2018

GWAC Members

David Forfia, Director, Enterprise Architecture & IT Transformation, Electric Reliability Council, TX

Ron Ambrosio, Chief Scientist, Utopus Insights, Inc.

Ron Bernstein, President, RBCG, LLC

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

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

Thomas Sloan, State Representative, State of Kansas

Leonard Tillman, Partner, Balch & Bingham, LLP

GWAC Members not present

Tanya Barham, Director of Operations, PECE

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

Joe Hagerman, Program Director for ICF

Doug Houseman, Grid Modernization Lead, Burns & McDonald

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

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

GWAC Associates & Emeritus

Robert Burke, Principal, Robert Burke Consulting

H. Ward Camp, EBC

Ron Cunningham, AEP

Chris Villarreal, Plugged In Strategies

Ken Wacks, Home, Building and Utility Systems

GWAC Guests

Rahul Bahadur, VMware

John Caskey, NEMA

Trevor Gionet, EBC

Jeff Katz, Grid Technology, IBM

David LeVee, Powercast

David Wollman, NIST

PNNL Support

Mark Knight, GWAC Administrator

Susan McGuire, GWAC Coordinator

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GWAC Administration

David Forfia opened the meeting at 8:38am.

Mark Knight went through the action items from the previous meeting.

He noted that he still needs to talk with Leonard Tillman about the Framework document.

Action Item: Mark to talk with Leonard Tillman about the framework document.

Mark Knight and Ron Bernstein are working on a plan for changes to GWAC website. They have received input from three of the GWAC members (Doug Houseman, Ron Bernstein and Gerald Gray.)

Mark noted that Ron Bernstein solved the GWAC lunch problem by paying for it himself. David Forfia thanked Ron for providing lunch for everyone.

Regarding the ASHRAE panel opportunity for GWAC, Mark has contacted Steve Bushby and the conversation went very well. Steve sent Mark a copy of the request for proposal for the ASHRAE initiative. Mark noted that there is good overlap with both the Smart Cities white paper and transactive energy paper and they are both a good fit for the new ASHRAE initiative.

Mark had a good conversation with Steve Bushby of ASHRAE about the initiative. Steve sent Mark a copy of the request for proposal. Steve is planning to be at the AHR winter expo and he should be able to participate on the GWAC panel. Mark has set this up and he will help get people to the session. Steve would talk about the ASHRAE initiative and the call for proposal.

Ron Bernstein noted that the initiative paper would be written by an entity and that entity will take the paper in the direction they proposed.

Jeff Katz, had a question about resilience. His group has been working on the effect of wild fires on utilities such as the wildfires in California. He asked if that counts as resilience, Mark said anything that can bring the grid down should count. Mark related that with one of the projects he is working on – the top 3 threats that bring down the grid are the result of natural events.

Jeff Katz asked Mark to please let him know who is coordinating the paper and he will provide them with some of the information that he has.

Action: Mark to tell Jeff Katz who is coordinating the white paper.

White Papers

Mark Knight noted that a meeting on the value and control paper is planned soon.

Rahul Bahadur said he agreed to help with the white paper on value and control. Farrokh had also offered to help according to Rahul.

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Meetings and Events

Mark reviewed the GWAC meeting and events calendar.

Nov 29 is the date for the last regional utility meeting in Warwick, Rhode Island, per Chris Villarreal, this is a correction to the list.

Farrokh noted that there are GWAC members speaking at the next ISGT event.

Ron Bernstein asked that calendar events show who is speaking from GWAC. Then he wanted a link to the event page or to the slides -from the GWAC website. An issue was raised concerning if the slides are branded GWAC slides or by the speakers organization. The thought is that slides from the speakers company might affect our ability to publish them on the GWAC website.

It was suggested we collect them for reference up front and decide later about publishing them.

James Mater asked if the events noted on the GWAC list were for GWAC people speaking as GWAC or as reps of their org – Mark said both are represented currently.

Ron Bernstein said that if the topic was particularly relevant to GWAC that we then retain a copy of the presentation as reference material.

James Mater thought that if the talks were there it would be helpful, but just a list of talks would not be very helpful as a resource.

Mark noted that the purpose of the event list is simply to inform members and friends about upcoming meetings so that they can plan to attend and to identify speaking opportunities.

A GWAC associate said that he is working on a paper on interoperability but did not identify himself as GWAC in the paper. He suggested we frame up this idea so it can be better understood.

Mark is concerned that the Meeting and Event slide that is typically reviewed quickly at each meeting, but with these changes it would become a major part of the meeting.

Mark remembered that a past GWAC communication committee formed, Heather Sanders was a proponent, to better market the GWAC. But the group lost interest in about 4 meetings. Publicizing GWAC work is great but we are all busy and this would be difficult to continue without taking time away from other activities.

David Forfia thought that talks branded GWAC should be kept on the website.

If we could get a short write up of a proposal of this idea it would be helpful.

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Action: Mark to propose a suggestion that GWAC members and associates use a template when describing GWAC work and keep them in an area on the GWAC website specifically for keeping GWAC member presentations.

Jeff Katz has a cyber security panel at DistribuTECH – needs a utility speaker; he has an OEM equipment manufacturer lined up please email him directly if you are interested.

Jeff is on the IEEE ISGT industry advisory committee – they want to expand ISGT attendance and some of the GWAC may be contacted about this.

Jeff noted that FERC holds a quarterly advisory meeting for utilities and it's on grid Cyber security.

Mark asked if the Cyber Sec meeting should be on the event list and noted that he has some utility contacts that he can send to Jeff. Jeff agreed that it should be listed.

Action Mark: add the FERC meeting to the events list; send contact names to Jeff Katz.

Action Mark – send names to Jeff Katz for the Cyber Security panel

David Forfia suggested that if a talk is on GWAC slides that it be stored on the GWAC site. He related will be giving a talk later this week on blockchain that is on GWAC slides.

Sidebar comment from Chris Villarreal – “NERC does not apply to distribution.”

GWAC Website Refresh

Mark discussed the GWAC website refresh. At a minimum he would like a fresher looking home page with updated technology. He is hoping to have it published by March 31, 2019. Mark hopes to have a content overview out to the group by Nov. 30.

Action Mark: send a GWAC website content overview out by Nov. 30

Call for new members

The call went out a couple weeks ago. Members are asked to help publicize it such as mentioning it on Linked In. We have a couple members who may step down at the end of the year. GWAC will need at least two new members. If you have someone that you would like to nominate or suggest for nomination please talk with Mark Knight.

2019 TESC Update

David Forfia has urged us to act quickly.

Some progress has been made. IEEE/Minnesota is the first choice. However, we have not had luck finding weekday meeting rooms at U of Minnesota.

SmartGrid NW is still interested in having an active role.

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IEEE PES has approved sponsoring the conference. They have committed to be the financial sponsor and they will help organize it. They do need to make a profit. The conference will become an IEEE conference.

James Mater jokingly asked how much we are getting for the conference.

Mark noted if IEEE takes TESC that it will no longer be a GWAC conference.

GWAC will be heavily involved for choosing content, particularly at the first one.

James feels that IEEE could take the conference in a new direction. GWAC has led the conference for six years.

Mark noted that not having so much to do with the conference will free up GWAC for other efforts.

James would like to be sure that GWAC continues to be recognized as the founding organization of the meeting. But he sees the value of the IEEE branding to raise attendance.

Mark showed the group a photo of the alumni center at the Univ. of Minnesota. He said that GWAC could use it for the conference it but at this time it is not available at the dates that we want. Mark suggested to IEEE PES that we adjust our dates but still could only get the building over a weekend including Friday but this would not work well for our conference.

Mark showed the group the IEEE TESC 19 announcement.

Leonard Tillman said that he has seen a lot of technical meetings do well on the weekend but not for an audience with executives.

Mark said the event will be a full three days. Day 1 will have morning and afternoon tutorials.

Ron Bernstein said he thought that trying to get utility experts would be difficult if the meeting were on the weekend.

Ken Wacks agreed with Ron Bernstein and said we should be trying to attract more management attendees to the conference.

Mark said the current proposed dates are June 11 – 13.

Chris said he could help find a location for this meeting, he has a lot of contacts.

Mark said if Chris could put him in touch with them that would be helpful. He also said that Ellen Anderson with U MN is also helping him to find a location. He would prefer not to pay someone to do this. Chris said he has groups that would not charge for this. He has people affiliated with the Univ. of St. Thomas for example who would want to help bring the conference to the Minneapolis area.

Action: Mark will work on getting the GWAC branding onto the IEEE web site for TESC19. And he will get the names from Chris Villarreal of people who could help GWAC find a venue in Minnesota.

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Jeff Katz (1:25) said he would send Mark the names of two IEEE conference organizers. He noted that the announcement is out and the need is there to have a conference location set. He would like to get the location secured.

Action: Jeff Katz – send Mark Knight the names of two IEEE conference organizers

Mark noted the need to estimate the number of attendees that we will have, if there will be additional sponsorship, and how many tutorials there will be. Mark and Doug Houseman came up with starting numbers that were submitted to IEEE PES but we need to expand on this and then IEEE will start to fund it.

The conference treasurer will make payments from the IEEE account.

We do need to set up an organizing committee. Also we can't take further action until we have a treasurer.

Mark had some ideas for positions:

Leonard Tillman publications chair

David Forfia – treasurer

Gordon Matthews – plenary chair

Ellen Anderson, U MN – volunteer chair

Massoud Amin, U MN member of the technical committee

Mark Knight would be the Secretary

Mark is not fully clear on the treasurer position but he understands they would write IEEE checks for meeting space and audio visual equipment.

A GWAC associate said that probably the treasurer would sign checks and would submit a spending plan.

Mark said he would be heavily involved with budgets and vendor selection. He said that the treasurer doesn't have to be a GWAC member or an IEEE member.

Mark hopes to have a treasurer soon but he understands that the committee needs to come up to speed and take a moment to think about it. We want to get the right person.

James Mater suggested an IEEE person with a transactive energy background.

Farrokh noted that setting registration fees, discounts and exemptions would be decided by the treasurer.

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Mark has started a template of the call for papers. He and Doug have set a strawman of the overall budget. He has also drafted a program, which like last year has no parallel sessions. He has made a lot of preliminary plans to help us get started.

Ron Bernstein asked if the conference has to be held in June. He asked if September would work.

Mark noted we have tried to hold the conference annually. Also IEEE must not have a conflict with their other conferences.

David Forfia asked for a motion to continue with IEEE. Ron Bernstein yes, Tom Sloan yes, James Mater no, Farrokh Rahimi yes, David Forfia yes, Leonard Tillman yes; there are 5 yes votes and 1 no vote.

There may be a vote later about using the GWAC logo with the conference. For now we need to hold on this.

Regarding dates, Mark noted that due to PNNL fiscal year constraints the meeting can't go later than September.

Farrokh said that IEEE has a lot of meetings and he feels they will want to stay with June.

Mark reviewed his proposed outline for the TESC 19.

Mark noted that the GWAC meeting needs to wrap up.

TE Framework

There are additional edits to early sections. Mark has gone through all the changes and is consolidating the diagrams into something more cohesive.

Section 4.1 – Leonard, Chris have provided updated text.

Section 4.2 – Lorenzo, Farrokh have provided updated text. Mark will continue to work with them.

Gerald Gray had sent text to Ron Ambrosio to review for Section 4.3

Mark has received updated text for section 4.4 from Doug, is nearly completely updated.

Mark discussed the architecture diagram with Gerald Gray. Mark has been making edits based on his input.

Mark noted that the Framework activities need to be completed as soon as possible to meet commitment dates with the DOE sponsor. He would like to have it ready for review by the end of November.

Mark noted the term MUA – multi use applications, in brainstorming calls Lorenzo wanted to be sure that we address this topic. It would be applicable when an entity is providing for more than one service.

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Mark suggested a tag line for TESC19 – a Framework for the future. It's kind of what TE is. It give us a slot to talk about it.

TE Roadmap

Stuart McCafferty had provided comments and Mark will address them to finalize the Roadmap. Then it will be ready to publish. Mark just needs to put in a few hours on this.

Mark Knight noted that today's lunch has been provided for the GWAC very graciously by Ron Bernstein. Mark thanked Ron on behalf of the GWAC.

Mark Knight also thanked John Caskey for loaning the GWAC the use of the beautiful NEMA meeting room facilities and for hosting afternoon sodas and the morning refreshments.

GWAC White Papers

Smart Buildings as transactive hubs has had limited progress.

For the Valuation paper, Mark held a call three weeks ago, Steve Knapp was not able to attend, but Rahul B. agreed to lead it for now. The title will be "Economic, Reliability and Resilience, Considerations for Valuing Transactive Energy Systems." Some good ideas came out of the call. There is some work at PNNL currently on resiliency and transactive systems. Mark will help the group avoid this conflict since he is affiliated with both efforts. Mark noted that the discussion for paper scope has looked at resilience and economic reliability; also emergency conditions; congested mode and making a matrix out of the combination. We could discuss examples from each of the cells in the matrix as scenarios. We have about a one page abstract and we are boiling that down and it will be a good basis for the paper.

Mark further noted that at PNNL they are looking at resilience and TE and ways to define resilience. The TE systems program is looking at scenarios. So as long as the scenarios are not completely different than this paper there should be a lot of synergy. Chris Irwin would like us to keep these aligned and Mark can help do this given his involvement in both.

Mark told the group that he would like to have a draft of the smart buildings paper by the end of November to help build on it for upcoming panel participation. GWAC will use this paper for the ISGT panel next year and also the AHR Expo panel. Then we can build on the presentations to finish the paper.

Mark noted that Joe Hagerman is now at NRECA. Joe has a strong background in this. Phil Davis has some ideas for the paper.

Robert Burke wants to be involved as well. Mark is hoping to have a call on it next week.

Mark is planning a call for the Smart Buildings as Transactive Hub papers and he is hoping to get Joe Hagerman involved since he has this background and particularly since Ron Bernstein will be out for a month.

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Action Mark: schedule a call for Smart buildings and be sure to include Joe Hagerman (and also Robert Burke).

Mark noted an SGIP PNNL paper by Ron Melton, Steve Widergren, David Holmberg, Ron Cunningham and Dave Hardin that had six scenarios that could be addressed in this paper. He said that we would be able to tell how a conventional system would respond and then how a TE system would respond and the different phases of resilience. Reliability and resilience translates into economics. PNNL's past and future work has good synergy for this paper.

Dave LeVee noted that in his forecasting work he looks at the economic drivers that promote changes in demand behavior and changes in supply systems. He looks from a scenario standpoint and at the fundamental drivers. He would be happy to help the effort in this area. Mark noted that Dave was on the recent call for the valuation paper. Mark received comments from Dave and these are appreciated. Dave said he would be interested in providing assistance in this regard.

Mark will be working through Dave's comments and the construct from the call. The scenario based construct that we talked about will be reflected in the abstract and will affect how the paper is done. We want to identify where TE systems can have an impact rather than describing all the scenarios. The SGIP landscape scenarios paper that was created right at the end of SGIP, and it identified six scenarios for TE systems. They were fully described in the document, but Mark noted that we don't want to go to that level of detail. For this paper we will want just enough to populate the matrix.

Dave will also look at those scenarios and will provide comments.

Action: Mark will work with Rahul to set up another call while the momentum is good.

Liaison reports

Dave Wollman – NIST has a few things, there will be TE component model that is going through special publications and will be available fairly soon. You may be aware Marty Burns at NIST, he's leading our cyber physical systems test bed. We have a collaboration with Vanderbilt Univ. We also have a set of work with UCEF. For those that are interested we will be doing a lot in the next few months. The GITHUB site and collaboration site for UCEF has links. When we get the TE module done we will publish it so others can download it.

Action Mark to ask Dave to send him more links on NIST and UCEF activities. (Complete)

- UCEF webpage (collaboration site) is at <https://pages.nist.gov/ucef/> (webinar series, third Thursday of the month mid-day).
- A NIST webpage with description of UCEF is at <https://www.nist.gov/el/cyber-physical-systems/ucef-universal-cps-environment-federation>

Ken Wacks – ISO/IEC: WG 1 is pleased to report excellent progress at 2018 meetings in Toronto, Ontario (hosted by the Standards Council of Canada), March 19-23, and in Falls Church, Virginia (hosted by the

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Telecommunications Industry Association (TIA), September 24-27. We were joined at these meetings by about 20 experts from eight countries in Asia, Australia, Europe, and North America.

Participation continues at a strong level with some countries increasing the number of experts attending WG 1. This reflects the continued growth of the home systems industry. The WG 1 experts represent some of the leading established and entrepreneurial consumer electronics and industrial suppliers in the world.

During the past two years the home system industry has been positioned as an important segment in the world of the Internet of Things (IoT). IoT is essentially machine-to-machine communications where the devices are typically sensors, actuators, controllers, and user interfaces. The standards of WG 1 for home and building automation are in-fact IoT standards. Thus, WG 1 has been involved with IoT since WG 1 was created in 1987, long before the term IoT was coined.

Cybersecurity is an essential adjunct to IoT and has become an active project in WG 1. WG 1 has developed a working draft standard for adding cybersecurity, privacy, and safety specifications to the HES suite of standards.

We are continuing to develop standards for energy management with the advancement of a proposal to extend the Energy Management Agent (EMA) into apartment complexes. This will enable energy allocation to buildings and apartments with automated AI-based negotiations considering load requirements, power availability from local and public sources, customer preferences, and customer budgets.

Ken Wacks has submitted a report on activities in the ISO IEC standards. They developed IT standards for home and building. They met twice this past year, in Toronto and near Falls Church, VA. They had a good international participation and it reflects on the growth of home systems and small buildings. They have developed about 50 standards in the general field of IOT for homes and buildings. The committee is developing IOT standards. They also work with cyber security to add features to the networks so that only authorized devices are linked to the home or building network and the service provider. He explained that contracts with service providers are generally a click through contract where you either take it or leave it. They are looking at a future with options and choices of data you provide and services that you receive. The technology in the standard for the gateway will essentially filter the data flow according to the contract. The group is making offers more flexible, transparent and nuanced.

The next meeting will be held the first week of April in Stockholm Sweden. Ken is ready to put in any GWAC document into the group he chairs so that it can become an ISO document. Mark has more information on that.

David Forfia – SEPA. There will be a joint TAC meeting with ADS that is rescheduled for November. A There are more publications coming out soon. David noted that Board members should have received

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their invoices for membership, payment soon is appreciated. The November meeting invites have gone out for the second week of November.

EPRI – no one is on the call today

ASHRAE – Ron Bernstein is looking for a couple of speakers for the conference in Atlanta in January. He will be moderating the session. Steve Bushby will likely agree to speak and then he just needs one other person.

ASHRAE is releasing a new smart grid application guide for professionals. Ron has read the summary of the proposal that ASHRAE put out for an initiative research paper. They have 21 interested parties so far. It is very closely related to GWAC interests.

Mark Knight said that both of the white papers that GWAC is doing seems related to the proposal. Ron said for ASHRAE they will likely be more interested in commercial applications than home applications but it depends on who wins the bid. There is no language about leveraging anything. Ron has the bid description if people want to know more. There are cyber security aspects of it as well.

Farrokh Rahimi - ISGT 19: Farrokh Rahimi and Ron Melton are members of the organizing committee – Farrokh reminded everyone there is a GWAC panel session and also TE sessions and both have panel opportunities. Later in the year there will be an IEEE general meeting as well with panel openings also.

Ward Camp – was no longer on the call. Mark reminded everyone about the Global Energy Blockchain Conference is this Thursday and Friday in Orlando. Both David and Mark will be speaking. David is doing a keynote address.

Chris Villarreal – NARUC: NIST and NARUC have been teaming up and regional holding workshops around the country on the smart grid interoperability framework. The next meeting will be Nov. 13, see the NIST home page. Participants and stakeholders can contribute feedback on the framework. Nov. 29 NIST and NARUC will be at the Rhode Island PUC. Chris wants everyone to know that NIST has posted on the meeting web page for the three prior workshops, the proposed edits to the Interoperability Framework Conceptual Model. He said there are changes coming such as with the cloud. For example, changes to the generation cloud from the conceptual model and distributed energy resources.

Chris noted that the NARUC Annual meeting will be Nov 11 – 14 in Orlando – NARUC's new president will take control and Nick Wagoner, Iowa Utility Board will be taking that on.

Chris reminded the group that Lorenzo Kristov, Farrokh Rahimi and Tanya Barham attended the California PUC meeting so GWAC had good GWAC representation.

Actions

Mark will get the actions together for today after the call. Mark reminded the group that the next GWAC meeting will be a web meeting on Nov. 14.

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The next Face to Face will be in Feb., maybe at a meeting, ISGT is a possibility. After that it will be the conference.

David Forfia was not sure about the minutes from the last call since they were voted for online. David asked for a motion for the September minutes and Tom Sloan gave the motion, and Farrokh Rahimi seconded the motion. There were no objections. David noted that the minutes are approved and commented, “nice job as always.”

Ron Bernstein gave the motion to adjourn the meeting and Farrokh Rahimi seconded the motion. David Forfia then adjourned the meeting.

Post Meeting TESC 19 planning updates sent to the GWAC from Mark Knight on Nov. 6:

- Mark Knight has sent out emails to people we identified as potential organizing committee members. So far the responses have been positive.
- The IEEE PES is open to dual branding. It might (or might not) involve GWAC in the name but the GWAC logo can be made prominent. We are looking into making GWAC a technical cosponsor which would require an MOU. That should be straightforward.
- The IEEE PES is open to date changes so long as we avoid June 24-27 and August 4-8.
- The University of Minnesota has been looking at venue availability and July 8-11 is open. This is Monday – Wednesday after the July 4 week.
- Mark has asked the Univ. of Minn. to hold those dates for us and provided the dates to PES and they are okay with this.
- Mark has created an initial budget and hope to refine it this week with Ron Bernstein who has agreed to act as the conference treasurer.