

Meeting Minutes

Jan. 11, 2023

GWAC Members

Ron Bernstein, GWAC Chair and President
RBCG, LLC

Kay Aikin, Founder, CPO, Dynamic
Grid/Introspective Systems

Ron Ambrosio, Independent Energy
Transformation Professional

Andrew Bordine, VP Energy Mkts & Innovation,
Anterix

Ron Cunningham, IT Enterprise Architect,
American Electric Power

David Forfia, Principal Consultant, Utilicast

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

Ahlmahz Negash, Sr. Power Analyst, Tacoma
Power

Aaron Snyder, Dir. of Grid Technology
Consulting, EnerNex

Leonard Tillman, Partner, Balch & Bingham, LLP

GWAC Associates & Emeritus

Rahul Bahadur, VMWare, Inc.

Marc Costa, the Energy Coalition

Jeff Morris, Schneider Electric

Ken Wacks, Home, Building & Utility Systems

GWAC Friends

Toby Considine

Anthony James

David Katz

Jaime Kolln, PNNL

James Orenstein

Dr. Alex Papalexopoulos

Seemita Pal, PNNL

Jiri Skopek

David Wollman, NIST

GWAC Members and Assoc. not present

Paul DeMartini, Managing Partner, Newport
Consulting

Mark Paterson, Managing Director, Lead
Systems Architect, Strategen

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

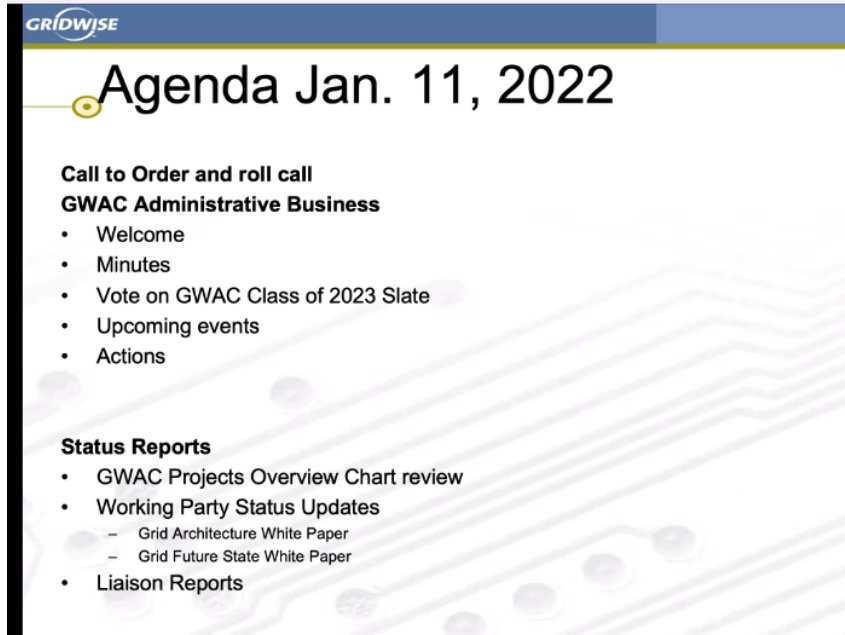
PNNL Support

Susan McGuire, GWAC Coordinator

Ron Melton, Acting PNNL Administrator

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Chair Ron Bernstein started the meeting at 10:04am PST with a quorum.

Ron Melton noted that there are no guest presentations today, but he has some ideas for upcoming meetings for discussion.

Ron Bernstein asked if there were any objections to the meeting minutes for November and December and hearing none asked for a motion to approve.

Ron Ambrosio gave the motion and David Forfia seconded the motion.

With no objections, the minutes were approved.

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GWAC Member 2023 Selection Process

- Selection committee met on Jan. 9, 2023
- The slate will be presented now at this meeting, assuming we have a quorum
- The slate approval is an up – or down vote for the entire slate.

Ron Bernstein welcomed new attendees to the meeting.

Ron Melton prepared the group for a vote on the GWAC new member slate.

Ron Bernstein reminded the group that the vote is only open to GWAC members. The vote will be simply and up or down vote on the slate as a whole.



Selection Committee

- Ron Melton, GWAC Administrator, Chair
- Chris Irwin, DOE Program Manager
- David Wollman, NIST, Outside participant
- Ron Ambrosio, GWAC Member, mid-term
- Ron Cunningham, GWAC Member, mid-term

Gerald Gray is transferring to Emeritus status so one new member is being elected.

Ron Melton recognized the many contributions of Gerald Gray and thanked him for his years of participation in GWAC.

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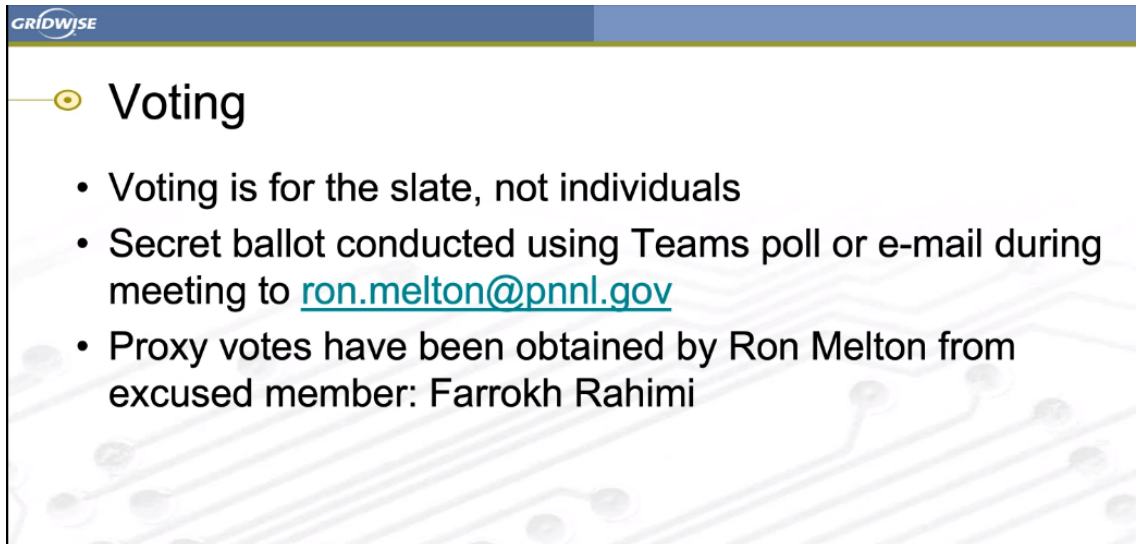
Mark Ortiz with Schneider Electric is nominated to the GWAC Slate.

Ron Melton gave an overview of his career experience.

Andy Bordine added that he worked with Mark at Consumers Energy and noted Mark's field experience solid understanding of the Architecture needed for the grid in the future. Andy added that Mark will be able to contribute to discussions about future direction for the GWAC and how it can work to stay relevant with industry.

Ron M. asked for questions. There were none.

Ron M. noted that Farrokh has voted Up by proxy since he can't attend today. Ron M. sent out a poll to the group. The voting will be private.

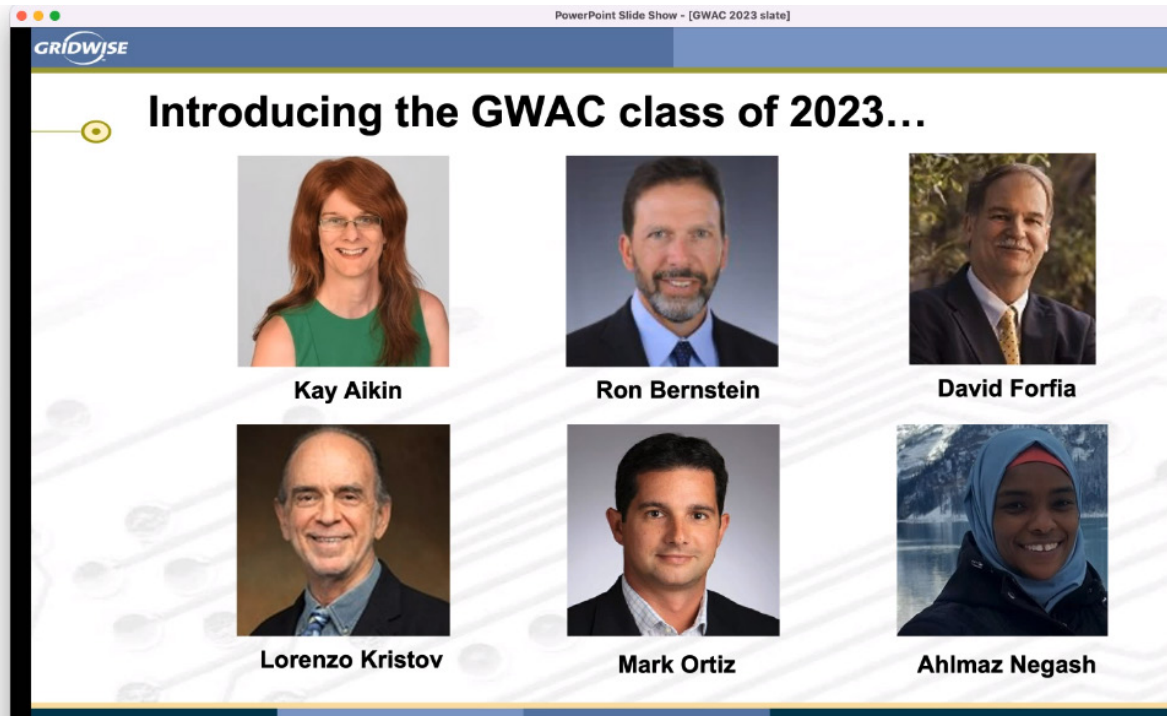


The screenshot shows a presentation slide with the GridWise logo in the top left corner. The slide title is "Voting" with a yellow circle icon. Below the title is a bulleted list of three items: "Voting is for the slate, not individuals", "Secret ballot conducted using Teams poll or e-mail during meeting to ron.melton@pnnl.gov", and "Proxy votes have been obtained by Ron Melton from excused member: Farrokh Rahimi". The background of the slide features a faint, stylized circuit board pattern.

The slate was confirmed.

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Ron Melton introduced the GWAC class of 2023 and promised that GWAC will Induct the new member slate at the next F2F with a heartfelt rendition of the GWAC Anthem.

Chris Irwin, DOE was on the call and expressed his support for the progress being made by the GWAC. He commented that GWAC is well aligned with DOE pain points and strategic direction. Chris noted that he will be at DistribuTech this year instead of AHR. He expressed regret that he will not be able to attend the GWAC F2F meeting in Atlanta.

Ken Wacks also said he will be going to DistribuTech instead of the AHR Expo.

Ron Bernstein told the group that he expects it to be a good meeting.

Chris Irwin mentioned that he is continuing to collaborate with his colleagues Ram Narayan Murthy and Brian Walker through the Connected Communities Initiative. He commented that the program is ramping up and they are looking to explore the forefront of what is generally grid edge to buildings and communities which is said is "vibrant territory."

Marc Costa mentioned the upcoming IEA meeting to be held in Santa Monica, CA next month. It will have good international attendance.

Ron B. asked Marc to present a brief summary of the event at a future GWAC meeting. Marc said he can present at the March GWAC meeting.

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Action: Mark Costa to present a summary of the Santa Monica IEA meeting at the March GWAC meeting.

Actions

- Action: Possible speaker from SEPA on future blockchain and TE related initiatives**
 - ✓ David Forfia is looking into this
- Action: GWAC attendees who have suggested topics or presenters for the F2F meeting, please let Ron M. and Ron B. know and copy Susie.**
- Action: GWAC to send ideas for the Grid Architecture white paper cover graphic to Seemita Pal, PNNL.**

Thanks to those who have sent Seemita artwork

SEPA - David Forfia presented on behalf of SEPA since Aaron Smallwood was not able to attend today. He said there are no new efforts on blockchain. Aaron is planning to attend the February meeting (virtual).

Kay Aikin noted that there are two blog posts that are written and ready to be posted. After the IEEE ISGT meeting Kay will hold another meeting for the blog post group and also is planning to create a blog post based on the Next Big Thing discussions based on discussions in Atlanta.

Ron Melton noted that the GWAC 2024 conference is not yet in active planning but is anticipated.

**WINTER FACE TO FACE GWAC WORKSHOP MEETING
FEB 7 & 8, 2023 AHR EXPO
ATLANTA, GA**

GWAC EVENTS

2/7/23 TUESDAY – 4:00PM – 6:00PM
GWAC PRESENTATION: WORKING BACK FROM THE FUTURE

2/8/23 WEDNESDAY – 8:00AM – 5:00PM – GWAC MEETING/PRESENTATIONS/WORKSHOP.

LOGISTICS?

- PROJECTOR, WI-FI
- DINNER OUTING – FEB 7 OR FEB 8?

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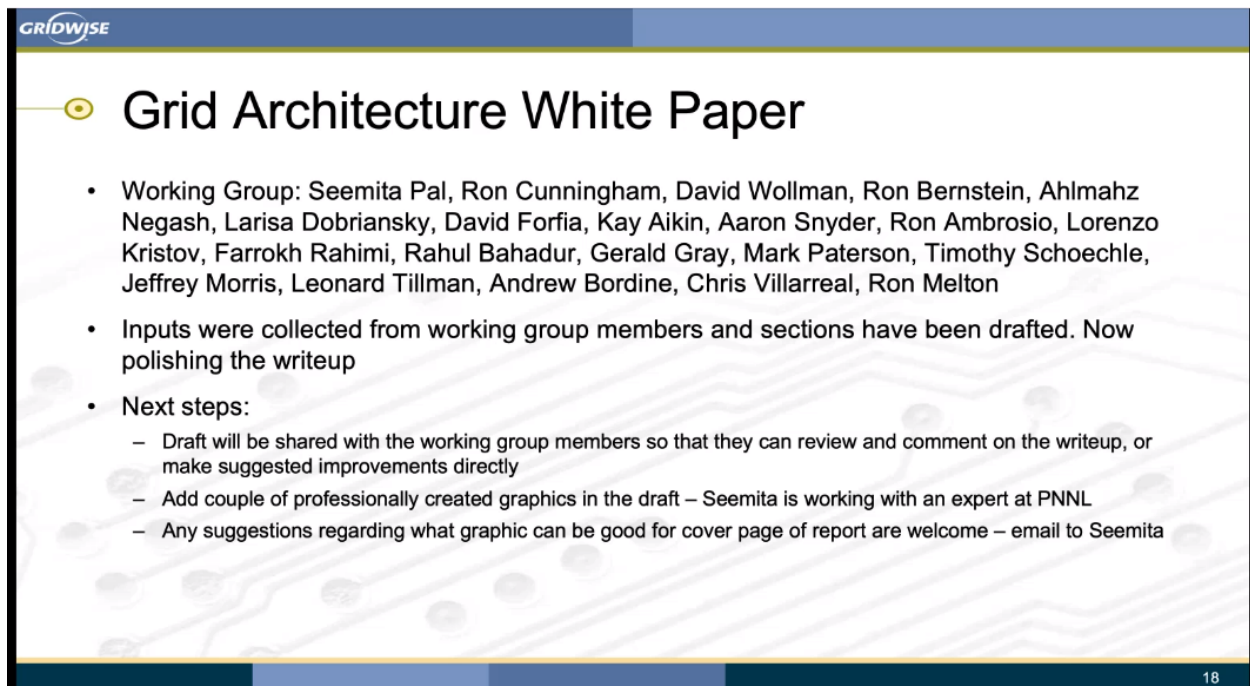
The group discussed the upcoming GWAC Face to Face meeting in Atlanta, Georgia.

Ron Bernstein said he recommends having lunch at “The Varsity” at the AHR Expo.

A GWAC Dinner outing was discussed on either the 7th or 8th. Ron B. suggested the 8th might be best for being less crowded.

Action: Susie and Ron B. will discuss possibilities of a GWAC no host dinner on either the 7th or 8th. (done)

Ron B. suggested we arrange for an interview with a representative from the DOE Buildings Technology office. He offered to do a blog post on this topic. Kay agreed that it would be a great idea. Chris Irwin said will reply to Ron B. offline about it.



The screenshot shows a presentation slide with the GridWise logo in the top left corner. The title is "Grid Architecture White Paper" with a yellow circle icon to its left. Below the title is a bulleted list:

- Working Group: Seemita Pal, Ron Cunningham, David Wollman, Ron Bernstein, Ahlmahz Negash, Larisa Dobriansky, David Forfia, Kay Aikin, Aaron Snyder, Ron Ambrosio, Lorenzo Kristov, Farrokh Rahimi, Rahul Bahadur, Gerald Gray, Mark Paterson, Timothy Schoechle, Jeffrey Morris, Leonard Tillman, Andrew Bordine, Chris Villarreal, Ron Melton
- Inputs were collected from working group members and sections have been drafted. Now polishing the writeup
- Next steps:
 - Draft will be shared with the working group members so that they can review and comment on the writeup, or make suggested improvements directly
 - Add couple of professionally created graphics in the draft – Seemita is working with an expert at PNNL
 - Any suggestions regarding what graphic can be good for cover page of report are welcome – email to Seemita

The slide has a background pattern of faint circuit lines and nodes. The number "18" is visible in the bottom right corner of the slide.

Seemita Pal said that she has the Grid Arch white paper graphics back from PNNL Communications. She said Ron Cunningham also sent an artwork idea although she hasn't yet reviewed it.

Ron C. is using Grammarly to go through the white paper. He expects to send it to GWAC for review in the next week. Once comments are in, he will make some edits and send it out.

Lorenzo Kristov gave an update on Grid Architecture for Regulators. He said that Ron B. has been added because he has agreed to add a case study. He gave some background on the group and said the group

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will share lessons learned and real-world experience as a basis for strategy to reach the audience of regulators and policy makers. He also asked for comments on this concept from the GWAC attendees.

Lorenzo said that the Grid Architecture for Regulators group met very recently. The paper is for the benefit of the GWAC community to understand what regulators are or are not doing with grid architecture. It will help GWAC types to form ideas about what we could create to aim for audiences of regulators and policy makers.

Marc Costa added that the with the CPUC's high DER docket where there are specific outcomes, maybe we could get more transactive energy specified by *mandate* rather than analysis.

Lorenzo said that a case study on high DER - a CPUC proceeding - is in development. It is a yearlong process, but it will be included. He said that two case studies at the national level and some others he reviewed will be included as specific case studies. He noted that some cities are doing this work. Locations are detailed on his slide.

James Orenstein suggested Texas PUC proceedings on DER interconnection and DER cost recovery be added.

Jeff Morris mentioned that Seattle City Light has a smart grid policy that they are trying to work through, and he noted the recent Texas DER proceeding.

Lorenzo asked Jeff if he would like to do a case study on one or both of these. Jeff agreed to do it and will send it to Lorenzo.

Ron Melton reminded the meeting participants that everyone is invited to participate in GWAC projects. He said if someone is interested in contributing to the paper that Lorenzo is putting together, please feel free to speak up and become part of that work group.

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Grid Architecture for Regulators

January 2023 update

- Team = Kay Aikin, Larisa Dobriansky, Jeff Morris, Mark Paterson, Farrokh Rahimi, Chris Villarreal, Ron Bernstein, Lorenzo Kristov
- White paper will be aimed primarily to GWAC Community:
 - Document our experience, observations and lessons learned from the use/non-use/value of GA in policy and regulation venues
 - Provide a basis for strategies to promote Grid Architecture among policy makers.
- Case studies identified thus far
 - National — FERC Order 2222; Multi-states' DSP approaches
 - State — NY REV; Maine legislative targets; Xcel MN rate case; CPUC High-DER docket; Colorado DSP settlement
 - Municipal — Portland ME; Hartford CT; Washington DC; Smart-city smart-grid connections
 - Foreign — Ontario; Australia
- Tentative target for completion: April 2023

“Next Big Thing” / “Back from the Future”

Working party is meeting weekly

- The nature of the audience, objectives for the seminar, etc. have been discussed
- An outline of the presentation has been created
- Sections are assigned for creating or gathering content



Ron Melton noted that a work group is meeting on “The Next Big Thing” presentation that GWAC members will present at the AHR Expo on Feb. 7 as part of the educational sessions. There will be a meeting this afternoon in fact.

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There were no updates to the Conference and Events list.

Conferences and Events

Date	Event	Location	Attend	Speak	Topic
Jan 16 -19, 2023	IEEE ISGT	Washington, DC	Ron Melton, Farrokh Rahimi	Yes	Moving to a Self Driving Grid
Feb 4 - 8, 2023	ASHRAE (Co-sponsor with IEEE) / AHR Expo	Atlanta, GA	Ron Bernstein, Farrokh Rahimi (tent)	Yes	Standardized Building Datasets for Benchmarking Control Algorithms, Energy Efficiency, Modeling, and Decarbonization, Possible GWAC F2F
Feb 6 – 8, 2023	AHR Expo	Atlanta, GA	GWAC	Y	Panel Presentation and F2F GWAC meeting
Feb 7 – 9, 2023	DistribuTECH	San Diego, CA	Farrokh Rahimi, David Forfia		
Apr 10 -13, 2023	IEEE PES Grid Edge Technologies Conference	San Diego, CA	Jaime Kolln	Jaime Kolln, Ron B, Ken	Grid Interoperability
Jul 16 – 20, 2023	IEEE PES General Meeting	Orlando, FL	Ron A, Ron M, others?	Ron M	Meeting the Energy Needs of a Dynamic World

PowerPoint Slide Show - [2023 JAN DRAFT GWAC Meeting slides]

GRIDWISE

Liaison Reports

- NIST – David Wollman
- EPRI – Sean Crimmins
- IEEE PES – Farrokh Rahimi
- ASHRAE, CTA, CABA – Ron Bernstein
- ISO/IEC, IREC – Ken Wacks
- SEPA – Aaron Smallwood
- EBC – Tony Giroti
- NARUC – Chris Villarreal
- Are there other organizations we should be hearing from?
- Candidates: OpenADR, Green Button, eMerge, SunSpec, CEA

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NIST - Dave Wollman noted that his group leader, Avi Gopstein will be leaving NIST to go to the DOE. He is leaving NIST at the end of this week. NIST will be planning some changes in light of Avi's departure.

Chris Irwin said he is interested in how NIST will move forward with Smart Grid.

No report from EPRI this week.

Ron Melton noted that the IEEE joint technical committee is meeting this week in Florida.

Ron also mentioned IEEE Blockchain is moving to a work group which is starting up – the first meeting of the governing board meets tomorrow. Ron M. and Farrokh Rahimi are on that board as voting members. Activities have been focused on TE – there is a block chain for TE guide that is going to be developed an IEEE 2418.5 guide standard which is to be released soon. Paul Heightman and Claudio Lima are some people that you might know that have been working on it. It will not be a full standard.

IEEE ISGT is next week, and Ron and Farrokh are organizers. There is a panel session that will relate to GWAC with DOE's Gil Bindewald, Pat Hoffman Alejandro Moreno. They will review DOE investments and innovations. It is part of the Block Chain enabled energy group.

ASHRAE - Ron Bernstein reminded everyone about the upcoming AHR Expo and the ASHRAE meeting that will be co-located with AHR. He will report back to us on the smart grid and grid edge 7.5 committee meeting. He will also attend a meeting on smart buildings and smart grid. ASHRAE's key focus will be on decarbonization. His talk for ASHRAE is on data modeling and data sets for building to Grid interactions and will focus on the associated metadata. He will report back on his interactions at this meeting.

CTA and CABA – no updates.

On Friday last week the US DOD through the Army Corps. of Engineers released a request for information for building metadata evaluation research for USACE bases to have a standard taxonomy and ontology with regard to connectivity and interoperability and connecting with outside services. It is a 54-week project. Ron B. is following this and may be involved. He will keep GWAC updated on this, if anyone is interested they can contact him for more information. He is on a related committee.

Ron noted that there is also a research project to identify what is available now in industry and what approved vendors by USACE are using. They want a recommendation on how to use the data consistently across military facilities.

Marc Costa said this is related to something that is similar to something that UC Berkely is doing. Ron B. said there may be some relevance, but the project is more on the buildings side than on the grid services side. It has to do with HVAC, lighting, occupancy, building zones, and things of that nature.

Ken Wacks – ISO/IEC; Ken said there are a number of international standards now in the pipeline.

One that Ken had had developed some years ago, an energy management agent, was developed on how to manage energy on-premises. It has become the centerpiece of a series of energy management

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standards that are consumer focused. In the last year he has been working to re-write the standard and it is now out for review by member nations. Basically, it takes the concept of energy management and moves it from being utility centric to consumer centric where consumers can use the tools to determine where they should get their energy. For example, should they get it from solar, wind or local energy storage? It considers what the major loads are and what the consumer preferences are. The energy management agent uses elements of artificial intelligence to make the determination based on many variables. Goals are set by the consumer.

Ken will be scheduling IEC meetings again in the next few months. Their semiannual meeting will likely be at the end of April or in early May as virtual meetings.

IREC - Ken Wacks; IREC continues to meet every other Friday. The next meeting will feature a presentation on the microgrid in Puerto Rico by Carlos Lopez with IREC who was involved with microgrid installations in Puerto Rico.

Everyone is welcome to attend, there is no charge. Contact Ken Wacks if you would like to participate.

SEPA - Aaron Smallwood had planned to attend today but was called away at the start of the meeting.

Ron M. said that he and Ron Cunningham will be giving a SEPA presentation on March 1 on grid architecture work groups and the grid architecture primer.

The TE work group is planning to do a SEPA TV spot for SEPA TV. It will be a short presentation. Ron M. will keep GWAC updated.

NARUC – Jeff Morris

NARUC has a meeting Jan. 25 and 26 in Albuquerque on DER data sharing by groups such as product developers, manufacturers, regulators, and cyber security experts. They will be looking at how utilities will share data. It is the third meeting in a series They will create a document on work group cases. Chris Villarreal is involved with it also. This is the 3rd meeting on this. This may be interesting for GWAC.

NARUC, NASIO, National Governors Association will host back-to-back meetings in Washington DC from Feb. 7 – 15. Several others coming up. All will have panels on things like iris scanning.

There will be a Western NARUC meeting in Napa, CA May 21 – 24th, and the NARUC Summer Policy Summit will be held in Austin, TX on July 16 to 19. Also, the Fall NARUC meeting will be Nov. 16 – 19 in La Quinta, CA near Palm Springs. All will have panels on both the IIJ and digitization. For the Western NARUC his company is part of a connected communities grant for Navy homes.

Ron Bernstein suggested a joint meeting with NARUC in the future perhaps in California. Jeff had some ideas and will ask about it on his side.

Ron Melton also asked about organizing a GWAC panel session at a NARUC meeting. Jeff said NARUC is doing an open call for papers for the August meeting. Then they will pick from the submitted papers. Jeff

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suggested a small meeting with Daniel Sass Byrnett who is head of grants and their research arm which might be the best person to come in and give an overview of their current grants.

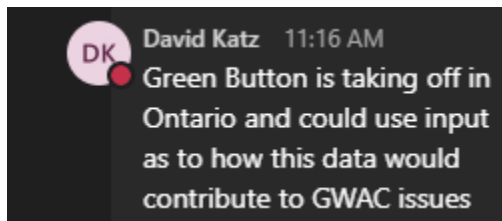
Ron Bernstein said he was invited by the California Energy Alliance (CEA) to speak at one of their upcoming events on grid edge and energy, energy sustainability and the grid edge for a decarbonized future. The audience will include a lot of lighting industry people.

Western Commissioners will meet at the Silver Star resort outside of NAPA. Ron B. said maybe we could tie a future GWAC F2F to one of those meetings, NAPA would be a good location. Jeff suggested the LaQuinta meeting might be good for that also.

Ron M. asked Jeff about a panel session at a NARUC meeting by GWAC. Jeff said there is an open call for papers for the summer and fall meetings. Content will be selected by the organizers. He said Daniel Sasperant could be a good contact.

Ron B. said he also would support a summary session by GWAC.

Ken Wacks said that he recently attended the Consumer Electronics Show. He was impressed with the home solar and storage vendors. There were 3200 exhibits this year and attendance was good.

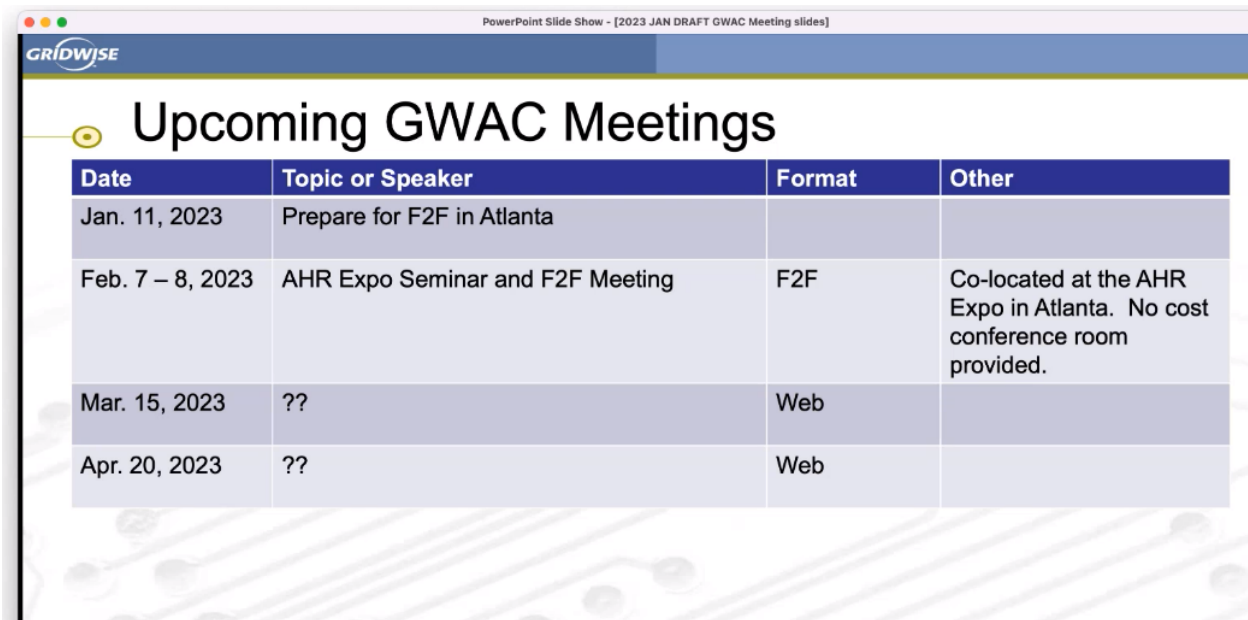


Marc Costa commented that he has heard California investor-owned utilities are gearing up for a smart meter 2.0 deployment without the need for regulatory authorization which he noted is somewhat scary to him in terms of the volume of investment that would be needed. Also, Open ADR and Green Button, data privacy and DER is an emerging topic. In fact, it's in some regulatory proceedings; data minimization and data sharing between appliances for program evaluation, research and targeting. Michael Murray with Mission Data is a great speaker on these topics, and he could be a good GWAC guest speaker for this for GWAC. He could give an ADR/Green button talk.

Action: Look into getting Michael Murray with Mission:Data to speak on ADR/Green Button (Mark Costa, Ron Melton)

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The screenshot shows a PowerPoint slide with the title 'Upcoming GWAC Meetings'. The slide contains a table with four columns: Date, Topic or Speaker, Format, and Other. The table lists four upcoming meetings: one on Jan. 11, 2023 (Prepare for F2F in Atlanta), one on Feb. 7-8, 2023 (AHR Expo Seminar and F2F Meeting, F2F format, co-located at the AHR Expo in Atlanta), one on Mar. 15, 2023 (format unknown), and one on Apr. 20, 2023 (format unknown).

Date	Topic or Speaker	Format	Other
Jan. 11, 2023	Prepare for F2F in Atlanta		
Feb. 7 – 8, 2023	AHR Expo Seminar and F2F Meeting	F2F	Co-located at the AHR Expo in Atlanta. No cost conference room provided.
Mar. 15, 2023	??	Web	
Apr. 20, 2023	??	Web	

Susie will be sending out GWAC online meetings in Teams in Outlook.

Ron Melton, Ron Bernstein, and Jaime Kolln will meet to go over the GWAC F2F Atlanta meeting.

Ron will ask new GWAC member Mark Ortiz to speak at the March meeting and get us up to date on his background.

Ron Bernstein thanked everyone for attending today and he adjourned the meeting.