

## Meeting Minutes

F2F San Diego - Sept. 13 & 14, 2024

### **GWAC Members**

Ron Bernstein, GWAC Chair and President,  
RBCG, LLC

Ron Ambrosio, Independent Energy  
Transformation Professional, Acting Chair

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

Marc Costa, Dir. Policy Planning, the Energy  
Coalition

David Forfia, Principal Consultant, Utilicast

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

Farrokh Rahimi, Executive Vice President, Open  
Access Technology International, Inc.

Aaron Snyder, Dir. of Grid Technology  
Consulting, EnerNex

Leonard Tillman, Partner, Balch & Bingham, LLP

### **GWAC Associates & Emeritus**

Ron Cunningham, Emeritus

Doug Houseman, GWAC Emeritus

Larsh Johnson, GWAC Emeritus

Mark Knight, Emeritus

Jack McGowan, GWAC Emeritus

Tracie Markie, GWAC Emeritus

James Mater, GWAC Emeritus

Ron Melton, Emeritus Administrator

Mia Paget, GWAC Emeritus

Mark Paterson, Strategen, GWAC Associate

### **GWAC Guest Speaker**

Steve Widergren, Emeritus GWAC Administrator

### **GWAC Friends**

Dave Hardin, SEPA

Chris Irwin, DOE OE

Alaa Mahjoub

James Orenstein

Hayden Reeve, PNNL

Tylor Slay, PNNL

### **PNNL Support**

Jaime Kolln, PNNL GWAC Administrator

Susie McGuire, GWAC Coordinator

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### Agenda April 16th, 2024

**Call to Order and roll call**

**GWAC Administrative Business**

- Casa Bernstein Logistics
- Council and Emeritus Introductions
- Minutes
- Call for Candidates

**GridWise Symposium Discussion**

- Successes
- Challenges

**Hosted Lunch**

- Discussion – Future Speakers that will Influence Future Work Proc

**Conference planning**

- Continue with RE+?
- Symposium Topic
- Discussion of Conference Objectives

**GWAC History Overview**

- Moderated by: Steve Widergren, Ron Ambrosio, Ron Melton
- Past and Current Member Experience and Recommendations

**Jack McGowen – Block Energy**

**GWAC 20<sup>th</sup> Anniversary Dinner and Celebration**

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### Conferences and Events

Date	Event	Location	Attend	Speaker	Topic
August 4 - 9, 2024	ACEEE 2024 Summer Study	Pacific Grove, CA		Marc Costa	Energy Efficiency in Buildings
Sept 9 - 12, 2024	RE+ Anaheim, CA & GWAC Symposium	Anaheim, CA	GWAC		
Oct. 1 – 2, 2024	Grid FWD 2024	Banff, Canada	Jaime Kolln, Ahlmahz Negash		
Oct 15-16, 2024	Design Lights Consortium Summit	Milwaukee, WI	Ron Bernstein		
Oct. 16, 2024	Smart Energy Consumer Collaborative	Reston, VA	Ken Wacks, Jeremy Roberts		
Jan. 21 – 23, 2025	IEEE PES Grid Edge Technologies Conf	San Diego, CA	Kay Aikin, Jaime Kolln, Farrokh Rahimi		
Feb. 10 – 12, 2025	AHR Expo and ASHRAE Winter Conf	Orlando FL	Ron Bernstein	Ron Bernstein	Grid Arch/Future States GWAC F2F proposed
March 24-27, 2025	DistribuTECH	Dallas, TX	Forfia, Rahimi		
April 14-17, 2025	IEEE Energy & Policy Forum	Washington?			Formerly ISGT

Jaime Kolln opened the meeting. He read the GWAC Proprietary notice.

Mark Costa gave a review of the ACEEE 2024 Summer Study on Energy Efficiency in Buildings session Aug. 4 – 9 in Pacific Grove, CA. The theme was Equity and Climate Action: Time to Deliver. The co-chairs were Jessica Granderson, LBNL and Karma Sawyer, PNNL. Marc presented a talk on grid integration policy that was well attended.

Ron Ambrosio asked about the possibility of holding a GWAC F2F meeting at the AHR Expo in Orlando. Ron Bernstein, Aaron Snyder, Tracy Markie, and David Forfia plan to attend also.

Tracie Markie said he plans to attend the AHR Expo for Lonmark on Tuesday and he will be a speaker at the buildings event.

About the same number of could attend a January F2F meeting at the IEEE Grid Edge Technologies Conference in San Diego Jan. 21 – 23, 2025, including Kay Aikin, Jaime Kolln, and Farrokh Rahimi.

Another proposed F2F location would be PNNL in March 2025. Mark Patterson, Ron Bernstein, Kay Aikin, Aaron Snyder, and Jaime Kolln said they could attend a F2F Richland in early March.

There are 3 options for a GWAC winter meeting.

**Action: Susie to do a poll about the 3 options**

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Kay said there will be another UN conference in October and Marc Costa will also attend. It will be in the same time frame as Grid FWD Oct 1, 2 in Canada.

Marc Costa described the theme for the UN meeting. Kay is leading a group on grid building integration. He said it is the "UN Buildings Action Coalition Summit, Oct 1-2, Santa Monica, CA"

Farrokh is planning to attend the IEEE PES General meeting scheduled for July 27 – 31, 2025 in Austin Texas.



### Call for Candidates Opens in October!

*Potential candidates should have demonstrated visionary capacity, team effectiveness, and an acknowledged level of recognition and credibility in their professional fields, along with specific skills and experience.*



<https://gridwiseac.org/index.php/call-for-candidates/>

- Application process opening soon
- Call will close on December 15th
- At least one candidate will be chosen
- Council members serve a two-year term



[https://gridwiseac.org/pdfs/gridwise\\_architecture\\_council\\_bylaw.pdf](https://gridwiseac.org/pdfs/gridwise_architecture_council_bylaw.pdf)

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Jaime reminded everyone that the annual Call for Candidates for GWAC will reopen in mid-October. He will be contacting GWAC members to see if they wish to remain on the Council for another term.

**Action: Jaime to contact GWAC members with expiring terms.**

For potential candidates there is a packet of information and forms that will be available on the GWAC website.

Ron B. suggested that all GWAC members be thinking about good potential candidates and invite those who may be interested to participate on some upcoming GWAC monthly meetings.

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Jaime suggested sending those interested a link to the GWAC website and ask them to read through the [GWAC by-laws](#) posted on the GWAC website.

Ron B. asked all GWAC members to update their bios on the website. And Jaime also asked the emeritus to update their bios

**Action: GWAC and Emeritus GWAC to review their bios from the website and update if needed.**

If Emeritus remember the years that they were active in GWAC, that information can be added, just send a message to Jaime Kolln, and Susie McGuire, PNNL.

Hayden Reeve said that he will attend the next Grid FWD conference in October and will be presenting on DSO.

Jaime noted that the GridWise Architecture Council Symposium was held earlier this week as part of the RE+ Conference.

Ron Ambrosio noted that attendance was good for the tutorial and most attending had never heard of the GWAC previously.

Ron Bernstein added that the Symposium covered 2 days, 2 tracks, 11 sessions, with 40 speakers and also held an afternoon tutorial before the symposium that was very well attended. He felt it was an engaging event for participants. He said that the Council curated all the panel topics and then invited the speakers. There were no papers presented.

Aaron Snyder thought the challenges were all things that were beyond our control. The agenda was good, the speakers were good, presentations flowed according to the agenda.

Ron B. noted that all sessions were recorded.

Ron A. said that there was a bit of a conflict for attendees who also wanted to see the RE+ show floor. Several attendees had to leave the Symposium to do that. He said that perhaps a one-day agenda would have been better to give them more time for other conference activities.

Farrokh Rahimi noted that the parallel session did create some conflicts. Jaime and Chris Irwin agreed. Ron A. said it's a tradeoff.

Marc had did not realize that we had a GridWise Architecture Council email address. It is on the website and people can join the friends list from that link  
(Action – consider rewording this for clarity)

Mark Paterson discussed the potential of having a Communications and Impact Strategy

Jaime said that to promote the GWAC, all council members should be representing the Council at meetings that they attend.

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Mark suggesting having six or so key speakers from the symposium speak at a special GWAC meeting in the coming year.

Jaime asked if that would be different than our virtual speakers at the monthly meeting.

Ron B. liked the idea and noted GWAC virtual speakers at monthly meetings have been allowing recordings of their talks to be posted on the GWAC website.

Marc Costa noted that there is a high turnover rate with regulators and legislators so the need for working with them to provide information and education about the grid is continual.

Mark Orenstein recommended GridWise look at posting in Substack. Grid resources. Link: <https://gridreport.substack.com/about>

Another one he follows is Doug Lewin and the Texas Energy and Power Newsletter. He mentioned the DER Task Force, & Luminary Strategies LLC (Arushi Sharma Frank, former Tesla exec & Texas Aggregated DER Task Force vice-chair).

Weblink: <https://www.douglewin.com/p/integrating-distributed-energy-resilience>

David Forifa said there are difficulties in tagging with large conferences like RE+. He suggested tagging with a smaller venue. He said when we had the conference at the Portland WTC, we had more time with the attendees.

David said his own preference would be at the large venues but with less content.

James asked if RE+ was really the audience that we want? He said that we should try to keep the events at no cost.

David talked about SEPA – grid arch is one of their key topics. He sees us well aligned with SEPA.

Steve asked if the Council wants to be aligned with SEPA or RE+ - keep the outcome of the session as the key objective.

Jaime asked how many of these can we do and do we want them to be large or small. We should keep the bandwidth of the Council in mind.

The tutorial on a quiet day as an afternoon activity was very successful – everyone had just showed up and were looking for things to do. There was a lot of agreement on this.

FR suggested IEEE PES and now Energy and Policy Forum April 14-17, DC, 2025 – was ISGT.

Ron B & Chris liked Farrokh's idea for a tutorial.

Jaime liked 18 months between Symposiums.

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Jaime mentioned focus groups.

Aaron noted the need for putting a QR code on our banner outside of the room so people could check out our online content as they walk through the event (like at RE+).

David said that at U MN we had about 50 non-GWAC attendees. With Smart Grid NW we had probably 400 attendees.

Mark Patterson suggested that GWAC identify target entities and individuals in advance and also identify impact and objectives for the next six months for the long run. If we identify our objectives and goals it will help in planning.

Mark Knight said GWAC should focus on strategy first, and then on tactics. He suggested 18 months for Symposium planning. He said the first conferences were in the same location with SmartGrid NW. Having someone who could handle the money and logistics was very helpful. He said the location is actually more important to get early than the date. Some were not financially successful, but the hosting organization took the loss and still had a benefit.

Ron A. said the idea of moving the GWAC around the country was to accommodate a variety of utilities who have little or no budget to travel to attend.

David Forifia reviewed the foundational session and recognized the quality of Steve Widergren's presentation and also Chris Irwin's and also said Aaron Snyder did a great job.

Chris Irwin said Gene Rodrigues is very motivated and passionate about what GWAC is doing. His key points were affordability, reliability, resilience, and security. Chris noted that GWAC doesn't directly talk about affordability, but we *do* talk about democratization. He also liked the way Gene noted that affordability is not necessarily about not spending money but more on making wise investments for the best impact. He was able to tailor his talk to GWAC but may not be so familiar with the GWAC.

Jaime said he has heard Gene talk before, but felt he did a good job on the fly addressing our conference. He had his laptop with, but it wouldn't stay on the podium, so he had to wing it.

Lorenzo said the audience for his panel was people largely comprised of people very similar to GWAC. They discussed envisioning the future of the grid and working on real world projects.

Ron B. noted the audience was very different than an academic audience.

Farrokh Rahimi liked the approach GWAC used at RE+ with no call for papers and paper reviews which takes a lot of time to review.

Ron A. said that the curation of the theme and speakers allowed us to target for the audience we want as well as the impact and a cohesive message.

Lorenzo Kristov liked that we had the discretion to invite people that we know that "nobody else knows."

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Kay Aikin said that with a bit more advanced preparation we could have invited more audience participants from the invited speakers – they could have had time to promote and invite attendees from their contacts.

David recognized the value of Ron B's recording of the presentations ahead of time so that the transition from speaker to speaker was seamless.

Ron B. said he won't do that again; he will hire someone to do that. Ron told Jaime that PNNL will need to get permissions for the speakers' video recordings to be published on the GWAC website.



## Mission and Vision Refresh



### Vision

The GridWise® Architecture Council supports a vision of a decarbonized, decentralized, and democratized electricity system to ensure the energy needs of today and that of future generations.

### Mission

The GridWise® Architecture Council (GWAC) was formed in 2004 by the U.S. Department of Energy to propose principles for and accelerate the development and adoption of interoperability concepts and standards across all applications operating and interfacing with electric systems.

The Council's mission is to engage with stakeholders to accelerate the development and application of grid architecture concepts and principles. This leads to:

- Identification of critical paths to facilitate the effective evolution of the systems, devices, and entities that encompass the electric systems and achieve societal objectives.
- Advancement of standards, applications, and systems interfacing with the current and future electric systems to ensure they are sustainable, reliable, resilient, efficient, extensible, and equitable.

- <https://gridwiseac.org/index.php/mission-structure/>

Jaime said the topic of architecture can be a bit intimidating. He said if we look at the cost of inaction, in terms of dollars, we would have a framework that is relatable to more people.

Ron A. added "or the cost of a wrong action"

Chris asked Mark Paterson if they had calculated a cost of inaction in their work. Mark said they did come up with something along those lines.

The discussion continued around speaking engagements, topic areas, guest speakers, promotion, press releases.



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Mia asked how we can get people to think beyond their usual boundaries and such as where they are right now compared to where there is a lot of value. If people don't know you exist such as regulators, PUCs, and etc., how can you reach them?

Mark Knight said he had a DOE person tell him many years back that the GWAC was the DOE's best kept secret. He added that the TE Framework alone could be an easy source of a 200 – 300-word article for a monthly publication.

Larsh Johnson said we are not selling GWAC, but we are promoting the value of the GWAC and its objectives.

Ron Melton joined the meeting and gave a quick update on what he's doing since he retired in April.

Dave Hardin joined the meeting; he is in Louis Delaware now and still active with technology. He is working with generative AI.

Chris said that GWAC is not actually made up of grid architects. But they recognize a helpful tool and its benefit. Chris said GWAC can't do anything for a state but can say they have seen the primitive future that you would want, and it is through Grid Architecture.

Jaime said GWAC can point people to the tool, but our charge is show the tool and the checklist to others and assist as they do their grid architecture.

Ron Melton said grid architecture is an approach to problem solving. It's used so that "everybody" wins.

Jack McGown said there is another sphere of discussion. Utilities should be part of the discussion. We need some practitioners who will help us to find early adopters to overcome challenges.

Jaime said an assessment checklist about assessing cost might be a good project.

Mark P. said architecture *is* intimidating, until it's not.

Jaime said we need to consider how to get the message out and how to bring in an audience.

Chris said one answer to the question – GWAC offers something like optometrist services so that people can see their own issues more clearly. An GWAC optometrist doesn't just stand there; they help people to see their own future and their own issues.

Ron A. said from the beginning the Council knew they would not be the architects. They would help people see the problem that they didn't know that they have.

Chris said that for interoperability, GWAC inspired the creation of SGIP which made some real developments in standards creation. He reminded the group that the big blackout of 2003 is what inspired the creation of the Office of Electricity.

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Jack McGowan gave a briefing on the Southshore block community of Florida and how they “kept the lights” on during hurricane Ian in 2022. The pilot was developed under a CRADA with Sandia National Labs. This project is on the TECO Tampa electric company grid.



The slide features a yellow and grey background. On the left, there are three images: a pet park with charging ports, a house with solar panels, and an aerial view of the Southshore Bay community with solar panels on the roofs. The main title is 'Southshore Bay Microgrid Pilot'. Below the title are the logos for LENNAR and TECO TAMPA ELECTRIC AN EMERA COMPANY. To the right of the logos is a bulleted list of project details.

### Southshore Bay Microgrid Pilot

**LENNAR** **TECO**  
TAMPA ELECTRIC  
AN EMERA COMPANY

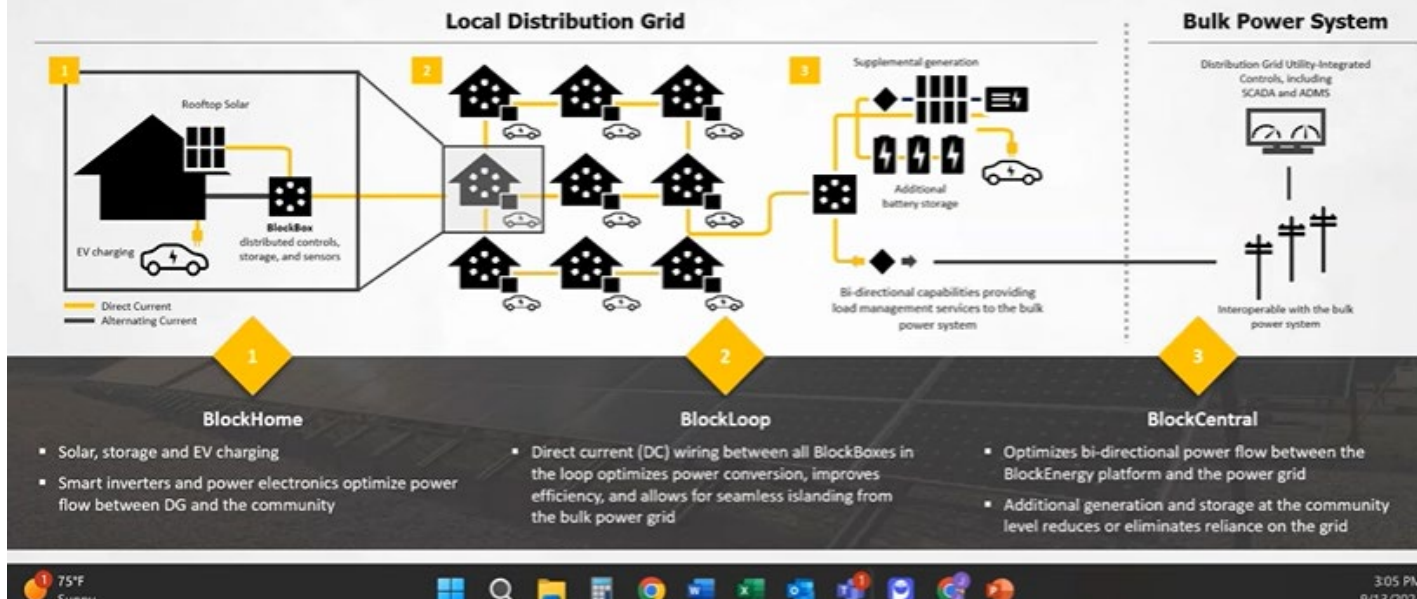
- Utility-owned autonomous DC power system commissioned in 2022 to power 37 homes as part of a new-build community in Wimauma, Florida
- 300 kW rooftop solar installed
  - ✓ Between 6 kW and 10 kW solar per home
- 900 kWh battery storage
  - ✓ 17.8 kWh per home
  - ✓ 240 kWh at the community level
- Configured such that the system never draws from the grid during utility peak hours
  - ✓ BlockEnergy's system has imported 0% of energy from the grid during both wintertime and summertime peak periods throughout its life
- Platform resiliency has been validated to keep the lights on through hurricanes and other extreme weather

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The BlockEnergy platform is designed with cost, resiliency, and flexibility in mind

The BlockEnergy Platform is a fully integrated system providing cleaner, more reliable, secure and cost-effective power to residential communities



The BlockEnergy platform served the development. Batteries are installed below the ground. It is on the Tampa SCADA, but it is separate. The solar and storage are connected in front of the meter. It is paid for in the rate base. The utility can see this system on their SCADA.

There is metering in every block box. They can share power across the street. Every block box has an inverter, it can take DC from a solar panel and put it into an LED.

The homeowners just pay through their rates, no separate cost.

The target market is with the utility. It is being looked at as an energy as a service. It is listed on the utilities balance sheet.

They operated for 5 days after the hurricane. It has microturbines which run on a variety of fuels. It has more than 1 power source.

Jaime said for him, he would have privacy concerns due to the block box.

Jack noted that the BlockEnergy platform is designed with cost, resiliency, and flexibility in mind.

Steve Widergren gave a presentation about the early beginnings of the GridWise Architecture Council.

Ron A. said the first meeting was in May 2005.

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Steve said getting the volunteerism to be recognized was one of his objectives.

Steve said that “letters of recognition” were sent to early GWAC members.



**Happy  
Anniversary  
2004 - 2009**

**Steve Widergren**  
Caretaker, La Ranchita Teresa  
Kennewick, WA

U.S. DEPARTMENT OF  
**ENERGY**



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### **Formational Anecdotes – First F2F Meeting**

July 2004

Westminster, CO

- GridWise Alliance requested name change to avoid confusing acronyms with their “board”
- Make council members feel valued
  - DOE letters of recognition
  - Appreciate their volunteerism
- Vision and purpose generally aligned, but lots of discussion on wording, emphasis
- Service to the nation and the cause
- All members desired impact
- Selecting a chair left hanging
- Guest presentations important to stimulate conversation
- Met Anto Budiardjo (CLASMA), thanks to Jack
  - Crucial bridge to conference & community outreach

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# Interoperability Constitutional Convention

December 2005  
Philadelphia, PA



Steve (IEEE) (Guest)



13 Sep 2024

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Steve recalled how an actor had been hired to play Ben Franklin for the GWAC's Constitutional Convention. The actor was from Philadelphia and had experience at the role. GWAC's first meeting was held in Colorado.

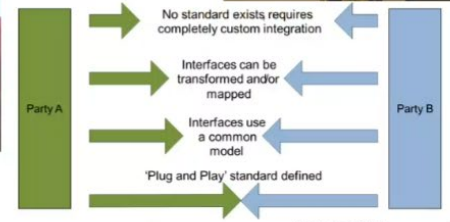
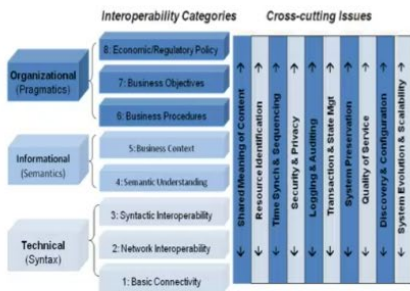
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# Interoperability Workshop

April 2007  
Dallas, TX



Steve (IEEE) (Guest)

13 Sep 2024

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The council did a call for papers in Dallas in 2007.

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GRIDWISE Architecture Council



Nov 2009, Denver, CO

Jointly with NIST – Birth of SGiP



2009 Planning Committee

- Ambrosio, Ron (IBM)
- Budiardjo, Anto (Clasma Events Inc.)
- Drummond, Rik (Drummond Group)
- FitzPatrick, Jerry (NIST)
- Hamilton, Stephanie (EPRI)
- Jarnagin, Ron (PNNL)
- Markie, Tracy (Engenuity)
- Melton, Ron (PNNL)
- Mohn, Terry (Balance Energy)
- Wollman, David (NIST)

2009 Program Committee

- Tolk, Andreas (Old Dominion Univ)
- Cox, William (Cox Software Arch)
- Hardin, David (Invensys)
- Holmberg, David (NIST)
- Melton, Ron (PNNL)
- Oliver, Terry (BPA)
- Saint, Bob (NRECA)
- Simmon, Eric (NIST)
- Violette, Dan (Summit Blue)
- Wacks, Ken (GRIDPLEX Inc.)



Steve (IEEE) (Guest)

November 17-19, 2009 - Denver, CO Grid-Interop 2009

GWAC was noted in ARRA funding before IEEE.

Aaron Snyder noted that EnerNex put this on after getting a contract with DOE in early October. They put this together in one year. Anto was involved. Chris Irwin said at this meeting it was the first time he had to speak on behalf of DOE. He spoke for a total of about 30 seconds.

The group voted on SGiP and Steve Widergren cast the first vote.

Aaron remembers there was a snowstorm around Denver.

Steve said that in EISA legislation, title 13, mentioned GWAC. NIST was involved and IEEE was also noted, and FERC.



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**GRIDWISE** Architecture Council

### Parting Thoughts

Steve (IEEE) (Guest)

13 Sep 2024

Steve Widergren said it was a privilege to work with all of the Council members added that his part in it was thrill of his professional life.

Ron Bernstein thanked Steve for all of his hard work on the GWAC and he also thanked the founding fathers and mothers of the GWAC and pledged to carry the torch on.

Ron Melton said he became the administrator in January 2009. The focus at the time was helping NIST get SGIP started. It became apparent that the council was in the shadow of NIST.

Ron M. said OATI hosted the first meeting on Transactive Energy Systems. The meeting was held in Redlands, California.

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Saturday Morning – Sept. 14, 2024



# The Future of the Electrical Grid How do we get there? Where is “there”?



n (External)

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### Examples of Step Changes over the last 100 years...

- Horse and Buggy – Automobile
- Candle, Kerosene, Gas Lighting – Electric Bulb
- Brick and Mortar Libraries – The World Wide Web
- POTS Telephone – RF Cellular Phones
- FAX – Email
- Typewriter – Personal Computer
- Taxi Cabs – UBER/LYFT
- Passenger Rail – Airplane
- Newspapers – Online News

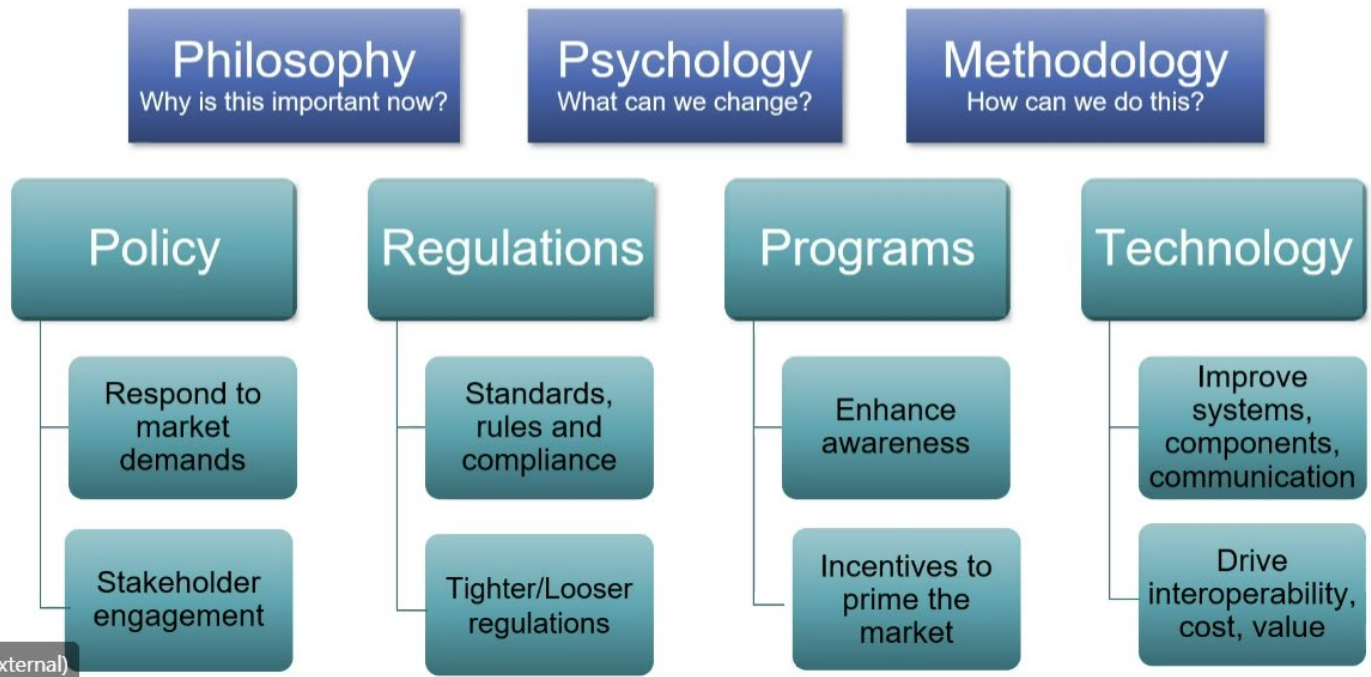


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### Elements of Change



m (External)

Marc Costa (External) 9:18 AM

**MC** Two things related to this chart - diffusion of innovations (bass theory), and the emergence of de facto standards are important to this change theory

Chair Ron Bernstein opened the meeting with a discussion of building back from the future grid.

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He stressed that there should be an underlying philosophy for the basis of the decision making and said beyond that there are psychological and sociological strategies to consider for helping people to accept change.

He gave an example of programs such as incentives for solar rooftop could be put in place to drive implementation.

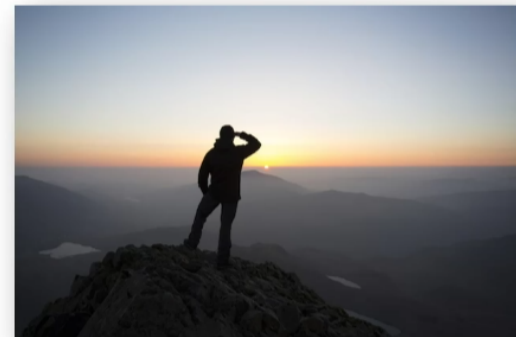
Marc Costa considered how defacto standards transform and why. He asked if this going to be a value-based transition or if there be mandates? He suggested this could be part of the discussion.

Ron B. said that most likely both approaches will be used, and he added that changes in population density will be another driver for change.



## The Future - 25 Year Event Horizon

- 90% reduction of fossil fuel as primary energy source
- Grid architecture shifts to primarily distributed system
- Grid upgrades focus on DERs and utility generation as equals
- Transactive Energy systems common across all sectors
- Safe fusion-based energy sources demonstrated
- No coal-based energy sources on US Grid
- Natural gas source reduced by 50% from 2020
- Grid load increases by 20-40% or more!
- Continued electrification of buildings, cities, transportation



A Stake in the Ground:  
At least 50% believable, achievable, and acceptable

Jaime said that creating the framework for decision making and for assessing technology maturity, in a variety of markets will be a complex challenge.

Ron B. recalled Chris Irwin saying that the Council is like a think tank that listens and brings use cases that are innovative and creative with an awareness of standards.

Farrokh Rahimi said that converting a lot of data to information will have some disparities.

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Ron A. said that GWAC has been effective at addressing at how all these different things on the horizon relate to each other and in helping others to focus on how to translate and interpret these relationships. Awareness is key. He sees the GWAC as needing a methodology in driving what they do.

Jaime sees methodology as being part of policy and regulation.

Ron A. said that an area where GWAC may need to put forward a strawman conceptual view of grid architecture is to make a strong case that it is an important tool for industry.

David Forfia said that looking at the bridge back pathway he thinks of “make and move” use cases for electricity and the need to identify which elements must adapt to those locations. He suggested that we try to look out 25 years to identify which use case will have the biggest impact.

Kay Aikin said we can talk about the four D’s but how can we show the impact they will have? GWAC needs to get others to understand how we are going to affect that change and what policies will be needed.



## 5 Year Event Horizon

- 5 years
  - 20-30% increase in personal EVs
  - 10-20% increase in commercial EVs
  - 15-30% battery efficiency improvements (EV range fears alleviated, charging stations proliferate, industry standards)
  - 10-20% increase in federal and state (some) incentives for energy management efforts to reduce GHG
  - Enhanced electrification of appliances – water heaters, HVAC, dryers, cooking
  - 10-20% increase in DER generation
  - 15-30% reduction in greenhouse gas emissions from utility-based generation
  - 10-20% increase in utility green energy sources across all sectors



Ron B. said that Ford and GM are losing money currently with their EVs primarily because of “range anxiety.”

Ron B. said that Hertz is pushing EVs at their counters and they have tutorials for how to use it.

He said he sees that planners didn’t think about the policy of pushing change for people.

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Jaime said his issue with building a bridge to the future is that he sees no end to the bridge. But we should look at the ideal and our objectives and ask what we can do to guide people to that future state.

Kay said we have to cross a chasm and, but we currently have no way to cross it.

Ron B. said there could be multiple paths to get to the other side.

Marc Costa (External) 9:48 AM

MC so we need a worm hole to the future instead of a bridge to the future?



Aaron said many things are likely to be better in five years, but you probably still won't be able to send your solar power to your neighbor.

Steve said we have a regulatory environment, but the grid needs to be used differently. Old incentives no longer map to today.

Aaron said the cycle is that I am not allowed to put an electron on the grid without a carefully crafted agreement.

Contract that to road operators who would allow you to drive on their road in a crisis.

Farrokh asked who is our audience? We let people use the technology for the benefit of everyone.

Steve said need to change the IRPs. In the DSO+T study, he worked with the Netherlands.

Jaime prefers to talk about value exchange. Right now, there is no way to exchange an energy credit. Could we exchange without converting to a dollar value? Utilities and big customers are able to exchange. But the typical customer doesn't have that ability. It goes to what Aaron was saying. Jaime said in the Netherlands they see it as for the betterment of society compared to US policy.

Steve said it's managed to a different set of goals, not quite as altruistic as what Jaime said but still better than the US.

In chat Marc Costa said: *Here are the slides from an IEA Global Observatory on P2P networks forum I hosted. It has examples from Croatia, Portugal, Scotland,*  
[https://docs.google.com/presentation/d/1yEKqzi5cPo\\_5pHSGnwMIRAJ\\_wBvjid25EtbBJ\\_yMp64/edit?usp=sharing](https://docs.google.com/presentation/d/1yEKqzi5cPo_5pHSGnwMIRAJ_wBvjid25EtbBJ_yMp64/edit?usp=sharing)

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Steve said utilities want to keep running with given equipment as long as possible. He said it's all a game based on the objectives of the players and their strengths.

Ron B. noted that shareholders getting a return on their investment could be the driver. The deregulated market vs the regulated market, we need to know how to adapt.

Aaron said with the Communications industry - before they were making money on copper and poles and now it's with towers.

Ron A. said the business model is driven by policy and regulation. How to allow for new business models to occur.

Jaime said it's not new, customers pay to use wires. Decentralizing scares utilities.

Aaron said if a homeowner installs solar, they will still have to pay to be on the grid and yet they are not allowed to sell an electron on the grid.

Jaime said Walmart can do it, but a single residential homeowner can't.

Farrokh said one thing we can do is look back 27 years when restructure happened in the US with open access to distribution wires. Why can't we simply go back to how that was done under FERC and how the entities move forward with open access.

Ron B. asked who on the regulatory side allows Walmart to sell power that they generate. He also asked if they can they shift power between stores? Looking at the shift and the economic value to them, we know that at this time they can't shift power between stores if they are in different utility boundaries. Could they install their own wires? This is just a hypothetical.

California's energy sales are skyrocketing and customers need help lowering their bills and decarbonizing. The scale of our energy system is enormous. Total electric retail energy sales in 2022 were \$33.6 billion, and natural gas was \$10.6 billion. If California investor-owned utilities (IOUs) were combined into one organization, it would be the 10th largest corporation in California, ranked between Cisco and Qualcomm, not far



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behind Intel, Disney, and Hewlett-Packard, which, unlike the IOUs, operate internationally.

Ron B. considered what are the impediments of the pesky laws of physics; you need to have something downstream that says you are going to play by the rules and set up a microgrid. We need to ask ourselves, what are some of the things you need to do? How to turn on and off things?

Jaime added that is part of being distributed in the “3 D’s.”

David said if we tied it back to open access and distribution, and if we pick a domain, we use grid architecture in a pragmatic way. If the wires aren’t there, we need to keep operating. We can do smaller views to lay the structure out of the audience.