

Meeting Minutes

April 21, 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

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

Rahul Bahadur, VMWare, Inc.

Mark Knight, Burns & McDonnell

James Mater, QualityLogic, Inc.

Chris Villarreal, Plugged In Strategies

Ken Wacks, Home, Building & Utility Systems

GWAC Members and Assoc. not present

Ron Cunningham, American Electric Power
(absent, excused)

Jeff Morris, Schneider Electric

Mark Paterson, CSO, Strategen

GWAC Guests

John Chowdhury

Christopher Fleck

Tony Giroti

Jaime Kolln, PNNL

Alex Papalexopoulos

Tim Schoechle

David Wollman, NIST

PNNL Support

Karen Studarus, PNNL Administrator

Susan McGuire, GWAC Coordinator

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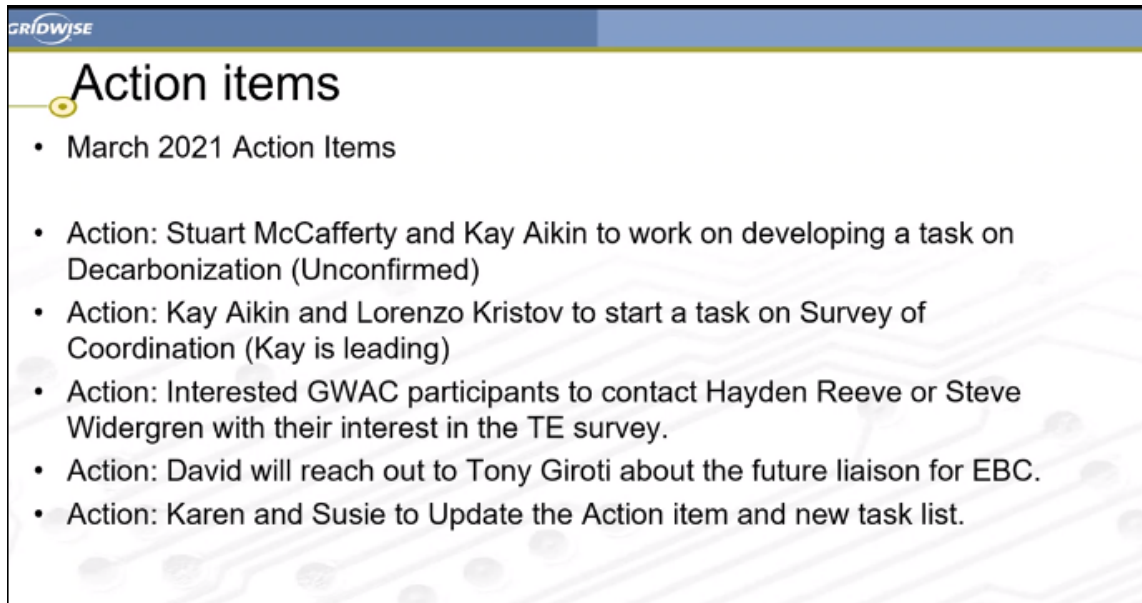
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GWAC Administration

David Forfia called the meeting to order at 12:04pm Central time.

Aaron Snyder noted that he had a brief but important announcement for the UCA IUG that he will present during the Liaison reports segment.

David Forfia asked for a motion to approve the March meeting minutes. Susie McGuire noted that edits to the minutes have come in from Farrokh Rahimi, Leonard Tillman and Ken Wacks. Their changes have been made to the master copy. Farrokh gave the motion to approve the minutes and Ron Ambrosio seconded the motion. With no objections the meeting minutes were approved.

A screenshot of a presentation slide. At the top left is the 'GRIDWISE' logo. The title 'Action items' is in a large, bold, black font. Below the title is a bulleted list of action items. The background of the slide features a faint, stylized circuit board pattern.

- March 2021 Action Items
 - Action: Stuart McCafferty and Kay Aikin to work on developing a task on Decarbonization (Unconfirmed)
 - Action: Kay Aikin and Lorenzo Kristov to start a task on Survey of Coordination (Kay is leading)
 - Action: Interested GWAC participants to contact Hayden Reeve or Steve Widergren with their interest in the TE survey.
 - Action: David will reach out to Tony Giroti about the future liaison for EBC.
 - Action: Karen and Susie to Update the Action item and new task list.

Karen Studarus gave a briefing of new GWAC activities. She also reminded everyone about the Transactive Energy survey that Hayden Reeve and Steve Widergren, PNNL are doing. Any GWAC participants who would like to provide comments to them please do.

GWAC has registered the next TESC conference with IEEE for the first week of May 2022.

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Conferences and Events

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

- Smart Energy Summit 2021, Virtual, Apr. 28, Aug. 4, Oct. 27
- Premier Home Automation Conference, May 25 – 26 2021
- IEEE PES General Meeting 2021, July 25-29, 2021 Virtual
- NCEP Sept. 13-15, 2021 (Nat'l Council on Elec Policy)
- Solar Power International (SPI) Sept. 20-23, 2021 New Orleans, LA (SPIE affiliated)
- **GWAC F2F – Fall Meeting**
- DistribuTech 2022, Jan 26 – 28, 2022, Dallas, TX
- ASHRAE Winter Conference, Jan 29 – Feb. 2, 2022, Las Vegas, NV
- AHR Expo, Jan. 31 - Feb. 2, 2022, Las Vegas Convention Center
- IEEE ISGT 2022, Washington, DC, February 16 – 18, 2022
- IEEE Rural Electric Power Conference REPC, Cleveland OH, May 17 - 20
- **TESC2022 – May 2022**

GWAC related Conferences and Events

Karen reviewed the dates of the upcoming conferences. Farrokh noted that the dates of ISGT 2022 need to be changed to: Feb 21 - 24.

Action: Change the Conference slide to reflect the updated dates of the ISGT. (completed for next month)

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GWAC Projects

Project	TE FAQ	Smart Buildings as Transactive Hub White Paper	TESC Conference	Grid Future States	New Starts 2021
Scope	Final 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	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	Industry Stakeholders	Decision Makers
Status	Short form complete; long version released at TESC20	Published	Program structure created for virtual or F2F	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	Working group is gathering inputs and organizing material and has a work plan	GWAC Membership
Leadership	Tanya Barham	Ron Mellon, Ron Bernstein	Various – Karen Studarus, lead	Ron Cunningham, Karen Studarus	

GWAC Activity matrix

Ron Cunningham is leading Grid Future States but was not able to attend today. But the work is proceeding and he is hoping for a publication in early summer. The group is meeting twice monthly.

Lorenzo Kristov is starting a new group; they had a 2nd meeting yesterday. Lorenzo identified the question they are starting with is, “given all the work on Grid Architecture, and all the tools, and concepts available, there is still little adoption in the policy and regulatory realm - what can we as GWAC to do alleviate that?” He noted that more information is needed from people in state commissions, not necessarily the commissioners themselves. There is a wide range in that group as to who knows about Grid Architecture. Some know nothing, some know a bit, and some are more proactive in their states on issues such as a high energy, high DER future. The group is currently called, “Application of Grid Architecture in the Policy and Regulatory Arenas.” Participants are Lorenzo Kristov, Larisa Dobriansky, Kay Aikin, Farrokh Rahimi, Chris Villarreal, Mark Paterson and Karen Studarus.

They are making some talking points and are creating a list of regulators and policy makers from which they will gather information and learn where they are at, what their problems are, what are their states mandates and long term goals? The purpose is not to educate or inform them but to simply find out what is on their minds, what are the biggest issues, and what do they know on about grid architecture.

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They are revising the set of questions and refining them. They will then make a list of individuals that the team will reach out to. The plan is to take what they learn from the conversations and do some analysis to then devise a second round of engagement where they will start to build the value proposition for Grid Architecture and also start to provide some very specific ways that they can begin to take action using grid architecture.

Ken Wacks asked if the nature of engagement will be by email. Lorenzo said that it's more of a real time conversation. Lorenzo envisions one on one conversations or even two on one.

Ken suggested that they might need to be ready to adapt the conversation to the person because of the range of familiarity with the topic. Lorenzo agreed.

Ron Ambrosio suggested that the team encourage the regulators to talk with their staff and get their feedback about the topics.

Negash asked who is most impacted by the work of the council or who should be? Should it be commissioners or are there other groups who would benefit from this outreach?

Ron A. said over the years they have focused on that question; it's very important to think about who in policy and regulatory as well as in the business and technology domain should they reach out to? It's an important question to consider.

Lorenzo said they are for now looking at regulatory officials and their staff. They are getting proposals coming into them. That is the initial take on what his group is doing right now. They had identified silos as one of the big challenges currently. In the regulatory level, there are embedded legacy proceedings and structures. These silos may prevent architectural thinking.

Kay said on her list it would include the head of the PUC as well as governor's energy council, and the director of efficient utilities and public advocates. Basically, everyone who touches the electrical grid. All four will have different views.

Karen commented that this is one group and they are approaching one element. She also noted that GWAC will have a brain storming session on Friday about what the council can do to identify pain points and emerging problems that GWAC may want to tackle now. We will find what should be targeted in the near term and also in the long term.

David Forfia said he posts some comments to a broader audience on LinkedIn. He noted that this particular discussion is for a communication channel that is more up close and personal with regulators.

Ken said all this points to the environment of the particular state which could be a lot of work. He said the complexity and politics of who controls things in each state might emerge rather than the mechanics.

Ken Wacks gave an example of the challenges that a similar GWAC group had about ten years ago with a similar effort trying to find who made the decisions.

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Kay said that is why they are doing it individually through personal interactions.

Lorenzo commented that the game plan is not firm yet, and feedback and discussion is helpful to the group. The group will continue to report back to GWAC and get input from the council.

Kay Aikin mentioned the effort regarding Survey of Coordination. Lorenzo and Kay are both currently on multiple groups. Kay has sent out a framework and Lorenzo may comment about it but considering other items currently in progress, it would be best to hold on that one until some of the other efforts are well under way.

Action: Hold on Survey of Coordination for now

Stuart McCafferty said that Decarbonization has lost a little momentum with the departure of Tanya Barham. However, the group had roughed out an outline; climate change, the need to transform energy systems, greenhouse gases, and the idea of a carbon neutral society. Stuart named other subjects behind these main concepts. A high level roadmap to a carbon neutral society would be helpful. Stuart has passed an outline out to the subgroup. Negash expressed interest in assisting.

Ken Wacks mentioned an earlier online call with the CEOs of DOW, IBM, Amazon - saying all have plans to go carbon neutral and that they are all ambitious plans. The companies are not looking to buy their way out with carbon offsets. Ken said it was a live panel discussion and Ernest Moniz, former head of the DOE, led the discussion today. He sees the industry focus on carbon reduction. He read some of his notes from the meeting that was earlier today. He described some of the technology they expect to modify for the effort.

Stuart said that sounds fascinating but might be a good topic for another subgroup. The group will talk about it. Ron A. agreed.

David Forfia thought it might be a good topic for a GWAC social media article. David asked to note this in the minutes so that Stuart will be expecting a call from David about the opportunity.

Action: David Forfia may suggest a social media article on the Carbon Reduction focus of major US Industry

Stuart thanked Ken for mentioning the industrial commitment to decarbonization and said he might be a better choice for writing the article.

Lorenzo asked Stu as what he sees as the GWAC tie in to the decarbonization effort.

Stuart said some of it is historical, they are looking at the current state the energy industry and the need that we have in transforming energy systems. Then getting to carbon neutrality. Solutions are not out there yet; flexible markets, and carbon offset markets could be part of it and maybe also DER integration and coordination systems and DERMs, and maybe also potential standards like Open FMBs and IEEE 2030.5 for integrating to energy resources. They are working to create an action summary such as a high level roadmap.

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Karen asked if coordination is a role for GWAC and she noted that there are a lot of moving parts to it as well as players.

Lorenzo said it sounds like the linkage is DER integration. He said decarbonization will be built on necessity using Distributed Resources of all kinds including clean, and flexible; so, the GWAC link is about how we create the structure and architecture to enable efficient, rapid, clean, cost effective, and intelligent use of distributed resources.

Stuart agreed with him and said that electrification might be the other piece of it.

Lorenzo said that electrification will involve DERS of necessity as well and Stuart agreed.

Kay added that the title is, “Electrical Grid, the lever to decarbonization,” adding that we won’t get full decarbonization until we get the changes to the electrical grid so that it can provide the needed energy. She added that we are shifting energy from fossil fuel based to electricity based, saying that we have to leverage the electric grid to make that happen. Decarbonization flows through the electrical grid. If you don’t have an electrical grid that can handle it you can’t even get past stage one.

Lorenzo said the title doesn’t tell us that we are interested in distributed local scalable resources. The grid as a whole could be the entire bulk power system. He doesn’t think that is where we view this is going.

Kay mentioned a conversation with a state senator, who said we will build up the bulk transmission system but the problem is that we will be electrifying loads on the distribution grid so the distribution grid has to change. So, you go down the list step by step and as you do you will get more granular and you will end up with DERs to properly control architectural changes to the grid.

Lorenzo said maybe the title should be, “The electric distribution grid as the lever to decarbonization.”

Stuart suggested the title be, “Modernizing the Electrical Grid,” because it is primarily distribution, but the bottoms up approach goes all the way to generation, so you can have bulk clean energy as part of the equation.

Ron A. agreed with Stuart saying that we don’t want to lose sight of that; a lot of the challenge is in the distribution system and that enabling bulk generation to become more renewable and decarbonized will require a lot of changes in the distribution grid to support that. We don’t want to make this a distribution grid only discussion.

Lorenzo agreed but expressed a concern. He said if you don’t put distribution in it will be seen by many stakeholders as “let’s build big transmission and large utility scale power plants all over the country.”

Karen said she has heard a couple of champions here and she noted Ahlmahz and Stuart, saying that it was originally Tanya’s idea.

Stuart said he hasn’t led anything yet so he will step up to take this effort. He will set something up next week. Ahlmahz said she would be happy to join the effort. Stuart will send her the existing outline. He

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asked the GWAC if they would like to see the outline saying that he would welcome feedback. He will work with the group to consolidate the outline some since it is a bit long currently. Ron Bernstein and Leonard Tillman said they would be happy to help edit. Larisa Dobriansky said she will join the effort. Many others expressed interest in seeing the outline.

Action: Stuart McCafferty, Ahlmahz Negash, Larisa Dobriansky, Ron Bernstein and others to meet next week on Decarbonization. Stuart will lead the group and will get a meeting scheduled and send the outline out for comments.

Kay said that she has been on a regulatory reform and decarbonization initiative for the state of Maine. It was funded by the Nature Conservancy. She said there is some good regulatory language in it regarding where we must go and gave the link: <https://www.nature.org/en-us/newsroom/maine-modernizing-electric-grid/>

Karen thanked everyone for their input on this new task area. She said this will help GWAC be more influential in that space.

Karen noted that she and Jaime Kolln, PNNL, have been reviewing past GWAC documents to see where they have been cited. She noted that the TE Framework last released in 2019 has had 192 citations and that the Interoperability Context Setting Framework 2008 has had 110 citations. Karen and Jaime will give the council a breakdown of GWAC publications. They are looking at promoting some of these documents through social media posts and the website. They will get the information about what is getting pick up for the May meeting; expect to see a more detailed breakdown on this material next month.

Action: Karen will report on GWAC publication citations at the next GWAC meeting

— Liaison Reports

- NIST – David Wollman
- ISO/IEC JTC 1/SC 25 – Ken Wacks
- SEPA – Aaron Smallwood
- EPRI – Gerald Gray
- ASHRAE – Ron Bernstein
- IEEE PES – Farrokh Rahimi
- EBC – to be determined
- NARUC – Chris Villarreal

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Liaison reports

NIST - David Wollman noted that Avi Gopstein will speak at an IEEE this month, he posted a link. Doug Houseman will also be speaking at the same meeting.

David noted that GWAC voted down the digital twin paper in favor of a decarbonization paper. He said that his NIST colleagues recently put out a draft paper on digital twin for comment. It includes some definitions and also looks at it from cyber sec perspective. He provided a link on that. He said there are many opinions.

IEEE meeting link - <https://ieee-sustech.org/program/special-sessions/#ss2>

NIST digital twin document: <https://csrc.nist.gov/publications/detail/nistir/8356/draft>

GWAC - David Forfia will be asking someone to do a social media post soon. David plans to post one this month on the GWAC TE FAQs. He will slow down another activity to finish this and will also call on someone to do one in May. He was hoping to align his with the GWAC website rollout. Stuart said he would be happy to work with David on the post in progress. The length would be 3 to 5 paragraphs. If the website isn't ready in time, they will post it on LinkedIn.

For the next post David suggested something on an existing GWAC work product or one in progress.

UCA/IUG - Aaron Snyder said with sadness announced the recent passing of UCA/IUG Chair, Ralph Mackiewicz. He noted that because of this there will be a board position available. He asked anyone interested to please let him or Gerald Gray know. The board will move quickly to find a new chair. There is also an executive committee where one could also get involved. He noted that in the past there have been several GWAC participants on the board.

He explained the name of the group is the Utility Communications Architecture and International Users Group. Originally EPRI used to have a UCA group. To separate what EPRI was doing and to create a different environment they created a User's Group. The three legs were the standards development, User's Group and Industry. Together they serve as a user's group for the IEC Common Information Model. UCA can certify people who run tests. It is beneficial for the groups to demonstrate their conformance to a standard. The group provides a forum for users to meet and discuss problems and to develop standards. They also host Interops and plug fests. They test standards. Sometimes they test all standards at once at the "Mother of all Plug Fests," that Gerald Gray coined the name for.

Gerald said it is the parent group for 621850 CIM User's group and Open FMB Users group currently. It was also the precursor for green button.

UCA started in the 1990s per Ken. He discussed a bit more on the background of the group.

ISO/IEC - Ken Wacks announced that the Semiannual Meeting will start May 17 and the group will be meeting 2 to 3 hours per day over a period of time. The organizers are expecting participants from

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nearly every continent. They got approval to start new projects on a common platform for a variety of applications. They are focusing the gateway to become a platform, not just for communications within the house to outside, but as a platform to support applications including energy management. Please contact Ken if you are interested in joining. They are the largest voluntary standards organization on the planet, headquartered in Geneva, Switzerland. Ken would be happy to talk with anyone who is interested in joining the effort and would like to know more.

Ken Wacks reminded the group IREC is continuing to meet every other Friday at 1:30pm Eastern time. No membership fee is required. They cover customer grid edge aspects of the utility. If anyone wants to know more please contact Ken Wacks. Ken noted that Kay Aikin will be speaking to the group later this month. Link: irecusa.org

SEPA - David Forfia for Aaron Smallwood who is unavailable today but sent an update. There is a link provided below to a downloadable utility profile based on responses.

David note that the testing and certification group is working on interoperability document including the EV Fleet managed charging use case. Aaron provided some information about this below. They are also working on a profile for DER interoperability with a vendor agnostic to be posted by the testing and certification group also.

Karen asked about the Grid Architecture Primer that SEPA is working on. Ron Ambrosio said there are some changes going on with it but he, David Forfia and Ron Melton will keep us updated on it. They will make sure that it ties in with GWAC efforts and that there is no duplication of effort.

Action: Ron Ambrosio, David Forfia and Ron Melton will keep GWAC informed on the Grid Architecture Primer in progress by the SEPA Grid Architecture working group.

SEPA Liaison Updates from Aaron Smallwood to the GridWise Architecture Council:

- UTC launch & details
- Interop Profiles status and next steps
- NASEW/SPI update

SEPA's inaugural Utility Transformation Challenge has launched and been published. The launch event is available to view here: <https://sepapower.org/utility-transformation-challenge/>

That site includes a downloadable Utility Transformation Profile that provides insights into the dataset that's based on analysis of 100+ utility responses to the survey. It identifies top trends and challenges of utility transformation in four areas: 1) clean energy resources, 2) Corporate leadership, 3) Modern grid enablement, and 4) Aligned actions and engagement.

The survey represents 135 individual utility responses representing 83M, or 63% of all US electric customer accounts.

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There are other resources based on or derived from the survey results, all available at that site.

Interoperability Profiles Development @ SEPA

Sponsored by the SEPA Testing and Certification Working Group, the SEPA Interoperability Profile task force continues to develop an EV Fleet Managed Charging use case that will be used as a foundational source document for an Interoperability (application) Profile for EV Fleet Managed Charging.

The interoperability profile is designed to provide an open standards based implementation to achieve interoperability for EV Fleet Managed Charging – primarily the energy and data exchanges between Charge Station Operators and System Operators.

Another interoperability profile is being developed for DER Interoperability and will begin with a standard-agnostic DER Interoperability Profile reflective of the necessary elements of a DER profile to achieve interoperability, and then applying that Profile to several different implementation scenarios. This work will continue through next year, if interested in participating, please contact Aaron (asmallwood@sepapower.org)

NASEW/Solar Power International, SPI, Update

Our largest event is scheduled as an in-person/virtual hybrid event in New Orleans Sept. 20-23rd. Registration numbers are looking great and we're looking forward to a well-attended show in September. Please see <https://www.solarpowerinternational.com/> for more info, or contact Aaron (asmallwood@sepapower.org)

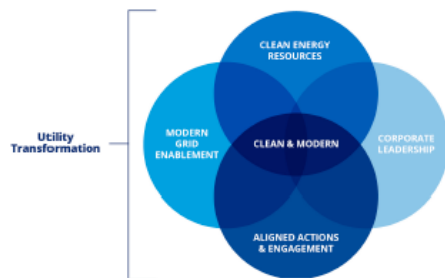
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2021 UTILITY TRANSFORMATION PROFILE SUMMARY



The electric utility industry is engaged in a fundamental transition to a modern, carbon-free system. In recognition, SEPA has undertaken a new survey-based effort to measure and honestly assess utilities' progress across multiple dimensions. We've named this effort the SEPA Utility Transformation Challenge and expect it to allow SEPA to track this important transformation over the next decade and beyond. Over 130 utilities of all types, sizes and geographic areas participated in this inaugural survey.



What did we learn from evaluating the utilities leading the clean energy transition?

- Explicit commitments to carbon reduction are an important and necessary first step for utilities. Utilities with stronger commitments have made the most progress.
- The transformation goes beyond clean energy resources. A comprehensive approach is needed that touches all dimensions of utility business and operations.

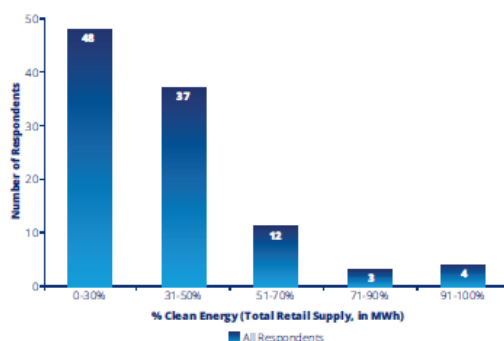
- A transformation of utility culture is necessary. Leadership, transparency and accountability facilitate the transition to a clean and modern future.
- Utilities can't achieve a carbon-free system alone. Leading utilities are proactively and strategically working with stakeholders to facilitate the transformation.

From our analysis of this year's surveys, we identified a leaderboard of utilities who have demonstrated the most progress toward a clean and modern grid.

Leaderboard Utilities (in alphabetical order)

- Austin Energy
- Consolidated Edison of New York
- Green Mountain Power
- Holyoke Gas and Electric Department
- Los Angeles Department of Water and Power
- Pacific Gas & Electric
- Sacramento Municipal Utility District
- San Diego Gas & Electric
- Seattle City Light
- Southern California Edison

2021 UTILITY TRANSFORMATION PROFILE SUMMARY



Despite progress, much work remains. Based on analysis of the survey results, SEPA identified five recommendations for utilities pursuing their transformation:

- Strengthen carbon-reduction commitments by setting ambitious, science-based targets, with interim goals and detailed plans to achieve them.
- Address the transformation comprehensively across the organization through changes to processes, programs and structures that will accelerate clean energy adoption.
- Embrace the clean energy transformation as a core element of the utility mission and culture. This will require changes, such as linking executive compensation to carbon

reduction goals, establishing transparent emissions tracking and reporting, and pursuing internal carbon reduction initiatives.

- Engage customers, technology partners, peer utilities and regulators early and often to build a common understanding and shared vision.
- Integrate equity considerations and goals into efforts to ensure all community members can participate in and benefit from the clean energy transformation.

SEPA's work on utility transformation goes beyond measuring where the industry is today. We are focused on accelerating the utility transition to a modern, carbon-free system. The world does not have the luxury of time on carbon reduction. We need to move quickly.

The full report is on the [SEPA website](#) and includes detailed survey results and associated insights.

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Gerald Gray - EPRI is recognizing Earth Week. There is a low carbon resource initiative. And there will be one on clean energy and equity. He will post links to these webcasts. They are publicly available.

<https://www.eprievents.com/event/89481fb2-0375-492b-91d4-d9ddf1d17237/summary?locale=en-US&i=BWk5vkjTokyGLUA4EJNM6w>

ASHRAE - Ron B. said he has the outline of an article or white paper that he has started and would like some feedback on. ASHRAE has some on-going activity within the working groups around specifications for building energy efficiency. They want to have a new version of the document by this summer with a publication goal after the edit process of January 2022. He will share a brief of it if he can later on.

Ron noted that his work is more on the facility side at a high level such as corporate standards and involve grid or energy conduit to them.

Ron shared a slide:

Utility to Facility – Invest, Integrate, Interoperate – The future of generation and demand management of a stable energy supply.

Alternate

Utility to Facility – Intelligence, Integration, Interoperability – The state of generation and demand management for a stable energy supply.

A brief discussion of key questions and opportunities facing the future of the energy sector with a focus on facility to utility change management.

- Where can DC to the facility fit in the overall distributed energy architecture?
- Are there practical user-based AI device/system applications that can help manage to a more efficient and stable grid?
- What is required at the facility domain to improve energy usage patterns?
- What lessons have we learned from the “stay at home” pandemic response relating to energy usage patterns?
- How will infrastructure investments in the NA grid change how we address climate change and behavioral patterns?
- Does micro-generation at the community level have a future growth path to offset centralized generation/distribution and can the co-operate and support greater reliability, choices, and costs.
- Are there cybersecurity threats and considerations to design grid services for greater security?
- Where do industry initiatives and standards fit in the effort to achieve stable energy supply?
- How does the electrification of transportation change how we use energy and what will facilities need to do to accommodate these needs?

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Ron Ambrosio commented that he preferred the first title shown on the slide. He also said this is a great deal of content and might support a couple of articles or white papers.

Ron B. said the topic is big and he hopes to help people who are making management decisions without much background in these areas. He hopes to give them some direction.

Lorenzo said he wonders about environmental justice and equity in energy transition. He finds it difficult to place concrete meanings around this. What outcomes are we hoping for? He asked Ron B. and others about this topic and how it plays out.

Ron B. said fair access to EV charging in the workplace is an example. Or a community microgrid for communities that don't have the opportunity to put solar panels on their homes. How does a group serve all customers?

Rahul said in his community, disenfranchised neighborhoods have expressed a need clean for tech to address health issues. One solution would be providing more community based storage for solar.

Kay said microgrids has come up in Boston. She is working on developing laws for developers to make their buildings ready to participate in the great grid and community microgrids. Kay may reach out to some in GWAC for help with this. If someone wants to join Kay on this project, they are welcome. It's an effort that should go for three months.

Lorenzo said he has been working with developers in California who have some links for this topic and he will send those to Kay. He said microgrid ready is a new aspect of construction and local governments are putting it in their building codes.

Action: Lorenzo to send Kay links for microgrid ready buildings information

Kay is working with the idea for this Boston effort to label buildings as to how microgrid ready they are. It would be a rating system as to what has been done.

Ken Wacks said there are associations now who are developing these certifications and they are almost competing with each other.

Kay said that Boston is directing him; he is not dictating this rating system.

Ron B. described a business model that would support developers in this. Ron has seen Builders partner with community or utility as a service. In this the Building management provider facilitates power, water, and utilities at a cost. They can share liability. They charge the customers to maintain the equipment. There are some models of this including one in southern Oregon where they are almost off-grid.

Lorenzo said he was interested and would like to know more about this.

IEEE - Farrokh Rahimi - the general meeting in July will be virtual.

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ISGT 2022 in Feb. is going to be either hybrid or virtual - they said it will not be F2F only. That may have implications for TESC 2022 in May. They feel it may be premature to decide at this time. He said for example at this time hotels are not able to predict if they could accommodate a large group. Should be hybrid or virtual only.

He explained Hybrid; pre-recorded presentations but the chance to attend and present in person. Farrokh explained that panelists would submit recorded talks that could be shown to in-person as well as virtual attendees. Anyone not attending in person could watch the presentations and submit questions at whatever time they prefer.

He said hotels have been wanting a guarantee so they had to step back from that due to uncertainty.

Farrokh also noted that Blockchain in Energy is now under PES - Smart Buildings, Loads and Customer systems and Ron Melton is the chair.

EBC - Tony Giroti - gave a slide on the EBC:



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Tony discussed current work at EBC noting they are very interested in Transactive Energy and microgrids. He said that in the last 2~ years they have created a blockchain platform. There are elements of TE in the platform. DER assets can be integrated in the last mile. It also supports customer engagement. It features an asset registry. He's happy to talk with others more offline and can be reached at tony@energy-blockchain.org

EBC has a conference coming in fall and some webinars. GWAC speakers are welcome; topics on TE and DERS would be good. There are also some training sessions coming up if anyone is interested.

EBC Update

- Recent Grants**
 - Received 250K Grant from Arizona Commerce Authority
 - Received 250K as matching Grant
 - Working on a few other Grant Proposals
- EBC's Blockchain Platform: Renewable Energy and Decarbonization Platform**
 - Blockchain based Customer / Gridedge DER integration into the Electric grid
 - DER Asset Registry, Digital ID, P2P Trading (2030.5, 61850)
 - Sustainability: CO2 Offset sourcing, Solar (RE) sourcing, Carbon footprint, Scope calculations
 - Peak Demand, Green Demand: Trans. Energy + DERMS (Responsive generation, storage, and load into the electric grid).
- Projects:**
 - Arizona Blockchain Project: Working with Commissioners, ACA, Working Group
 - Georgia Blockchain Project: NetZero Project - Integration of PV, Battery/Storage and EVs
 - DoD Blockchain Project: Microgrid / Data project
 - ISO/ Blockchain: Finished a POC guidance project for an ISO for DER integration
- EBC Conferences & Webinars**
 - EBC Conference: Fall 2021 Conference (Blockchain and Energy)
 - EBC Webinars: Energy Blockchain Webinars
 - EBC Training: 4 Energy Blockchain Trainings scheduled this year: Feb, June, Oct, Dec

He gave a quick update on the status of EBC and what they are working on currently.

Chris Villarreal - NARUC is still debating the format for the summer meeting. It may be hybrid. The format for regional meetings format may influence their decision.

This fall there will be a meeting on planning distributed interfaces, high DER scenarios, and the growth of DER.

The National Council on Energy Policy meeting is scheduled for September as a hybrid meeting. It will be two and a half day meeting. NCEP is having all of their speakers as virtual but may have in person networking sessions after the panels. Topics identified include high DER scenarios, planning, distribution interfaces and the growth of DER itself. Hoping the agenda will be complete in the next month or so.

David Forfia noted that he made a commitment to do a grid architecture tutorial to several people. He will reach out to those people to schedule for next month. He will teach it and it will be by invitation

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only. In June Utilicast will start offering these classes commercially. David will be doing the class for the people that were bumped from the last class by Jeff Taft.

Lorenzo said that he is interested in FERC 2222 on integrating DER aggregations into wholesale markets. There are many issues on this about transmission and distribution. July 19, 2021 was the compliance date. But now All multistate RTOS are being deferred until next Spring. It has slowed down a bit.

Lorenzo said that he is currently involved in an EPRI project. He said NY and CA will likely comply on time in July. They already have a tariff to allow DER aggregates to participate in wholesale even though tariffs have existed in California since 2016, although no one is using them yet.

FERC just issued 2222A which addressed participation of demand response and has created consternation amongst state regulators as to how to integrate. Many groups including NARUC have objected to an extension of FERCS authority into demand response and they argue that it is not their realm. He is happy to talk to anyone interested about it more.

Chris said NARC and several groups asked for a hearing on FERC 2222A. They feel they are upending policies that have been in place for a decade. We will see how FERC rules on the hearing requests.

Chat comment from Ahlmahz Negash:

"I really appreciated the conversation on equity in the energy transition. Perhaps there is a role for this group in helping to clarify what equity in the energy transition means and what metrics/framework can be used implement an equitable transition. It is indeed a topic that many know is important but still have so many questions about. I'm happy to participate in this topical area too."

David Forfia asked for a motion to adjourn. Ron Bernstein, gave the motion and Ron Ambrosio seconded the motion. The group approved the motion unanimously. The meeting ended at 11:57am Pacific Time.