

Meeting Minutes

March 17, 2021

GWAC Members

David Forfia, GWAC Chair
Kay Aikin, Introspective Systems
Ron Ambrosio, Independent Energy Transformation Professional
Ron Bernstein, President, RBCG, LLC
Andrew Bordine, VP Energy Mkts & Innovation, Anterix
Ron Cunningham, American Electric Power
Gerald R. Gray, Sr. Program Manager, Electric Power Research Institute (EPRI)
Lorenzo Kristov, Principal, Electric System Policy, Structure, Market Design
Stuart McCafferty, President, GridIntellect
Ahlmahz Negash, Sr. Engineer, Tacoma Power
Farrokh Rahimi, Senior Vice President, Open Access Technology International, Inc
Aaron Snyder, Director of Grid Technology Consulting, EnerNex
Leonard Tillman, Partner, Balch & Bingham, LLP

GWAC Associates & Emeritus

Mark Knight, Burns & McDonnell
James Mater, QualityLogic, Inc.
Jeff Morris, Principal, Energy Horizon Corp.
Chris Villarreal, President, Plugged In Strategies
Ken Wacks, Home, Building & Utility Systems

GWAC Members and Assoc. not present

Rahul Bahadur, Mgr. of Eng., VMWare, Inc.
Mark Paterson, CSO, Strategen

GWAC Guests

Fatima Amara
Ward Camp
David Toquica Cardenas
John Chowdhury
Larisa Dobriansky
Chris Irwin, DOE
Jaime Kolln, PNNL
Jay Luboff
Alex Papalexopoulos
Hayden Reeve, PNNL
Tim Schoechle
Elizabeth Sisley
Aaron Smallwood
David Wollman, NIST

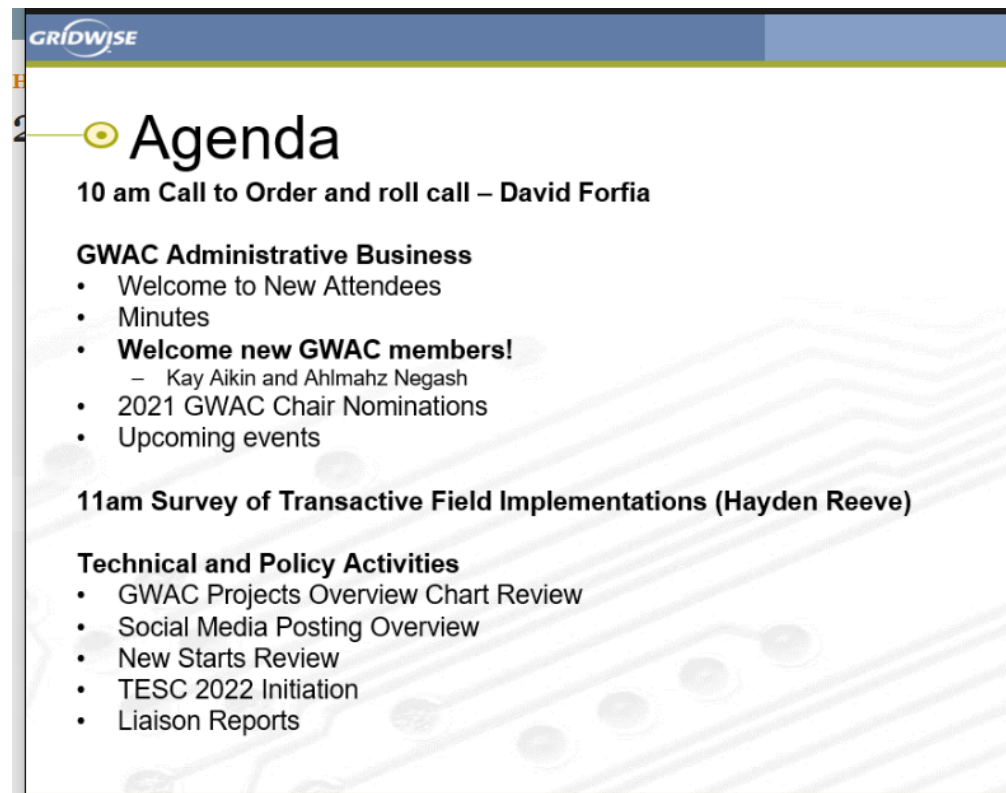
PNNL Support

Karen Studarus, PNNL Administrator
Susan McGuire, GWAC Coordinator
Ron Melton, PNNL Administrator Emeritus

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GWAC Administration



Agenda

10 am Call to Order and roll call – David Forfia

GWAC Administrative Business

- Welcome to New Attendees
- Minutes
- **Welcome new GWAC members!**
 - Kay Aikin and Ahlmahz Negash
- 2021 GWAC Chair Nominations
- Upcoming events

11am Survey of Transactive Field Implementations (Hayden Reeve)

Technical and Policy Activities

- GWAC Projects Overview Chart Review
- Social Media Posting Overview
- New Starts Review
- TESC 2022 Initiation
- Liaison Reports

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Karen Studarus made note of the current 13 GWAC members and welcomed Kay and Ahlmahz.

She noted that all GWAC members, associates, emeritus, and guest participants are welcome to participate and contribute to GWAC meeting discussions and work products.

Karen noted that edits to the minutes have come in from Leonard Tillman, David Forfia, Kay Aikin, Rahul Bahadur and Ken Wacks and their suggested changes have been made.

David Forfia asked for a motion to approve the minutes. Ron Cunningham gave the motion and Ron Ambrosio seconded the motion.

No objections were made, and the minutes were approved.

Karen noted that today, GWAC needs to nominate and elect a Chair for 2021.

Ron Ambrosio nominated David Forfia, and Farrokh Rahimi seconded the motion

David Forfia agreed to serve to the end of 2021 and noted for the minutes that it is his last term. He hopes to be able to step down in 2022. He offered to mentor the new chair in 2022.

As current Chair, David asked if there were objections to his serving in 2021.

No objections were made. The group indicated their approval.

Karen thanked David Forfia for his willingness to serve as 2021 GWAC Chair.

The group congratulated David Forfia.

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GridWise

Conferences and Events

(**Bold** = GWAC speakers, **blue** = complete since last GWAC meeting)

- AHR Expo 2021, Chicago, IL, cancelled
- Smart Energy Summit, Virtual, Feb. 23-24, Apr. 28, Aug. 4, Oct. 27
- IEEE PES General Meeting 2021, July 25-29, 2021 Virtual
- Solar Power International (SPI) Sept. 20-23, 2021 New Orleans, LA (SPIE affiliated)
- **TESC2022 – May 2022**

Upcoming meetings and conferences

Karen asked the group if they agree with David Forfia that a Fall F2F meeting might be plausible if the COVID vaccinations continue to progress.

There was consensus in favor of an in-person Fall F2F meeting. David Forfia suggested that we optimistically choose October 2021 as a tentative date.

Karen reminded the group of this planned date for the next TESC meeting in May 2022. She asked what dates might be conflicting.

Action: Add a Fall GWAC meeting to the calendar - F2F preferred

Ken Wacks suggested adding the Connections: the Premier Home Automation Conference to the GWAC conference list. It is planned for May 25 and 26 and a round of ISO/IEC meetings should be in that time frame.

Ron M. -noted the IEEE ISGT to be held Feb. 16 - 18, 2022 as a Virtual meeting <https://ieee-isgt.org/program/>

James Mater suggested adding DistribuTech Jan 26 - 28, 2022 in Dallas

Chris Villarreal suggested the NCEP scheduled for Sept. 13-15 (tentative) maybe in person. It is the National Council on Electricity Policy Meeting. This meeting is free and open to the public. Session planning is underway. He was not sure if GWAC members will be speaking.

Ron B.: suggested adding the 2022 ASHRAE Winter Conference Jan. 29 - Feb. 2, Las Vegas NV. In-person format is expected. <https://www.ashrae.org/conferences/2022-winter-conference-las-vegas>

AHR Expo, Jan. 31 - Feb. 2, 2022, Las Vegas Convention Center

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Action: Add Premier Home Automation Conference, IEEE ISGT Feb. 2022, DistribuTech, NCEP, ASHRAE Winter 22 and AHR Expo 2022 to the conference list.

Progress & Accomplishments

- 2006 – Interoperability Constitution
- 2007 – Interoperability Decision Maker's Checklist
- 2008 – Interoperability Context Setting Framework
- 2009 – Interoperability Benefits Papers
 - Environmental Benefits
 - Financial Benefits
 - Reliability Benefits
- 2010 – Interoperability Decision Maker's Checklist update
- 2011 – Smart Grid Interoperability Maturity Model Beta Version
Electrical Power Engineering Academic Landscape
- 2007-2012 – Grid-Interop Forum
- 2011-current – Transactive Energy Workshops, Framework, Checklist & Infographic

GWAC Projects

Project	TE FAQ	Smart Buildings as Transactive Hub White Paper	TESC Conference	Website Refresh	Grid Future States	New Starts 2021
Scope	Long version of document reiterating key features of TE systems as documented in TE Framework, etc. is out for review	Discuss use case for building integration with grid and how/what a TE model might look like	Annual GWAC sponsored conference focused on Transactive Energy and related topics	Modernize GridwiseAC.org	Update Grid 3.0 Future States	In Committees
Audience	Policy, Regulators, Legislators, TE Practitioners	Building owners, energy managers, utilities, end users	Decision makers, solution providers, labs, academics, policy, solution providers	Audience	Industry Stakeholders	Decision Makers
Status	Short form complete, long version released at TESC29	Published	Program structure created for virtual or F2F	Awaiting release from PNPL to share externally	Started in January. Now meeting regularly. Coordinating with GMLC Grid Architecture results	Prioritize
Actions	Post to new website	Address peer review comments	Promote conference, work on identifying and recruiting keynote(s) and plenary panels	Updated Membership, added analytics, security scan	Working group is gathering inputs and organizing material and has a work plan	GWAC Membership
Leadership	Tanya Barham	Ron Melton, Ron Bernstein	Various – Karen Studarus, lead	Karen Studarus	Ron Cunningham, Karen Studarus	

Activity Matrix

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Karen noted that there are several new tasks to be added to the matrix and some to come off.

The group for the Grid Future States Assessments is meeting on the first and third **Thursday** of the month.

Ron Cunningham said some new artifacts have been submitted. They will be added for assessment. They are new publications in the last year.

The group is continuing to work and will be starting on the work plan to complete the products by sometime this summer if not sooner.

Website Refresh

Is being reviewed for release outside of PNNL. Analytics are being added. Karen hopes to be able to post the link soon. She is working with PNNL IT.

Financial records are being finalized for TESC 2020.

Smart Buildings as a Transactive Hub white paper can be taken off the matrix.

Ron M. noted that he and Ron B. will be talking about an article for the IEEE Electrification magazine related to the SBATH white paper. The white paper is located on the GWAC website so it was agreed that this can be removed from the matrix.

Action: Remove the SBATH white paper from the GWAC activity Matrix

Karen commented that Steve Widergren is working to publish a short article about the TES Conference in the IEEE Power and Energy Society magazine that will feature some technical accomplishments of the conference as well as some screen shots.

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GWAC Branded Social Media Postings

Content	March	April	June	Aug
Scope	What is Transactive Energy from a GWAC perspective?			
Audience	Policy, Regulators, Legislators, TE Practitioners			
Status	Will complete by end of month			
Venue	LinkedIn / Energy Central			
Leadership	David Forfia			

Karen commented that the TE FAQs can be removed (short and long are complete).

Action: Remove the TE FAQs from the GWAC Activity Matrix

David Forfia said one of the goals that the GWAC had set this year is to have a minimum of six technical articles for social media posting per year starting in 2021. David will take the lead on the first article which will be on Transactive Energy. He will create a brief article on this topic. It will be based on previous GWAC discussions. There are five more open slots and David will be reaching out to others to get the others started. David will track who has been asked and what the general theme is. Ideally, we would publish one every two months.

For the first article David will send a draft out for GWAC review, hopefully by the end of March. He will work with Stuart McCafferty on it. It should be 6 or 7 paragraphs.

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● New Work Products – Value, Interest and Timeliness?

- Make Grid Architecture accessible to more decision makers
- GWAC Lexicon
- Recruitment and Retention Plan for new GWAC members
- Identify what the next pain point is for the industry? (What problem are we solving and for whom to shape our work plan?)
- Extension of NIST SG Framework with DOE GA results
- Engagement with CEATI, LFE
- Grid Architecture Playbooks for Policy Makers, Regulators, Researchers, Market Designers
- Update documents and outreach around GWAC stack
- FERC 2222 analysis and outreach
- Decentralized Ops/Control sync points
- Survey of Coordination Approaches
- Develop a reference architecture tool
- Clean Power Plan / Decarbonization focused guidance?

Karen reviewed the original list of new products and highlighted some that are in progress.

She noted that the group has focused in the past on Transactive Energy and Interoperability and going forward would like to see the GWAC pivot toward getting our grid architecture more accessible to decision makers and more broadly adopted. These products could help stakeholders to better understand the complexities of the grid and its implications for the future.

She wants GWAC to stay vigilant about what is on the horizon that the Council should be watching. It is an on-going call to action so that we can stay ahead of what's coming.

Not a lot happened in the last month on many of these. She would like to check in with everyone to capture any updates.

Lorenzo has been thinking about Grid Architecture accessibility by policy makers - and he has sent a write-up to Chris Villarreal for his review. He was thinking in terms of "what may be the reasons why Grid Architecture is not synching with regulators. What are they doing instead?" We could diagnose why this is happening and then look at the value proposition for policy makers. They are sketching it out.

He also said on FERC 2222 that Larisa is very interested and had volunteered to write something up and did so on the limited view that 2222 is taking, which is that DERS is participating in RTO wholesale markets which is really a narrow slice of the whole spectrum of distributed resource possibilities. What transpired is that these two topics are related. FERC 2222 is federal regulatory policy. A little Grid Arch is in it and it does mention coordinated frameworks and it does talk about coordination. He would like to hold a meeting with Larisa and Chris. Lorenzo had spoken with Mark Paterson yesterday about it and he expressed interest. Australia is having problems and our looking at some re-designs of their systems,

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but this is proceeding in ways that are not the wisest and it doesn't consider grid architecture. He said that Mark Paterson sends his greetings to the committee. Others are invited to join as well, please let Lorenzo know. Kay Aikin has also expressed interest.

Farrokh Rahimi said that he is very interested in collaborating on this task.

Action: Lorenzo to host a meeting on FERC 222 with Larisa, Kay, Chris, and Mark Paterson.

Kay Aikin said her notes say that she and Stu will start working on Decarbonization.

Kay will also start on the Survey of Coordination next week and will communicate with Lorenzo.

Action: Stuart McCafferty and Kay Aikin to work on developing a task on Decarbonization

Action: Kay Aikin and Lorenzo Kristov to start a task on Survey of Coordination

Karen encouraged everyone to let her and Susie McGuire know if they would like to get involved with any of these tasks.

Stuart McCafferty said that in the last meeting the group had decided not to start digital twin at this time.

Action: Karen will remove Digital Twin from the Activities slide

John Chowdhury asked about the Australian comments and Karen offered to put him in touch with GWAC Associate Mark Paterson. John also asked about the standard 2030.5 and asked if any interest is there in this standard and implementing it by 2023.

Karen asked if GWAC would be able to add value to this standard? John said that issues related to DER/implementation issues concern John. He works with east coast vendors and there are a lot of unknowns about this standard.

Karen said GWAC leans toward strategy issues rather than implementations.

Ron C. noted for John some current SEPA activities in this area.

James Mater said IEEE 2030.5 is already mandated. He also said that GWAC is not typically interested in specific standards, they are focused at a higher level.

Ron M. said the standard referred to is IEEE 2030.7 on microgrids.

John commented that he is interested in DER Integration. James Mater said he would be happy to talk more with John offline.

Ken said that is the point where utilities do direct load control - he feels that it is falling out of favor. He said that internationally they are leaning toward control at the premises.

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David Forfia provided Mark Paterson's contact for John:

<https://www.linkedin.com/in/strategiccollaboration/>

James Mater asked Karen if we should include a task on the next pain point in the industry? Karen said a workshop on this topic could help us to create a new work product. She would like everyone to think about it and she would like to host a short workshop on this topic in the next month or so.

Action: Karen to add Next Pain Point to the potential new tasks list and schedule a short GWAC workshop to discuss ideas.

Action: Karen and Susie to Update the Action item and new task list.

Ken Wacks suggested a discussion on Microgrids and how they can coordinate DER in communities, neighborhoods, office parks, and other various settings. How do you maintain electrical parameters, voltage, and frequency in a microgrid?

Lorenzo replied that there is a lot of work going on in that area. There are several demonstration projects underway. The energy commission is investing in pilots. Probably any investigation would likely need to start with a survey, or if you have a clear idea of areas that are not being addressed?

Ron A. said GWAC has a scope of highly distributed energy coordination and microgrids are a part of that. Not sure what specifics GWAC could contribute to as a group but is a part of Transactive Energy and has always been that.

Ken said he is interested in how microgrids fragment and coalesce for grid resiliency. He said GWAC has never really dealt with the macro issues.

David noted for the group that new ideas are coming in quickly today, but this is March and suggested the group focus today on what is achievable and what we want to do the work on. He commented that we have more items than council members.

Chris Irwin commented to the group that there is currently a lot of attention in DC on the electrification of transportation, electrification of industrial processes, electrification of ports and things like that. Chris said if the electrification future comes true - then the reliability on the grid and the resilience of the grid become unacceptable with no change on our side. He suggested that we could maintain the same reliability but then underserve because society's reliance on the electric system has increased dramatically. He explained that he brought this up because Michael Kintner-Meyer noted to him earlier this morning that in the EU, sector coupling is where you have interdependencies across sectors instead of across networks. Chris said if Electrification comes true such as with EVs- his question for GWAC is "what is the net increase in reliability or resilience relative to today that we should aspire to?"

Chris replied to James Mater that he is offering a perspective for a new topic; not providing an answer.

In the chat David Forfia commented, "Chris-I'll suggest less than 74 hours of controlled load shed would be a good start for improved reliability." And Ron Cunningham commented, "To Irwin's topic and the

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ask of what amount of change in e.g. Resilience, is that we yet need to get to a reasonable way to quantify/measure resilience.”

Jeff Morris said his group would probably plus one the microgrid comment but he wanted to note that he thinks the focus should be on the transactive area between substations and meter coupling on circuits - we think there is more than four times the value there than what we see on KAI SOS but there is no showcasing of a transactive or DSO type signal might look at on that that level. What we put into a microgrid for a platform for a building or a microgrid is the same product, it's just applied in different places. A building or microgrid could interact with a utility and extend the optimization through the meter but there's not a good showcase of how that would work. We have seen places like SDG&E where they get enough granularity on their distribution systems where you can see that well. He noted a case in Texas where there were some utilities that had the ADMS technology to modularize, but they didn't have the capability to communicate with microgrids or DERS on those circuits where they could have brought some of those circuits up with rooftop solar because there was enough penetration. He said there's not been a focus on the top 200 hours of peak capacity hosting and ancillary services on those circuits and wondered what a transactive signal might solve for rate payers, utilities and customers.

Jeff said he also agreed with Chris Irwin's comments.

Karen said those were great points. She asked the group to consider what products can we come up with in these areas for the most impact?

Kay said Connected Communities opportunity is trying to address Jeff's point. Not exactly but there are about 15 transactive projects with potential. DOE will have the opportunities to explore the below the substation Transactive energy world with some of those connected communities' programs.

Karen introduced Hayden Reeve, PNNL to talk to GWAC about a TE survey he is doing.

Hayden invited all GWAC Members, Associates and Friends are asked to participate in a survey of Transactive Energy Field Demonstrations which will be conducted in the coming months by Hayden Reeve, and Steve Widergren, PNNL. They are hoping to find interested participants who can comment on current demonstrations in the U.S. or international demonstrations including those that are now underway or have been concluded. The group is hoping to get a complete picture of what is going on. Hayden said that he recognizes that there are different types of Transactive Energy under research and all are of interest as well as any related technologies that are also being demonstrated.

GWAC participants with an interest in various aspects of the research who would like to know more are invited to send comments about their areas of interest and they will be included in the survey.

As the boundaries of the project emerge Hayden will update interested participants.

Those interested in contributing to the survey should contact Hayden Reeve, haydenreeve@pnnl.gov or Steve Widergren, steve.widergren@pnnl.gov

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Action: Interested GWAC participants to contact Hayden Reeve or Steve Widergren with their interest in the TE survey.

Liaison Reports

NIST - David Wollman has two links to share today:

Characterization of Residential Circuit Impedance, by NIST staff, Ehsan, Guo, Anand, and Gopstein, published by IEEE on net zero, this is based on the net zero house at NIST and some harmonics. Should be of interest to those involved with buildings.

<https://ieeexplore.ieee.org/document/9372248>

Guidance recently published related to NIST's cyber security framework; we've been doing a profile for position navigation and timing services as part of a larger government effort; it will help in identifying systems using PNT services, sources of data, threats to services, and to protect systems that are dependent on these services. The effort was sparked by an executive order to strengthen resilience for position navigation timing. The smart grid effort has contributed to the broader understanding of this issue and that's the resulting profile. "*Foundational PNT Profile: Applying the Cybersecurity Framework for the Responsible Use of Positioning, Navigation, and Timing (PNT) Services*" link:

<https://csrc.nist.gov/publications/detail/nistir/8323/final>

ISO/IEC - Ken Wacks said the next meeting for home and building systems including energy management will begin May 17 for 2 weeks. 2 to 3 hours per day calls. It is an international meeting so hours will be adjusted to accommodate most.

Ken also mentioned a new group called the Interstate Renewable Energy Council (IREC). IREC will now host the Customer Grid Edge committee, formerly hosted by SEPA.

The Kick off for Customer Grid Edge (CGE) will be March 26 at 1:30pm EST. IREC was formed in 1982 to support the rapid adoption of clean energy and energy efficiency. They are very interested in regulatory issues. They deal with technical standards including the installers for solar energy systems and other DER.

They will meet every 2 weeks. There are no membership fees, nor any cost to participate. Website Link: <https://irecusa.org/>

Ken also reminded the group that ISO/IEC have published GWAC documents and they are open to additional documents when the group is ready.

Aaron Smallwood - SEPA -

SEPA category of standards <https://sepapower.org/knowledge/catalog-of-standards/>

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The 2021 candidate class includes 2030.7, and orange button. Please check their website and technical reference library. The catalog of standards is a list view but a revamp is in progress.

Last month he mentioned some recent papers. The VGI Integration paper and he highlighted some case studies with PPL that he did on their DER Integration and DERMS projects and utility business models for grid connected storage. This month a few technical projects from the working group program will be highlighted: Community Solar working group is doing a case study about a large utility-lead community solar program, in this case it is FPL's "solar together" - program, it's been going on for about a year. For Cyber Security we have an energy IOP subgroup that's developing a matrix of EIOT threats and mitigating controls, a larger effort that they are undertaking of case studies and risk profiles evaluating how NISTIR interface category 6916 is being implemented in the field and how it is being used. It is new technology and there is a need to revise some of those categories. We have had the first in a series of information gathering workshops with industry and we are looking forward to that work. The Grid Architecture chair and vice chair are on this call and may correct me if I misspeak; they are developing a Grid Architecture Primer covering utility and regulatory relevance and the intent is to provide a layman's introduction to what Grid Architecture is. They are also working doing some work on the applicability of taxonomy and ontology to the electric industry. There is also a microgrid group and they are looking at large-scale fleet electrification and more specifically at fast-charging and a second white paper on legislative and regulatory microgrid activities. The testing and certification working group has taken on a lot of things such as implementation profiles for EV fleet managed charging and also an effort to develop DER interoperability profiles; we are working with NIST on that - interest has been growing on that.

The Grid Evolution Summit has been broken up into several regional virtual events; this year the main event, also virtual will be July 27, 28 2021. <https://sepapower.org/grid-evolution-summit/>

Regarding the North American Smart Energy week, AKA Solar Power International, SPI, it is scheduled for Sept. 20 -23, 2021 in New Orleans. We are still on for having it in as both in person and virtual. There will be on information on microgrids, solar, storage, wind, fuel cells, EV, and more.

Everything mentioned is on the website: <https://www.solarpowerinternational.com/north-america-smart-energy-week/>

Ron Cunningham - Transactive concepts model is coming out - a knowledge graph representation of it that will be coming out in a month or two.

Gerald Gray - EPRI: Gerry provided a link to a newly published technical report on extreme events entitled, "Exploring the Impacts of Extreme Events, Natural Gas Fuel and Other Contingencies on Resource Adequacy," <https://www.epri.com/research/products/000000003002019300>

Ron B. ASHRAE and CTA - work in cyber on devices, facilities, and enterprises, on how to deal with specification dev for cyber standards when things communicate outside within a system to other facilities. Link provided to a PUF article video on cyber security. It is well done and relates architecture

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design as it relates to the security hack of water treatment facility in Florida. They use a defense in depth model that the military uses for their cyber security. Ron has been using this model for about 20 years as how to manage barriers between different elements of a system. It seems to be a hot topic and an important one. ASHRAE has a committee on Cyber Security. Ron just co-authored an article which should go into the ASHRAE journal on designing cyber security for building automation systems with the chair of the cyber security group. It's a short intro to the topic. We are hoping to get input on how to implement solutions that cross over between a facility and a utility and what are the elements that go into it if you are going to expose the things like controls capability for a process for something outside of the system.

<https://www.fortnightly.com/videos/cybersecurity-101-everyone>

There is a new standard coming out of R7 in CTA that focuses on webservices for automation and control systems. This is something that's been worked on for years, it's been voted on in stages and should become a new standard in ANSI called IAP web services. It's along the lines of how do you interact with things in a facility or devices in the field from a secure and reliable interface from browser based applications?

There is also work going on about securing devices from a certificate standpoint using SSL and TLS and some other details happening withing the ASHRAE back net committee. There are some updates happening soon. Lots of things happening in both organizations.

Ron A. said the Florida event was very near his location. He said it had potential for high risk and makes an interesting case.

Ron B. said it makes an interesting case for proper checks and balances.

Ron B. mentioned his talk for the Georgia Bar; his talk about how to develop access to systems and how to deal with legal, insurance and indemnity.

Ken Wacks asked if insurance companies are influcing companies to up their game on cyber security?

Ron B. said that is a huge concern and indemnity is the key word. All the downstream suppliers and service professionals are involved with that issue.

Hayden Reeve said that insurance topics are seen often now on the research side because of energy insurance needed for cyber security with operational technology systems which are regulated and they have to disclose their pricing for different risks. Researchers are asking how the insurance market is pricing these different risks.

Ron B. said insurance companies are going back to system designers and asking for proof that the checks and balances are put in place. So insurance companies will be influencing designs and standards.

Ken said building codes for fire protection were started a century ago from insurance companies' pressure. Ken said he is participating on a committee from MIT that is investigating the business

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impacts of cyber security. Many companies have demonstrated that when they have a breach their money is better spent on public relations rather than on better engineering.

Chris Villarreal added on indemnification the fact that many utilities are using indemnity to act as a barrier to entry for third parties are looking for access to customer information; particularly in New York state but in other regions as well. If a 3rd party is acting for consumers in seeking to access information with customer consent, utilities are increasingly putting indemnification in contracts for third parties to get data but typically they can't sign because they are acting on behalf of the consumer and not the utility. Since third parties cannot sign, the utilities say that they can't share the information on customer usage information with a customer authorized third party. Indemnification should stay with whom it is trying to protect or apply to such as with utilities, utility contractors and vendors, and not with third parties acting on behalf of the consumer. Utilities are looking at shifting their risk to an entity who the consumers want to work with.

Ron A. said it will shut things down because companies won't be able to accept that indemnity. He noted that if someone says "I want this" then we need to look at how to get all the puzzle pieces needed to make that happen? Or do you abandon it? But like Chris said, if you abandon it you will lose business opportunities.

IEEE Farrokh - IEEE Transactive Energy blockchain enabled energy systems that fall within the overall framework on blockchain in energy was an activity under the IEEE standards group on IEEE P2418.5, the standard on blockchain in energy. As of January, it became a individual based activity and now it is under IEEE PES under smart buildings, loads and customer systems that Ron M. is chairing. For the IEEE PES general meeting in July, there will be panels on Blockchain based TE energy system architecture. We will probably also have some related panels for ISGT 2022 next Feb. He noted IEEE P2418.5 - Standard for Blockchain in energy

Ron M. added that we have three subcommittees under the smart buildings, loads, and customer systems technical committee. A load subcommittee, an architecture subcommittee and a subcommittee that has been dormant for the last year; smart buildings and customer systems. We've just elected a new chair for the 3rd one. So that committee will become active again. If anyone is interested in joining this committee, please let Ron know and he will forward your name to the new chair.

Ward Camp - EBC - Ward noted that he has stepped down from representing EBC. He will still attend as an emeritus member. He's not sure if they will appoint another liaison. He will still attend GWAC meetings as an emeritus.

Action: David will reach out to Tony Giroti about the future liaison for EBC.

Chris Villarreal - NARUC; in the aftermath of the winter meeting last month, not a lot is going on. Summer meeting planning will start in about a month. It is likely to again be virtual. FERC is having several technical conferences. The first one on March 23 is about resource adequacy in the evolving electricity sector, the next one on April 29 is on electrification and grid of future, and a two-day

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workshop in June will be on climate change, extreme weather and electric system reliability. He also noted that FERC recently set up an office for the public to participate in FERC meetings. There may be more specific topics called out on interoperability and grid of the future. For now there is nothing further to report.

Lorenzo Kristov asked about something FERC discussed recently related to FERC order 2222.

Chris said there were two separate panels largely designed to let commissioners talk to one another about what to do. Chris said he doesn't participate in these meetings. But based on what he's been told there will be stronger interest from certain states to get more assistance from FERC on how to act in response to FERC 2222. So not just what RTOs will have to accomplish but regarding what things fall to the states to accomplish like data access rules and DER aggregator registration requirements, interconnections, and more. These items have been left to the states and the District of Columbia. Some are seeking some guidance.

Lorenzo said FERC 2222 doesn't allow utilities to opt out of enabling DER aggregations to participate which means that being able to do that will involve some costs that regulators are going to make decisions about. So there will be a strong interest in figuring out what's needed and what's not.

Chris said that there is strong interest in this and some states are better situated than others.

Farrokh Rahimi mentioned jurisdictional challenges on FERC orders 745 and 841 provisions that deny the states the right to opt out of the FERC requirement on the utilities to allow DER participation. He asked: Are the states going to go along with Order 2222?

Ken said the supreme court ruled on it.

Farrokh said he is aware of that but with 841A; because it happened twice he was wondering if it is happening for the third time with FERC 2222 if the states will go along with it.

Chris said the main difference between these orders, 841 and 745, is that 745 let the states can decide to opt in or out of allowing demand/response aggregation. With 745 the Supreme Court ruled in favor of FERC. All the RTOS had to develop demand/response aggregation tariffs.

With 841 FERC did not give states opportunity to opt out. They removed that ability. NARUC took that part of the order to the court of appeals. The DC Circuit affirmed FERCs authority to set requirements on RTOs to craft tariffs under 841 even without the option for states to decide whether opt out of participation. So 2222 - does not allow states to opt out of participating in DER aggregation.

However, to make things complicated, FERC did not overrule it's prior finding of FERC order 745. In MISO and SPP states, which do not allow demand/response aggregators, demand/response will not be included as a DER in MISO and SPP markets; unless or until FERC overturns it's decision 745; which is a pending complaint to do just that.

Ron A. asked if that means that 745 and 2222 conflict with each other in a sense?

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Chris replied, yes. There is a conflict in what is included in a DER aggregation for states that have opted out of demand response aggregation. He went on to say that he's not sure what NARUC will do, if they will go back to the courts to seek to change that. Chris said that FERC order 2222 does still leave the state with a lot of authority in how the programs will be structured. States still have to set up the registration process. States can still craft rules around double counting and they can still say that you can't be in two programs that do substantially the same thing and be compensated once. There is still a lot of coordination to be done between states and the RTOs.

Lorenzo asked Chris if anyone wants to object to that aspect of it they would have to file for a hearing at FERC first, correct? Chris agreed and then Lorenzo said that he hasn't seen a hearing request on this come in.

Chris said that yes they would need to first ask for a re-hearing at FERC on 2222 and then you could go to court.

Lorenzo also said that he heard from ISO New England that they are struggling with a conflict between 745 and 2222 around the double counting question. He said the way that 745 is constructed, there is a kind of double payment for the demand reduction in DR, whereas 2222 says that you have to avoid double payment. But you do have to allow DR to be included in an aggregation. So he wondered how one resolves that conflict. He said that the guy in New England told him they are really struggling with that one and not sure at this point how they will resolve it.

Karen noted that all Liaison contacts have commented. She said that we will follow up on the new tasks and actions to ensure that we have the right information and to discuss what we can get started.

David Forfia said he would be contacting some of the group regarding future social media posts.

Meeting Conclusion

David Forfia suggested a motion to adjourn the meeting.

Ahlmahz Negash gave the motion to adjourn and Kay Aikin seconded the motion.

Hearing no objections David announced that the meeting is adjourned.

David reminded everyone that the next meeting will be April 21.