GridWise® Architecture Council

Meeting Minutes

Feb. 8, 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

Ahlmahz Negash, Sr. Power Analyst, Tacoma Power

Mark Ortiz, Lead Architect, Schneider Electric, New GWAC member

Aaron Snyder, Dir. of Grid Technology Consulting, EnerNex

Leonard Tillman, Partner, Balch & Bingham, LLP

GWAC Associates & Emeritus

Marc Costa, the Energy Coalition

Mark Paterson, Managing Director, Lead Systems Architect, Strategen

GWAC Friends

Anto Budiardjo

Jaime Kolln, PNNL

Seemita Pal, PNNL

David Wollman, NIST

GWAC Members and Assoc. not present

Rahul Bahadur, VMWare, Inc.

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

Paul DeMartini, Managing Partner, Newport Consulting

Jeff Morris, Schneider Electric

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

PNNL Support

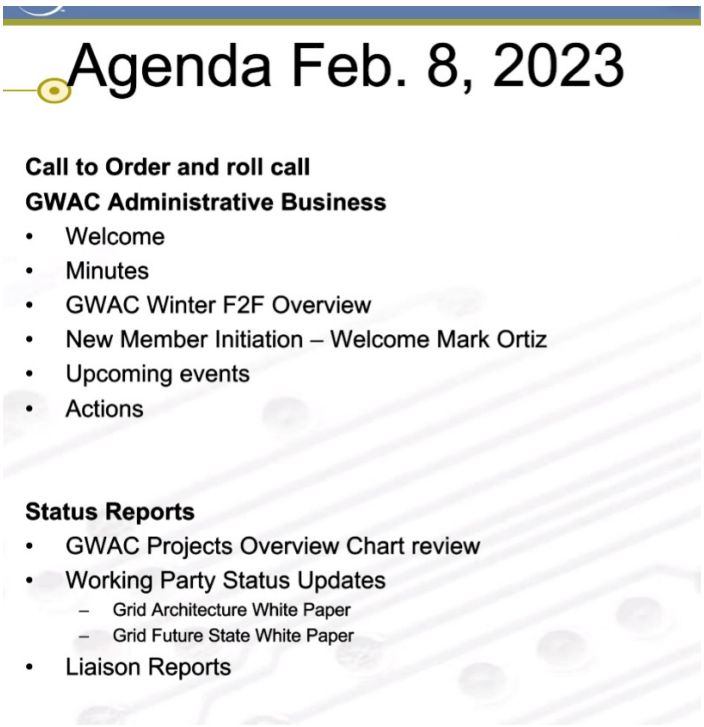
Susan McGuire, GWAC Coordinator

Ron Melton, Acting PNNL Administrator

Meeting Minutes

Feb. 8, 2023

GWAC Chair Ron Bernstein started the meeting and asked everyone in attendance in Atlanta to briefly introduce themselves. Quorum was reached.



David Wollman gave his NIST Liaison Report at the start of the meeting. David said the NIST Newsletter went out yesterday with several articles on SmartGrid. There was an award for the NIST SmartGrid Framework that Avi Gopstein had worked on. David Holmberg's concepts on TE are mentioned in it and also some work with NARUC on interoperability benefits. David provided a link to the NIST Newsletter:

https://content.govdelivery.com/accounts/USNIST/bulletins/3473eea

Meeting Minutes

Feb. 8, 2023

GRIDWISE

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

Administration / Upcoming Conferences

The January meeting Minutes will be reviewed for the next meeting.

Ron Bernstein gave a summary of the talk that he gave at ASHRAE. He noted that attendance was around 60 people and there were good discussions after the talk.

Ron Melton mentioned that the recent IEEE ISGT also had good attendance and interesting presentations. Farrokh Rahimi will be the new chair for 2024 and Seemita Pal is the new Vice-Chair.

David Forfia noted that he did not go to DistribuTech as planned.

Kay Aikin will be giving a presentation IEEE PES Grid Edge.

Ron Bernstein may not be able to attend IEEE PES Grid Edge conference in April; he might ask Jaime to give his talk. They will talk more offline.

Ron Ambrosio is planning to attend the IEEE PES General Meeting in Orlando.

Ron Melton introduced Mark Ortiz, the newly elected GWAC member.

Meeting Minutes

Feb. 8, 2023

GRIDWISE

Mark Ortiz
Lead Architect, Distributed Energy Systems
Schneider Electric

Mark Ortiz specializes in planning and architecting large complex Energy Infrastructure and Digital Transformation programs that are modernizing the electric grid. He has more than 22 years of utility experience in strategy, smart grid architecture, regulatory support, and industry standards.

He has expertise in:

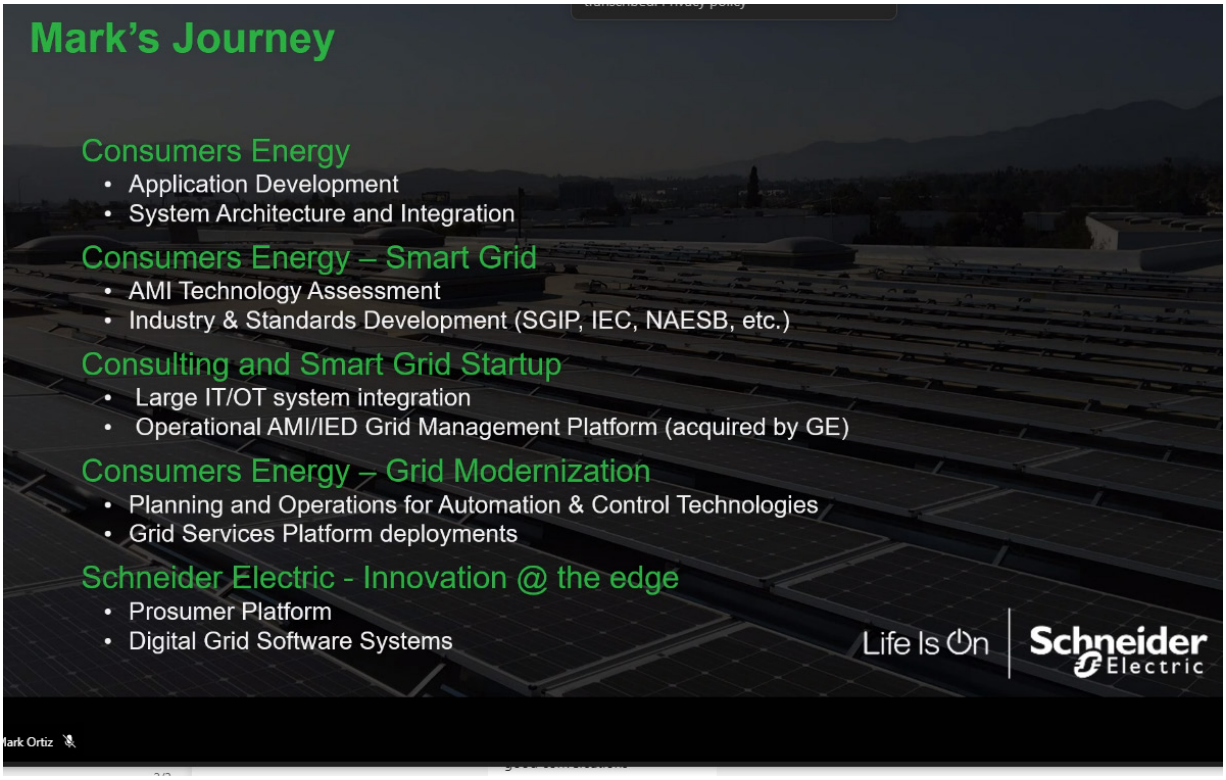
- Grid Architecture and Distributed Technologies
- Industry Standards(e.g., IEC CIM, OpenFMB, OpenADR, IEEE1547, etc.)
- Semantic Data Modeling and Model Management Frameworks
- Architecting Cloud Native Applications
- Energy Infrastructure and Digital Transformations Program Management
- Grid Strategy and Roadmap Development
- Scalable Internet of Things (IoT) Frameworks
- Regulatory Rate Case Witness and Support

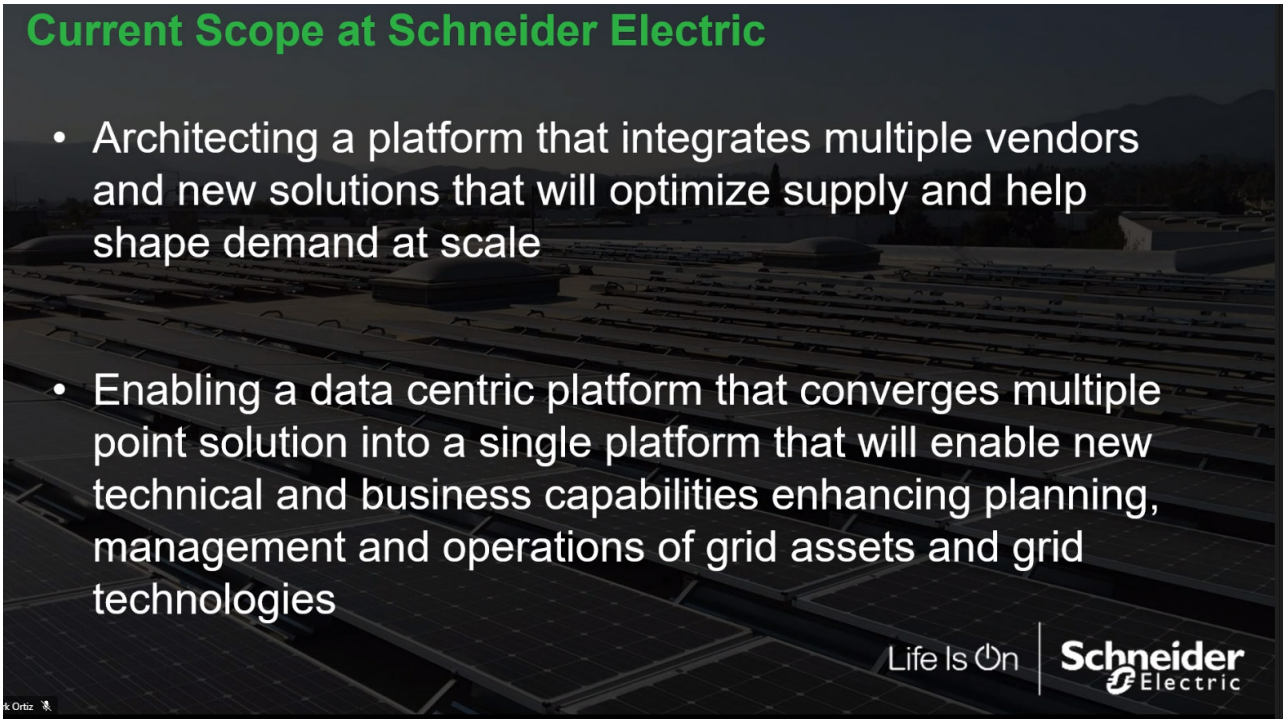
As required for new members, Mark Ortiz led the group in an upbeat rendition of the GWAC Pledge song.

Afterwards Mark gave an overview of his experience in the Grid Industry:

Meeting Minutes

Feb. 8, 2023





Meeting Minutes

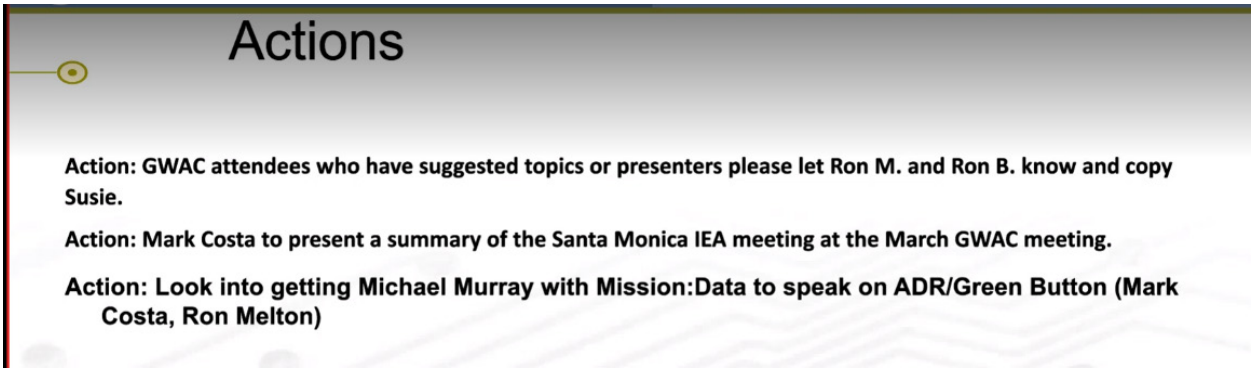
Feb. 8, 2023

Meeting Minutes

Feb. 8, 2023

Ron Bernstein and Ron Melton introduced the GWAC Class of 2023

Ron Melton reviewed the GWAC action items.



Ron M. noted that Marc Costa knows Michael Murray and is working to get that talk set up.

Ron Cunningham said Green Button fits into the value stream from steward to customer control with third party access noting that there is a bit of friction now with some vendors regarding mission

data…there are some cyber issues to be addressed. He is hoping to see more on this. He hopes to see the whole value stream of Green Button discussed; from the steward all the way through the customer control of it and third-party access. They have some friction currently around what other vendors expect Green Button to do for them. There are some peripheral aspects such as with cyber security that will need to be addressed.

Ron Bernstein has reached out to Jeremy Roberts with Green Button Alliance to invite him to speak at one of the upcoming GWAC meetings. He is interested in doing that. Ron Ambrosio also knows him. We may be able to get him to speak to GWAC. Ron B. gave a brief description and history of Green Button.

Action: Contact Green Button and Open ADR speakers.

Ron B. said the GWAC AHR panel seminar content and presentation was very good. He asked if those who presented would like to individually record their sessions which could then be posted on the GWAC website.

Kay Aikin was interested and would like to refine the talk a bit but said the progression of material was very good. Kay thought it could have been a powerful talk with a bit more preparation.

Ron B. added that when he is asked at conferences and meetings about what he is doing at GWAC that it would be great if he could point to a weblink with a video overview of GWAC's current activities and focus.

GRIDWISE

GWAC Projects

Project	Grid Arch for Regulators	Grid Architecture White Paper	Grid Future States	GWAC Blog Content and Review Committee	THE NEXT BIG THING
Scope	Applying Grid Architecture in the Policy & Regulatory arenas	An introduction to Grid Architecture -- including best practices and real-world examples	Update Grid 3.0 Future States	Decarbonization, GA for Policy	Council's primary focus for the next year – results of F2F meeting.
Audience	Policy Makers	Geared to stakeholders who aren't familiar with grid architecture	Industry Stakeholders	Industry stakeholders, public facing website	Council, Friends, All Stakeholders
Status	Case studies	Collected inputs and comments from working party members	First full initial draft is complete	5 blogs released, 2 in queue	Seminar AHR Expo
Actions	Group: Lorenzo Kristov, Larisa Dobriansky, Kay Aikin, Farrokh Rahimi, Chris Villarreal, Mark Paterson	Finalize draft, polish graphics	Target: EOY 22 for a candidate draft	Group: Kay Aikin, Ahlmahz Negash, Larisa Dobriansky, Ron Bernstein, Tonya Barham, Rahul Bahadur, Leonard Tillman, David Katz, Tim Schoechle, Heather Donaldson	Focus of seminar at AHR Expo in Atlanta
Leadership	Lorenzo Kristov	Seemita Pal, PNNL	Ron Cunningham	Kay Aikin	Council

Ron Melton reviewed the GWAC history slide and elaborated on the origins including a mention of the influence of Eric Lightner, DOE in 2004. Other partners such as EPRI, and BPA were involved.

He explained the origins of the "GridWise" term.

The GWAC Stack emerged in the Interoperability Framework.

He noted the first item in the list is the Interoperability Constitution. It was first printed out on parchment paper and there was actually a signing ceremony held as part of a meeting in Philadelphia which featured an actor dressed as Ben Franklin.

Ron noted that more recently the Decision Makers checklist has been updated and revised.

The Interoperability Context Setting framework was first published in 2008. The famous "GWAC Stack" first appeared in this document as a key figure in the report. This report was updated in 2019 as version 1.1

Ron noted that he joined the group also in 2008. Steve Widergren had been leading the GWAC.

He mentioned the Smart Grid Interoperability Maturity Model which was published in 2011. This document was incorporated in some DOE GMLC work on IEEE 2030.5. A later version of it was published as part of GMLC work in 2020 and is available at OSTI.gov and on the GMLC website.

Meeting Minutes

Feb. 8, 2023

Ron M. mentioned some missing meetings in the list, and mentioned some past key attendees including Terry Oliver, Chris Irwin, Ed Cazalet. He also mentioned the formation of SGIP and how interoperability contributed to it.

Ron Melton mentioned a key meeting that was held in Redwood Shores, California which was hosted by OATI and facilitated by Farrokh Rahimi and Ali Ipakchi. It was a smaller meeting with about 16 participants including Chris Irwin, DOE, Anna Scaglione with UC Davis, Rob Pratt, Ed Cazalet, and Terry Oliver, BPA. There was a follow-on meeting at IBM Watson Research Center hosted by Ron Ambrosio and then a third meeting again at Redwood Shores hosted by OATI again with about 30 people. These meetings were followed by a meeting hosted by Portland General Electric as the Transactive Energy Systems meeting which became the TESC GWAC conference. These meetings contributed energy to many papers on the second slide.

Ron Melton noted that the GWAC annual conference has been shifting somewhat, partially due to the switch to virtual due to the pandemic with no conference held in 2021. There is a stronger emphasis on grid architecture and the need to socialize this material to industry. In fact, the socialization process is somewhat of a translation process as we see with Jeff Taft's work. There is a lot of good material but it's not always consumable and applicable to the problems in front of people. GWAC is trying to provide working examples of the material to make it more useable and practical by people in the industry. We will discuss later today the next iteration of the GWAC conference – it is increasingly becoming about grid architecture.

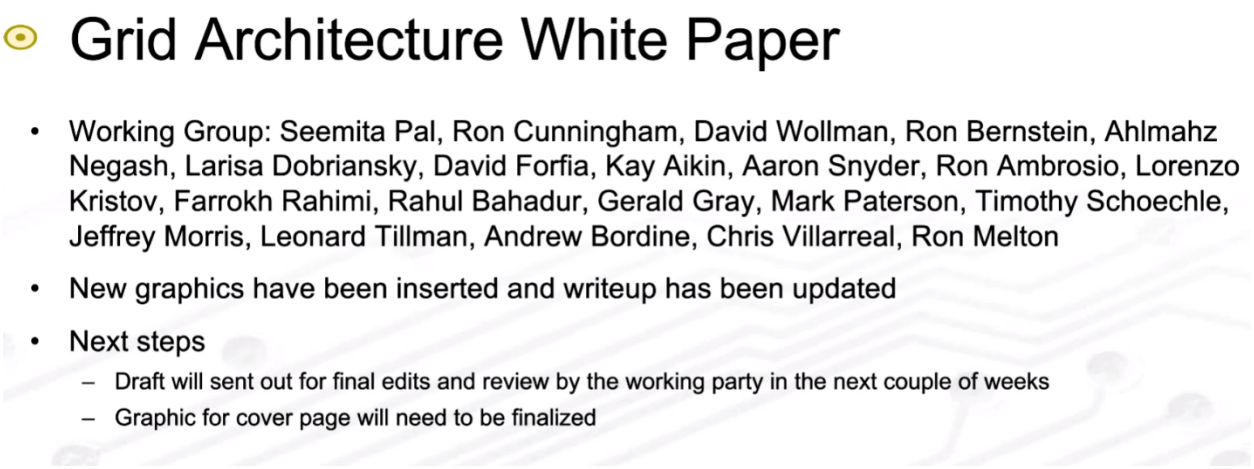
Ron M. commented that the focus of the GWAC TESC conference is moving toward grid architecture and away from TE. He noted that the 2018 TESC was held at MIT in Boston and was hosted by SGIP. That was the only TE conference that they hosted.

In 2019 the conference was held in July at the University of Minnesota. That is when GWAC first partnered with IEEE PES as a fiduciary, and it has become an IEEE conference since then. From here out GWAC could step back from organizing it if they chose to.

The TESC was held as a virtual conference in December 2020 with the onset of the pandemic. The original plan was for PG&E to host it at the Portland World Trade Center that year.

No conference was held in 2021.

Anto Budiardjo introduced himself to the group. He was involved with the TE Conference for 7 or 8 years in the past and he and helped organize the conference registration and agendas. He used to have a business that helped organize and facilitate events.

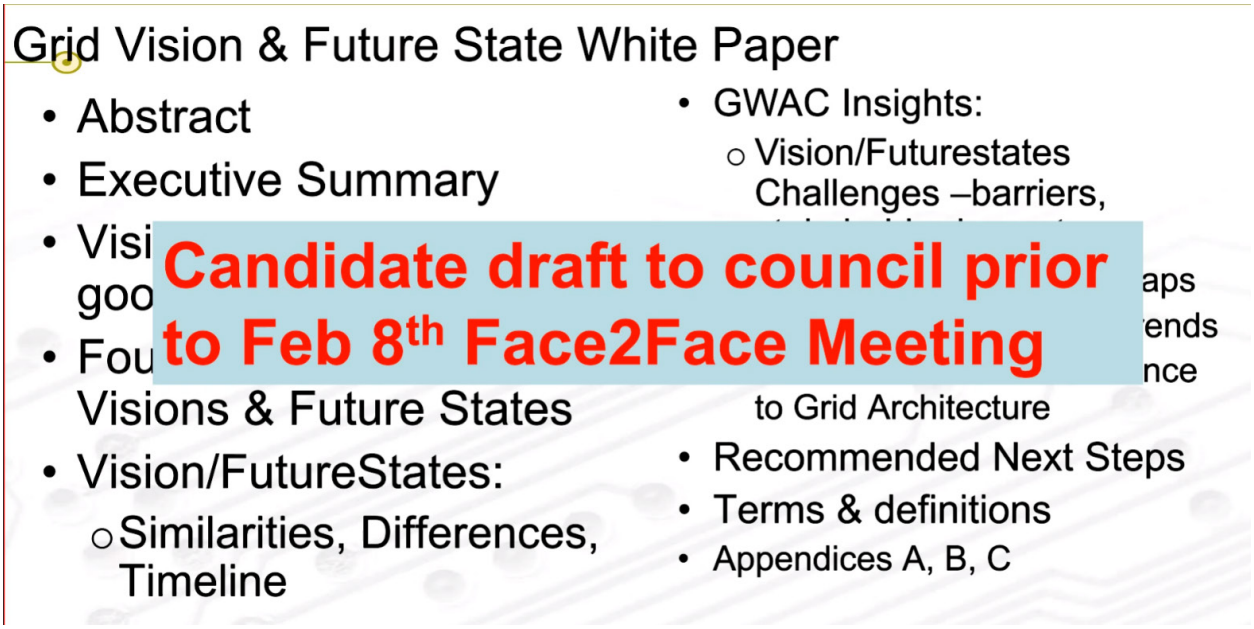


Grid Architecture White Paper Review

Seemita Pal will be sending the Grid Architecture paper out for review in the next couple of weeks. Ron Cunningham has sent in a proposed graphic for the paper and she noted that any other suggestions for graphics is still welcome.

Once the paper has been reviewed by GWAC and then has been routed through PNNL's internal Information Release process it will be released.

Ron B. suggested that Seemita check for a graphic from the GWAC panel talk yesterday.



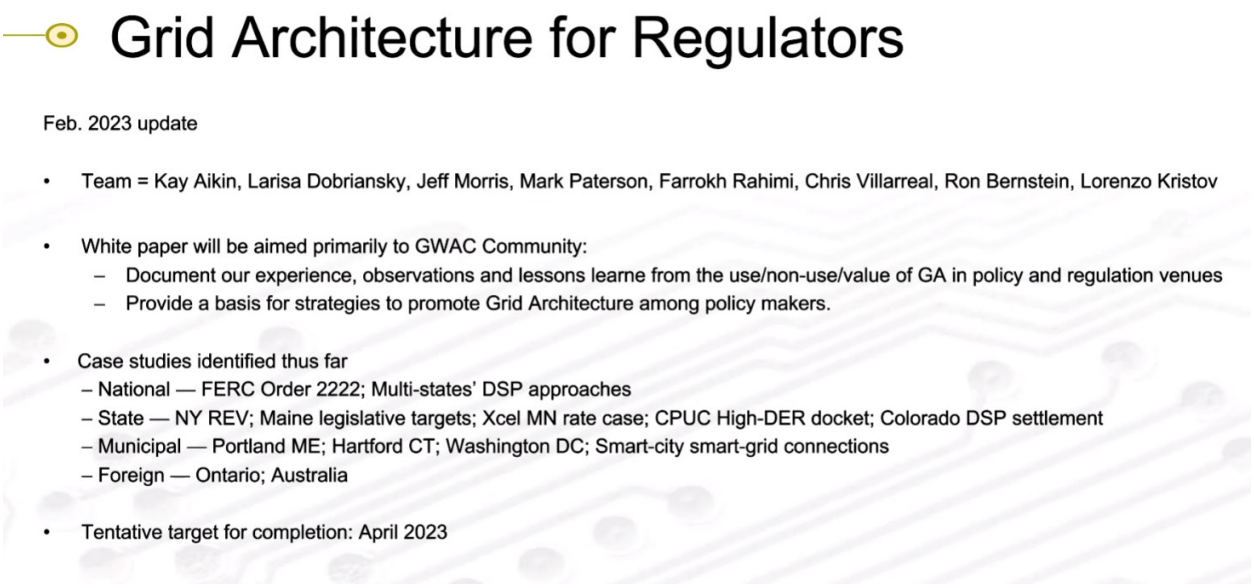
Grid Vision and Future States White Paper Update

Ron Cunningham commented that the acknowledgment section of the Grid Vision and Future States White paper is included in the current draft version. He commented that the paper is now up to 28 pages so it may not really be a "white' paper now by definition.

Ron M. commented that there is the option to have a PNNL editor to work on the paper if needed.

Ron C. said the work group decided to end their regular biweekly calls at the end of February to have more time to finalize their work. He thanked everyone who participated in the meetings and contributed to the paper and work group discussions.

Ron C. asked all of the contributing authors to please check how they are listed in the acknowledgement for accuracy.



Since Lorenzo was not available, Kay Aikin gave an status of Grid Architecture for Regulators work group. Some of the use case write ups that have come in so far could be great material for blog posts. Lorenzo thought this would be a good way to start out. There are four or five in draft form.

Kay noted good feedback has come in from utility representatives. Phil Bartlett, a Commissioner with Maine PUC had spoken with their head administrator as to how all the pieces work together.

Kay noted that she testified last week for Maine PUC, and she suggested in her comments that we try to start talking about Grid Architecture, and how grid regulation could support grid modernization and the utilities were supportive but the commission itself was not. Kay followed up with the head administrator who would like to get briefings on this topic or even build a docket to look at this. They are looking for some strategy people to advise them.

Ron M. suggested reaching out to Lisa Schwartz runs the Ontology Systems program for Joe Paladino.

Ron M. and Seemita did a seminar on grid architecture and planning for the New England collaboration PUCs, and he said that there are some resources within DOE that Kay could connect with. We are talking with Joe on more training for the regulatory community on Grid Architectures, it's an on-going discussion.

Ron dismissed the group for a short break.

10:00am – 12:00pm	**Working Discussion – Bridging Back from the Future (Ron Bernstein, Ron Melton)** - **Harmonizing individual views from AHR seminar** - **Identify work product(s)** - **Structuring effort**

Post Break

The group discussed an Introduction to Transactive Energy, TE, which could be a blog or a video on the website, and maybe also a Webinar.

For the material presented yesterday, Ron M. said he thought it was a bit too detailed for the website – it could come up a level or two.

Ron A. said the presentations yesterday varied as to level of detail.

For the concept of ESI there could be a lead into a more detailed presentation as a follow-on presentation. We could think of a series of webinars. We could start with the high level and get more detailed in following webinars.

Another platform for some GWAC presentations could be the IEEE website.

Kay mentioned that IEEE might not be a good partner for talks to regulators.

Ron B. said we could talk more about logistics and audience. We could build presentations as modules that could be added or deleted based on audience need. He suggested that presenters should create a script of their material and then do a recording.

Ron M. suggested that the GWAC AHR panel presenters record their talks in Teams and turn on transcription to create a script.

Ron B. suggested recording in PowerPoint first before creating an MP4. Individual recorded slides could then be replaced as needed. He added that too often a great presentation is given such as the panel talks yesterday and then the material is left behind as the group moves on. By capturing the talks as a recorded video, the material could be made available through social media.

Ron C. said he took notes yesterday, but he couldn't capture all the information that he found interesting. A video would be a great way to go back and reference some of the material, even for someone who attended the talks.

Ron M. suggested creating a written script for each module. So that each is a stand-alone module it would be good to have an introduction of the topic, and to coordinate with the other scripts and perhaps indicate that "this is module 1 of a series of 6," as appropriate.

Meeting Minutes

Feb. 8, 2023

The video length was discussed. Ron B. liked the idea of 30 minutes, but Ron M., Ahlmahz, and Jaime felt that they should be shorter, Jaime noted that most You Tube videos are 10 to 20 minutes

Kay suggested creating short, 2-minute videos to accompany each blog post and then have a 15-minute version to explain things more in-depth.

Ron M. commented that Grid Architecture is a very broad banner. He asked the group to consider what we want to do within that and how we can help industry move into the future. Another consideration is what is important to DOE? Decarbonization of power and energy systems for one.

Ron M. suggested having Mark Paterson give a talk as well.

Ron B. said there were past talks by GWAC that could also be turned into blog posts, videos, and webinars such as the Introduction to Transactive Energy which was a three-hour workshop.

If speakers turn on transcription in Teams, then the script will be written for them.

Ron Bernstein said he would create the slides, with each one having I's own script and he would record that and then reformat it as an MP4.

Ron M. reminded everyone that the theme, "Bridge Back from the Future," was taken from the October GWAC Face-to-Face meeting with materials and discussion provided by Mark Paterson, a GWAC associate located in Australia. Mark Paterson proposed that we move into the future with a more focused set of activities rather than random steps.

He went on to say that said GWAC has moved from Interoperability focused for the first 6 or 7 years and then moved on to Transactive Energy for a similar amount of time and now is moving into grid architecture. As we explore grid architecture, we see that it is a big banner. Specifically, what does GWAC want to do to have impact? What can we do to help the industry move into the future and what can we do to motivate it to move forward? When we met with Mark Paterson and told us what he was doing for AEMO down in Australia. He told us how he'd come up with this bridge analogy in talking with Australian decision makers and in trying to motivate them to be drawn into an envisioned future.

Also, Gil Bindewald with DOE was asked in the 11th hour to give a keynote at ISGT earlier this month and he agreed to do it. He was a little nervous to give a keynote he said, but it was a great talk. Ron said that several people told him that it was one of the best keynotes that they had ever heard.

Gil talked about how we operate the grid by looking in the rearview mirror. We have to shift, not be looking at the potholes but to look further out ahead to be able to move into the future and operate the grid while being informed about the future. We want to do more than capture good material, we need to think if this is in fact the next big topic for the Council to focus on? What are the work products that we want to produce? The white papers that Seemita and Lorenzo are leading are good examples of the new direction.

DOE provides funding for GWAC, so we want to keep the direction of the DOE in mind such as deep decarbonization of the electric power system.

Ron A. said we want the GWAC community to focus on the conference organizing theme and then we will start building out from there. It's the starting point.

Kay voiced support for the banner and added that most people try to solve problems with silo approaches and by using a series of incremental tweaks. It's not uncommon for a regulator to say that a constituent called and complained that a utility says they can't hook up their EV to the grid. So, they focus on those issues instead of the big picture.

Ron Cunningham said that one thing they are trying to report on with the Future States paper is to get to the architectural gaps which were discussed at the Grid 3.0 meeting. We are trying to identify where those architectural gaps are, and to find collaboration and coordination efforts with stakeholders to move on the gaps and suggest how they can be addressed. This is what we picked up on as the need from Grid 3.0.

Jaime said as an integrator he is used to looking at system solutions, not siloed approaches. A lot of people in industry are working on specific problems in a siloed way. So, we have these checklists that have been created over the years; they are summary documents that give you just a taste of what you need to look into to modernize. We can make sure they are getting short, one-page checklists or guides of things to consider when they are working in their box. The checklist gives people some guidance about who to engage with for modernization. This is needed not just for regulators but for non-regulators as well to help them consider these issues with regard to their system architecture.

Ron M. noted Mark Paterson's idea was to get Australian grid decision makers to recognize the nature of the problem – to address the root cause.

Kay agreed and added that while you will need incremental steps, but they have to be informed by the vision of the future.

Meeting Minutes

Feb. 8, 2023

Ron M. said that Seemita's idea at a minimum would give us a diagnostic to work from.

Kay related that Larisa Dobriansky' s SEPA work group is currently interviewing regulators on what they see as a need.

Kay said with no disrespect most PUC commissioners are lawyers, and they don't have the operational experience to ask the right questions and set up the correct dockets in state PUCs to move forward. Most utilities have the knowledge, but they know that some "solutions" are not affordable by rate payers. His concern was making the changes affordable by rate payors and getting regulators help in doing so.

Ron M. said that Paul DeMartini has good information on the area of distribution transformation. He knows this subject. But there is some healthy disagreement about it.

Kay agrees it's spotty, but utilities have awareness of the operations side that regulators don't have. To improve things, these two groups have to connect.

Ron M. agreed and said that his contacts with Avista and similar utilities recognize that there has to be a fundamental change in the operations and control model of the utility to successfully operate an electric power system at Stage 3 that you see in this System Evolution diagram, but utility operations people

don't understand it. They don't understand the nature of the change that is required. They are looking down as they run over the potholes and not getting the bigger picture.

Kay said they see a string of potholes.

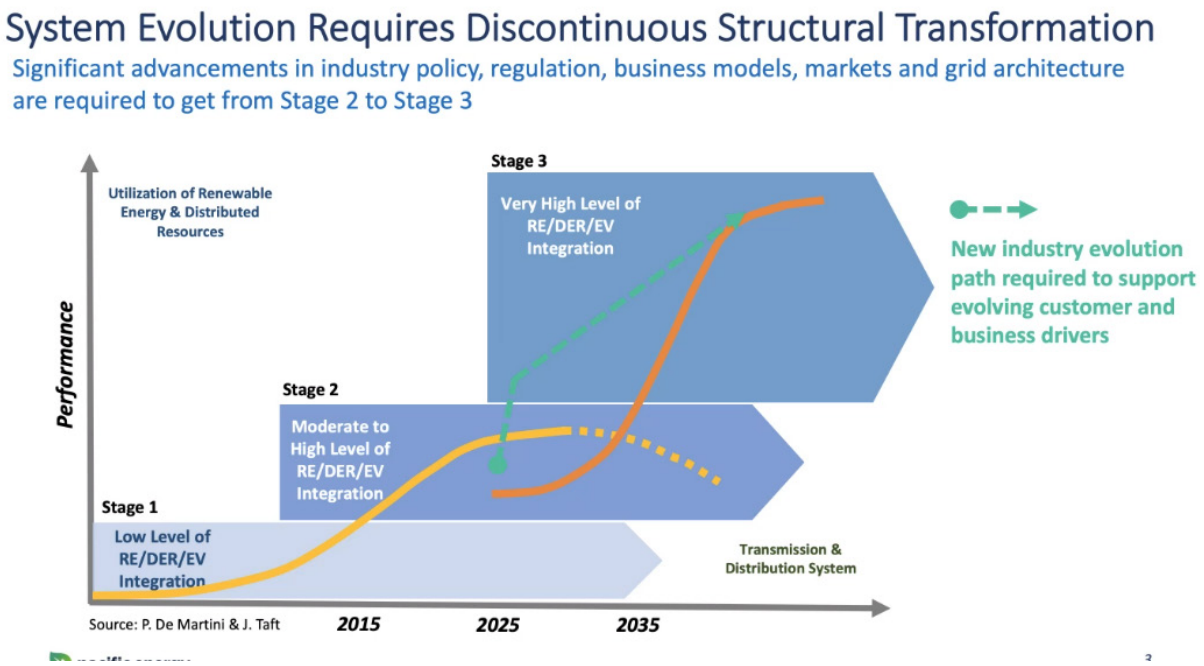
Ron M. talked about Paul DeMartini and Jeff Taft's work saying that from there Mark Paterson has refined it. The curves top out without getting you where you need to go. Following the curve is still an incremental approach. You end up with a technology gap between what you can do with the technology that you have been incrementally advancing and what you need to do to go up to the higher levels of it.

Kay loves the simplicity of this diagram said that in reality there are probably 45 curves.

Ron M. said he had talked with Paul last week and he said that in a high-level abstraction he sees three curves. The green line is really not a curve – it shows something more. You have to take a different path; you can't just follow the dark orange curve.

Ron A. said that OEMs need to follow the green curve to create the technology that will allow the orange curve.

Ron M. said Leonard Tillman's example of his experience as a box boy was a great analogy for this.



Ron M. commented that you can top out in the lower section with the lighter color, and you then never get up to the top in Stage 3. He wanted to show what Stage 3 is like from an architectural point of view to realize that you need different set of technologies to operate a system like that than the one you are operating in Stage 2.

Ron M. said this diagram is available on the GWAC Teams site under the General channel and then in the "GWAC Back from the Future" folder and the file is called "2 S-Curve Diagram.pptx

The group spent some time discussing some examples such as smart meter deployment and issues they see that relate to these curves.

Ron C. said we need people to make the case that they can't just ride the incremental curve.

Ron M. said that last week Paul asserted that the utilities already understand what Stage 3 is about, at least in the U.S.

Ron A. said maybe the ones that Paul is talking to.

Mark Ortiz said it could be Paul has never been in the Tennessee Valley and Kay agreed and added Maine.

Jaime commented that the interviews that Seemita mentioned and with what Kay is doing with regulators we could leverage where the gaps are in the siloed world and that present whatever it is they are missing in a way that's useful. We can target specific audiences which have different roles in the system.

Ron M. that a lot will depend on the questions we use as to how well we address that.

Ron A. said when we have done interviews in the past, we had a carefully crafted set of specific, crisp questions.

Aaron Schneider said in the past the council solved has problems around interoperability, and it was a problem that everyone suffered. The focus on conformity and standards wasn't getting us to what we wanted in industry. We want DER now, and we want this new operating paradigm. Transactive energy can apply to everyone. The next big thing, if we focus on it, means we need to identify the problem.

Aaron said that from what he has heard that we need to lift the vision and look at how it's going to apply to everyone. He brought up the Tennessee Valley as an example of a different group. California and Australia are super progressive, but we need to identify something that will apply to every utility under the myriad of 52 regulators. Our goal is for everyone to consume and understand operability and the impact of a business model change in transactive energy.

He said that the Next Big Thing should have an identified problem that we are solving and one that is more generally applied. We need the gap analysis to include everybody.

Mark Ortiz commented that everyone had thought that AMI would give connectivity to distribution automation, but it didn't really deliver as expected. Being able to optimize the grid at all levels is needed, connectivity is foundational to that. What can we do to deliver that? With interoperability standards there should be a list of new standards and where the gaps are.

Aaron went on to say there is a need for visibility in everything, including in front as well as behind the meter. You can address key gaps and at least get some of those solved then you can get to the higher stages quicker by putting those together, but he added that to him currently, there is not a clear way to do that.

He said the point on the SCADA is that we were pulling these things every four seconds but there is a better way to do it. It would help if someone could just tell him something that has changed and then give him that information. This would be an architectural change. But then the Commission would say something like, no you just spent $30 million on SCADA why are you changing now? We see the pace of technology and of data in devices growing quickly. The activity, interoperability, and visibility really highlighting how the Council recommends those capabilities. Change can be hard to apply.

Ron M. said that the idea behind the grid architecture work at PNNL and with GMLC work has been to provide a set of tools to best manage these complexities. He added that Aaron's comments today were very interesting. He said if you look at Stage 3, the nature of the system with high deployment of distributed energy resources, distribution systems and with the resulting shift in the source of supply from being 90% bulk power system to something more balanced and with the location source of supply - which in turn implies a completely different problem for maintaining balance and operation of the power system – then you have to take balance from a bulk power system global problem to a segment by segment, as a local problem. Then you have a number of integration challenges for both cost effective integration of all the DER, cost effective integration of distributed control and coordination schemes to control the balance with all that DER and that's where TE and things like that start coming in with distributed control and coordination rather than centralized. That's the other part of it that gets you back to the problems that the Council is working on.

Aaron added, my client was really pushing back on what you call integration and what we want to call interoperability. Mark just called it communications or the connectivity that is the electric utility. Understand that I am a power engineer by training. They are really a data company that happens to sell power and they don't master the data company part. They don't understand that they are really a data company. So, they make mistakes, or they make decisions because they don't understand that mastering the data lets them do better at selling the power and delivering the value to people.

Ron M. agreed and said we need to ask them the right questions.

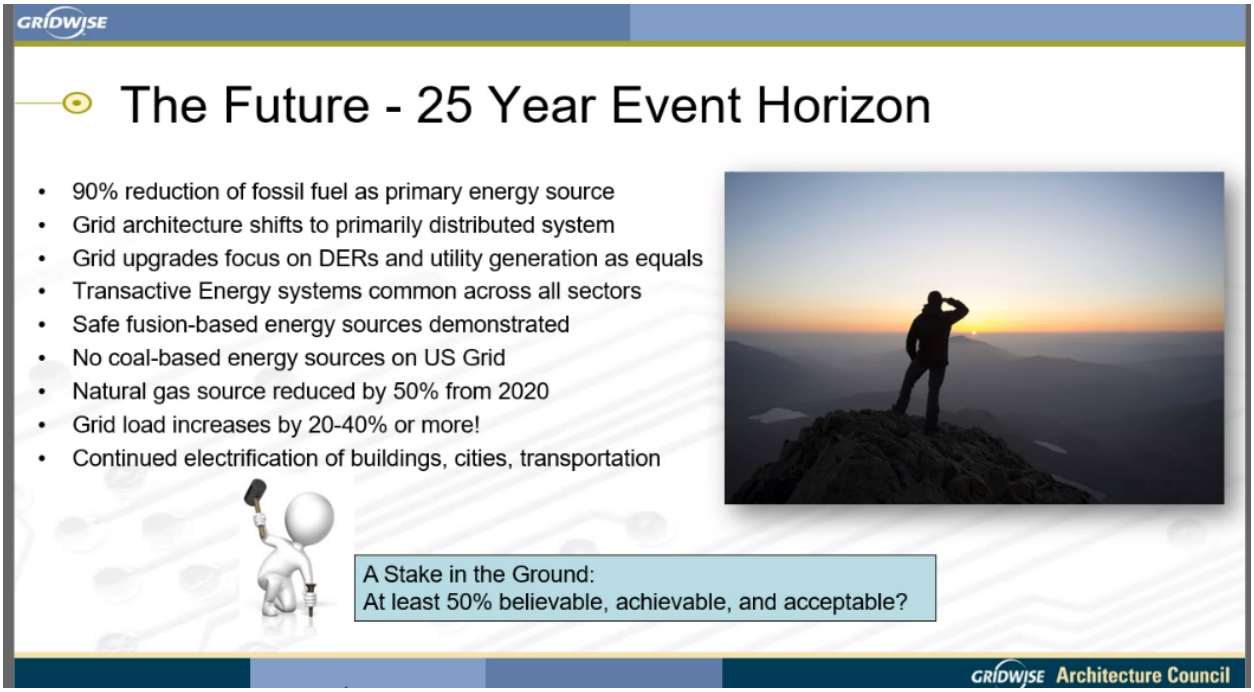
Ron A. added that we need clear, concise questions to ask them.

Ron B. added that we need to understand the gap analysis across the board.

Ron A. reflected that band aid solutions happen, and they don't know what state they are in anymore.

Jaime agreed and said we have to understand dependencies and goals but maybe not each group's role in depth.

Ron M. said that without a realization of interdependency we have to make a holistic approach – Grid Architecture is one tool.



Ahlmahz Negash observed that the technical side and the policy side are addressed but said the "people side" is often left out of the conversation.

Kay said it's a value statement; the 25-year vision is of a decarbonized world.

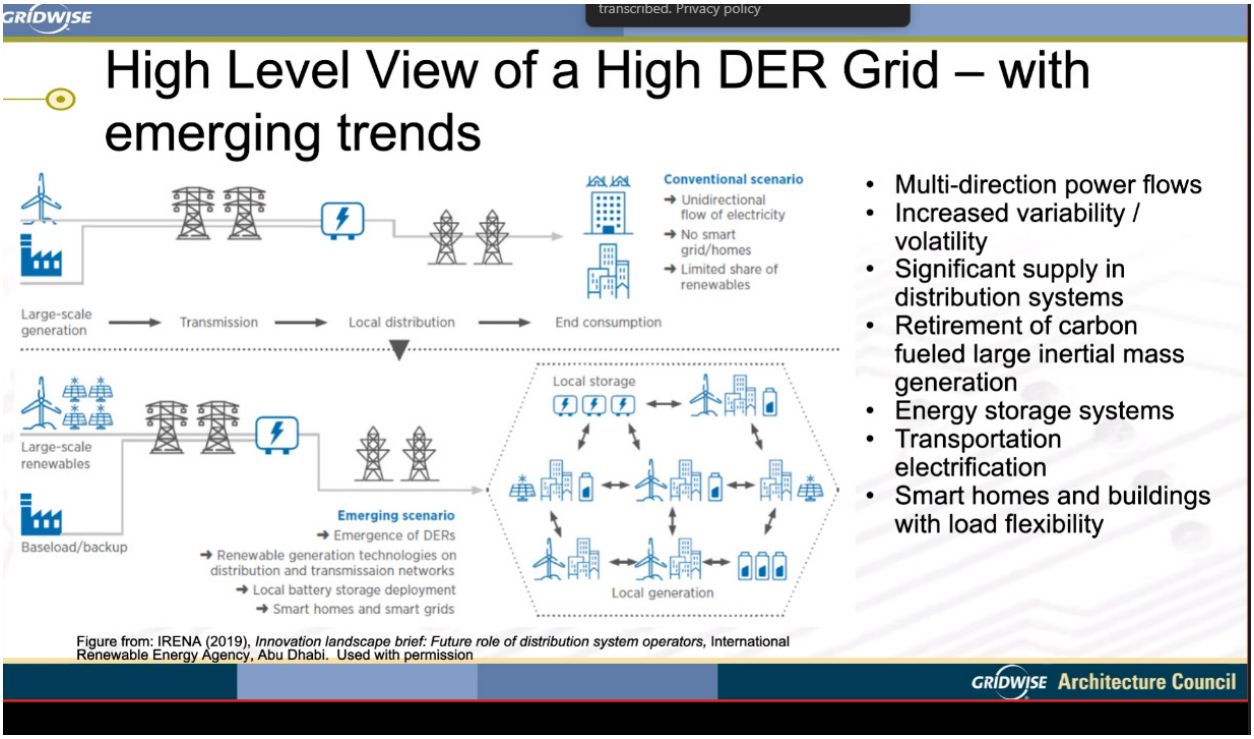
Ron A. posed the question about how much of it is decarbonized? He said there is a need to break it into segments for 5 years, 10 years, and so on. He added that before we get on the path, we need to get everyone on the same page.

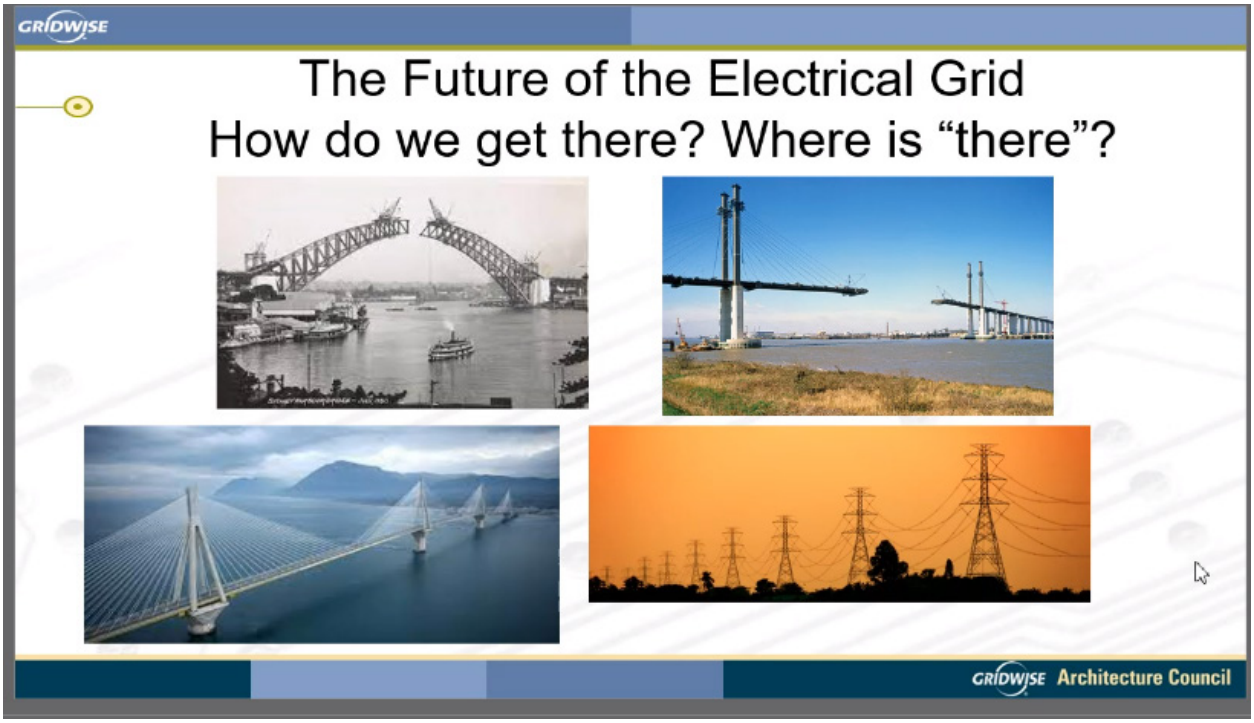
Ron B. added that equity, availability, cost, and value – all belong in the question set.

Ron A. said that with our 25-year vision, as industry experts we ought to do a constitution and refinement and work to get on community buy-in. We need to put our stake in the ground.

Meeting Minutes

Feb. 8, 2023



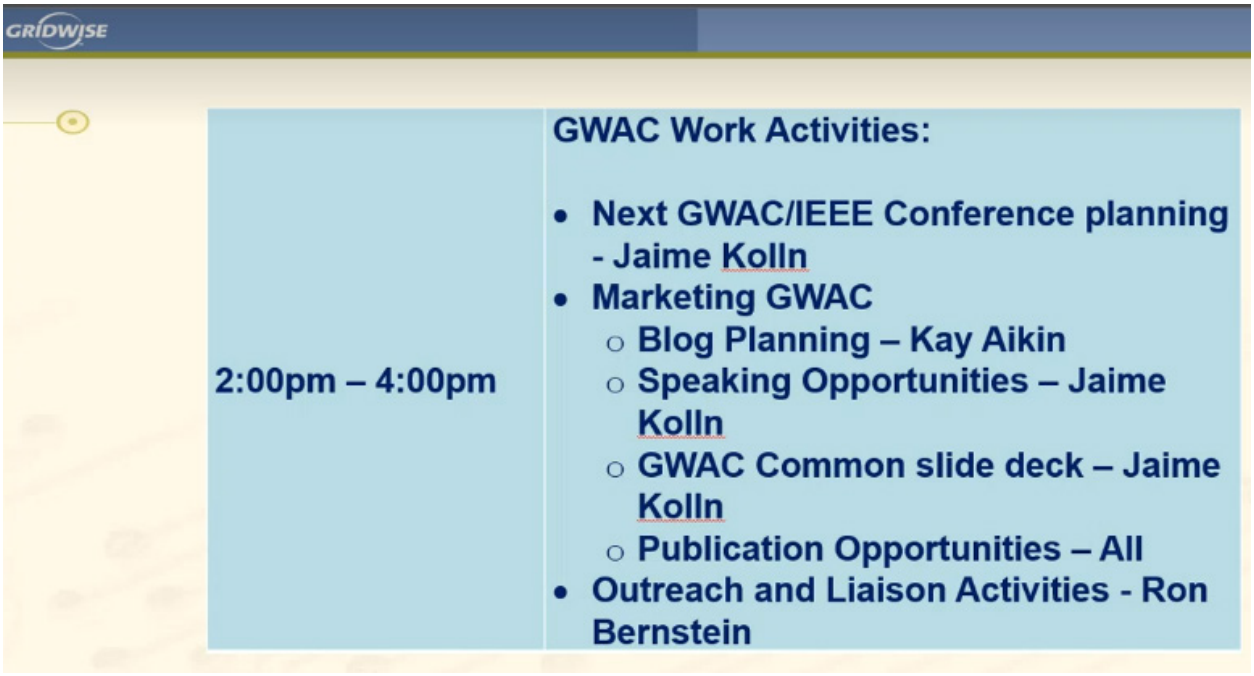


Ron M. said looking at the arena diagram – we have to move to the system – not everyone understands that we have to go to that system, noting we can start with one and then fill in gaps, getting feedback and adjusting as we go.

Kay would like to do a blog post on it.

Mark Ortiz gave a link to the NIST special publication co-authored by Avi Gopstein that David Wollman had mentioned at the beginning of the meeting:

https://www.govinfo.gov/content/pkg/GOVPUB-C13-d783a3a7d72b570c2a4312e66a05430e/pdf/GOVPUB-C13-d783a3a7d72b570c2a4312e66a05430e.pdf



GWAC/IEEE Conference Planning Discussion

The group discussed the date of the next GWAC/IEEE conference.

It was agreed that a minimum of a year is needed for planning and that face to face is the preferred format. Ron Melton advised the group to plan for a face to face and switch to virtual if needed. He cautioned about the cost of a hybrid meeting.

It was agreed that May, June or September, October are best months, in 2024. For May the first two weeks have conflicts with other meetings.

The first half of June might be better than the last half of May due to graduations.

Meeting Minutes

Feb. 8, 2023

The last conference was at the University of Minnesota, and it had attendance of about 75 people and that number that was about the facility could hold. He said that typical conference attendance has been from about 80 to 125.

Ron M. noted that the IEEE application for the conference will need to be completed and for that a conference chair must be named as well as a treasurer and very quickly following that, a budget must be established.

Ron B. mentioned the registration fee structure for this conference is also a necessary step with special consideration required for IEEE lifetime members.

Ron B. noted that the SDGE meeting facility has permanently closed.

Portland General Electric had not charged us for their facility. That was ideal.

Ron B. and Anthony James will discuss the possibility of using the SCE meeting150 facility.

UCLA has a center that we could use if SCE could help us to get the use of it and possibly cover the cost.

It was noted that Paul DeMartini has a connection at Caltech. No one was certain about what facilities they have; Ron M. didn't think they had a large meeting facility.

PNNL has a facility that could be used but security would be a requirement. Ron M. noted that the new Grid Storage Launchpad facility will be completed sometime in 2024 which might be interesting.

Chris Irwin might like to see it at PNNL

Aaron Snyder said that the University of Tennessee might be an option.

Ron B. suggested planning for 200 to 250 people.

Ron M. reminded noted that the conference at MIT involved a charge to SEPA for use of their small auditorium.

He also said that going to DOE in Washington DC would be a security issue for foreign national attendees.

He asked if we had any contacts at Duke?

Ron B. replied to a question saying that facilities that could hold 250 would be great.

NIST was suggested but there are also some security issues to get through their gate.

Ron C. said that AEP has a large meeting space in Columbus, OH. Ron C. will ask about it. But he thought the size would be somewhat limited.

Jaime did a recap of the location discussion; early June timeframe, maximum at 250 people, SCE or UCLA and contact is Anthony James, Caltech with Paul DeMartini as the contact, PNNL Discovery hall, NIST

David Wollman is the contact, AEP facilities which Ron C. will check into, and Portland General Electric is an option.

Ahlmahz wasn't sure what facilities are available at Seattle City Light, she will look into it. They do have an auditorium.

Masoud Nazari with IEEE is at Wayne State in Detroit. Possibly he will have access to a facility.

A no-cost facility is preferred.

We will need to apply again as an IEEE conference. We will need a chair and a treasurer. David Forfia has offered to be the Treasurer and Ron B. is willing to be the Chair. After that we will need to create a budget. Another position would be sponsorship recruiter. The facility owner is typically a sponsor for their loan of the facility. The registration fee will be lower if there is a low-cost facility.

Ron B. noted the complex registration fee structure that must be created for the conference.

Ron M. asked about the duration of the conference. It has usually been two full days and then a half day for the final day. Mid-week is usually best. There is usually a tutorial for the first half day, and it is a separate registration fee.

If there is a something interesting nearby, we might offer an optional tour.

Ron B. said one of the biggest challenges will be the technical committee.

Ron M. said we need to form a committee with IEEE and hopefully we can get some volunteers from IEEE.

Ron B. noted that the last couple meetings have been heavily into academia which was not as interesting. He wants to design the Call for Participation carefully to avoid this.

Aaron suggested that we also consider the keynote speaker to be someone that fits into the central theme.

Key mentioned asking authors to prepare a short synopsis of each panel presentation yesterday, then a blog post about it backed by a recording of their presentation. Each GWAC presenter yesterday would produce their own materials.

Ron B. would like to create a common GWAC slide set for GWAC members to borrow from for their presentations and also increasing efforts to promote GWAC members as available speakers. He also discussed other speaking opportunities for GWAC members noting that he has an opportunity to talk at the T&D World conference in September 2023. He suggested creating slide sets that could be used by GWAC speakers.

Ron M. suggested that we try to have a GWAC preference and selected meetings that are relevant. And he suggested that GWAC members suggest meetings relevant to their work where a GWAC rep could present.

Ron B. said that there are three key slides that he likes to include about GWAC in presentations that he gives.

Kay said that if presenting to Maine PUC, when talking about architecture, is it permissible to use some GWAC slides?

In reply to Kay, Ron M. said to GWAC attendees, that as GWAC members and associates, you are empowered to represent the Council, with your own views, but also mentioning your GWAC affiliation as appropriate as a presenter. GWAC is supported by DOE but is not contracted with GWAC members. Council members represent GWAC but not DOE. We are asked not to use the DOE logo with GWAC materials. GWAC is separate from DOE.

Ron B. mentioned that other GWAC presentations are available for council members and associates to use in future talks. Jaime added that the Council should invite others to participate in meetings with the Council and grow the participation.

Ron M. added that a GWAC template is available for the Council to use when preparing GWAC talks or GWAC slides.

Action: Add a GWAC slide template to the GWAC Teams site.

Aaron suggested the upcoming T&D World Live meeting to be held in Sacramento, September 12 – 14, 2023. The topic will be the future distribution grid.

Action: add T&D World to conference list

Marc Costa mentioned speaking spots at regulatory commissions. He said GWAC members might be welcome as panelists.

Ron C. said likely we could only do that by invitation.

Ron B. said we can request an invitation as GWAC representatives. He also suggested that GWAC form a standing “speakers bureau” which could be socialized on the GWAC website which would help to drive the interest. Groups could use the web link to request a GWAC speaker.

Jaime suggested that the GWAC blog posts will be a good source of future speaking topics.

Ron B. and Ron M. mentioned that past GWAC tutorial presentation materials are located on the GridArch.org SharePoint. The GWAC Stack and Maturity Model are also past topics.

Ron C. suggested making a simple catalogue of speaking materials with brief descriptions to help the Council in accessing them by topic. Links could be built in as well.

Action: create a catalogue of GWAC presentation materials.

Ron B. said we don’t need to go back very far. Just presentations from the last couple years would be the most up to date.

Ron M. mentioned the IEEE newsletter as well as the IEEE PES newsletter as possible opportunities for GWAC to publish in. These are not formal publications.

Aaron suggested NRECA's publication also. He said they just hired someone from DOE.

Ron M. said we should be applicable there. He also noted TechAdvantage which is something that the NRECA does.

Ron B. said that ASHRAE also has a monthly journal, and he will be contributing an article for the May issue.

Kay asked about an IEEE special issue. They had done a grid arch issue a couple years ago.

Upcoming Guest Speakers

Ron B. has reached out to potential speakers from Sun Spec Alliance, Emerge Alliance, and Green Button Alliance to speak at upcoming GWAC meetings. He has heard back from two out of three of them that they are interested.

Aaron mentioned WISON which is an outgrowth of SGIP, related to field area networks.

Ron M. suggested someone from the CIM Users group.

Ron B. asked about the project that Avi Gopstein just completed at NIST.

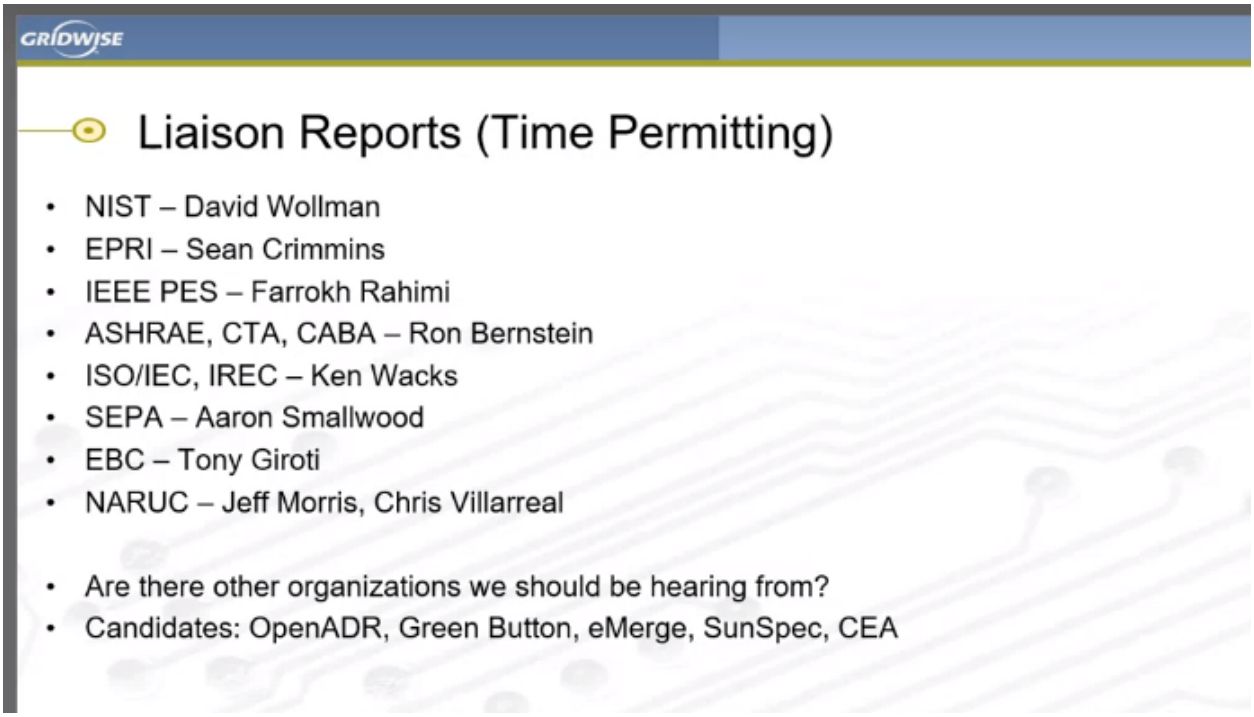
Ron M. noted that David Wollman reported on Avi's framework publication at the beginning of this meeting.

Ron B. suggested the DOE Building Technology Office. Chris has contacts there for us.

Jaime has an EPRI contact in addition to Sean Crimmins, the GWAC Liaison.

Leonard suggested the Office of Energy and Transportation. Ron M. said Chris is pretty connected with that group. EV work is spread around pretty well at DOE, it is not only tied to that office.

Ron M. said that Chris could give us an update on Transportation and help us to find the best contact.



Ron B. noted that he works with PNNL's Mike Poplawski on CTA pretty frequently.

Jaime mentioned that he may need another speaker for the Grid Edge panel in San Diego since Ken can't join. Kay will be in San Diego and Ron B. is also willing to help if needed.

ASHRAE - Ron B. said there is an update to guideline 13 which should be out in June. It is on building automation specifications. ASHRAE will do a workshop on it in June.

CTA network protocol standards will be moving into IEEE and when that happens, he likely will then move from CTA to IEEE to shepherd those standards.

He noted that the 2045 model is getting more traction, ASHRAE is interested. Several states including Massachusetts Is looking at it and Washington, Oregon and California have been moving to implement it.

Jaime mentioned that Seemita Pal had asked earlier in the chat if GWAC will updated its mission and focus as an upcoming task? Jaime suggested making this a topic at a future meeting. Might be good to pick a meeting that has no guest speaker to allow enough time for the discussion.

Action: Schedule a discussion of the GWAC mission at a future GWAC meeting with no scheduled speaker

Ron B. said he agreed with that idea.

Ron A. said that we have more focus now for the future of the GWAC to have that discussion.

Meeting Minutes

Feb. 8, 2023

Aaron told the group about his experience working in developing countries. They are just now going from analog to digital and they aspire to follow some of the most progressive markets. But this is such a big leap. He asked if anyone had any suggestions to help them.?

Ron M. said evaluating budget constraints against goals would be helpful.

Jaime suggested the recently published paper by Avi Gopstein.

Kay said that most of Africa skipped the land line world and moved into cell phones. That would be a use case to follow. They hopped over a step or two.

Kay suggested cellular grids.

Aaron said that growing from the outside in might be a way to look at it. He said they tend to build projects that are just enough.

Aaron said they tend to spend all available funds but then have no funds left to maintain and upgrade.

Kay suggested that messaging about the need for on-going support and maintenance be addressed to the donors.

Ron B. said that the donor class wants power and return on investment. Lessons learned might be the messaging.

Aaron said he's been thinking in terms of the bridge example.

David Wollman rejoined the group and Ron B. asked him about using the NIST facility for a GWAC conference. David replied that the remodel is still in progress, and it prevents them from hosting large events. The remodel will be completed sometime in 2024.

Ron B. also asked about security process for foreign nationals.

Dave said they would need to clear a government process for coming on campus. Also, some monitoring of their whereabouts on campus is needed but it's pretty simple.

Ron M. said that IEEE may not approve that location.

Ron B. noted that the next GWAC meeting date will be March 15 and Marc Costa will present.

For future speakers Jaime will contact those proposed and someone from Open ADR.

There were no objections to ending the meeting half an hour early.

Ron B. adjourned the meeting.