

Meeting Minutes

June 17, 2026

GWAC Members

Ron Bernstein, GWAC Chair and President, RBCG, LLC

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

Ron Ambrosio, Independent Energy Transformation Professional

Ron Chebra, Executive Director, Chebra Consulting Group

Marc Costa, Director of Policy Planning, the Energy Coalition

Yashar Kenarangui, Principal Consulting Eng., Grid Innovation

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

Aaron Snyder, Dir. of Grid Technology Consulting, EnerNex

GWAC Associates & Emeritus

Ron Cunningham, Emeritus

Mark Knight, Emeritus

Ron Melton, Emeritus

Ken Wacks, GWAC Emeritus

GWAC Friends

Larissa Affolabi, OATI

Hawk Asgeirsson

Alaa Mahjoub, Independent Digital Business Advisor

Bruce Nordman

James Orenstein

Chirath Pathiravasam

Hayden Reeve, PNNL

Jeremy Roberts, Green Button

Jiri Skopek

PNNL Support

Jaime Kolln, PNNL GWAC Administrator

Susie McGuire, GWAC Coordinator

Grace Borland, GWAC Financial Coordinator

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Chair Ron Bernstein asked for a motion to approve the GWAC April and May minutes. Susie noted that the minutes have been amended; Ken Wacks had sent in edits for his liaison contribution for May. Shawn Chandler, Vice Chair, seconded the approval for the April minutes and the May amended minutes.

Regarding upcoming conference attendance, Kay Aikin and Jaime Kolln announced that they would be attending Grid Forward 2026.

Ron Bernstein introduced Yashar Kenarangui, Guest Speaker. The title of his talk is ““DERMS,” a Scalable and Resilient DER Coordination Platform; Managing distributed energy resources with advanced coordination technology.”



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Problem Context and Grid Transformation

Complexity and Variability

The grid must manage increasing system complexity from variability and directionality of power flows, increasing # of grid actors, large geography impacts and local variations

Cyber-Physical System Transition

Grid is evolving into interconnected cyber-physical systems requiring advanced interoperability and control.

Multidimensional Challenges

Aligning planning, operations, engineering controls and comms, economic incentives, and policy domains is essential in distributed environments.

Need for Fast-Capacity

Need for fast-capacity given increased demand from electrification and AI

TSO-DSO Coordination

FERC Order 2222, DERMS will play a critical role in enabling the order.



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Mapping Architecture to Outcomes

Architecture Influences Properties

Architectural structures dictate system properties like scalability and reliability essential for system performance. New technology cannot simplistically be imposed into the existing grid and expect success.

Measurable Metrics

System properties are quantified through observable metrics such as latency and failure containment to validate outcomes.

Realized System Qualities

Measured metrics translate into system qualities like responsiveness, stability, and resilience, ensuring value creation.

Designing for Predictable Outcomes

Help utilities design architectures that deliver predictable business outcomes, validated system performance and user value.



Expected Value to the Industry

Standardized Reference Architecture

The framework offers a common reference model to improve system design and evaluation across the industry.

Enhanced Interoperability

Standardizing interfaces reduces integration challenges between vendors and systems, boosting interoperability.

Scalability, Reliability and Resilience

Supports scaling to large numbers of DERs without loss of performance, ensuring grid reliability and resilience.

Stakeholder Collaboration

Provides shared language and foundation for collaboration to enable flexible and resilient grid systems.

Not a Design or Functional Requirements Activity

Provides a conceptual foundation for discussion and architecture development, rather than prescribing specific solutions.



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Foundations of the DERMS Architecture Framework

Foundations are already developed, only need to be clearly applied to DERMS

- A lot of work from PNNL (FAST-DERMS) and EPRI (OpenDERMS).
- Use GridWise Transactive Energy Framework Version 11 as an Example.

Using Robust Architectural Patterns

Layered Decomposition, Laminar Operational Coordination, Optimized Centralized and Distributed Controls, System Boundaries, Clear roles and Responsibilities, Virtual "Aggregated" Resource, Platforms. Same architectural patterns are applied at all levels e.g. building, microgrid, feeder, regional (distribution/transmission)

Addressing Systemic Issues

Barrier imposed by the existing grid, hidden coupling, tier bypassing, latency cascading, scalability issues, cyber vulnerabilities, unintended consequences, operating across different time-scales and geographies, root-cause analysis

Utilizing Interoperability

Technical and semantic interoperability enable meaningful data communication among system components.

Aligning Operations and Planning

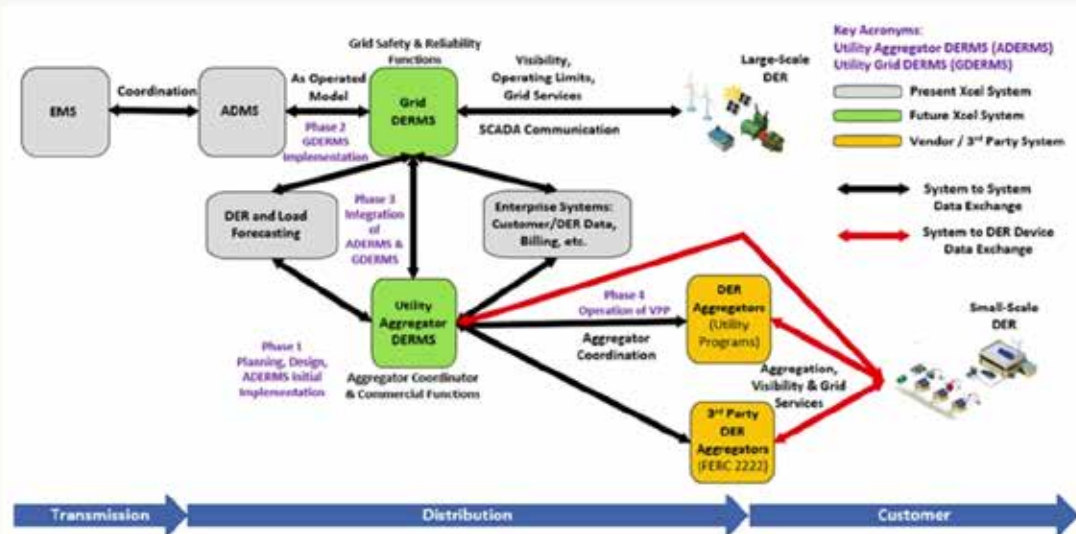
Planning must be aligned with operations and act as a longest-time-scale control loop



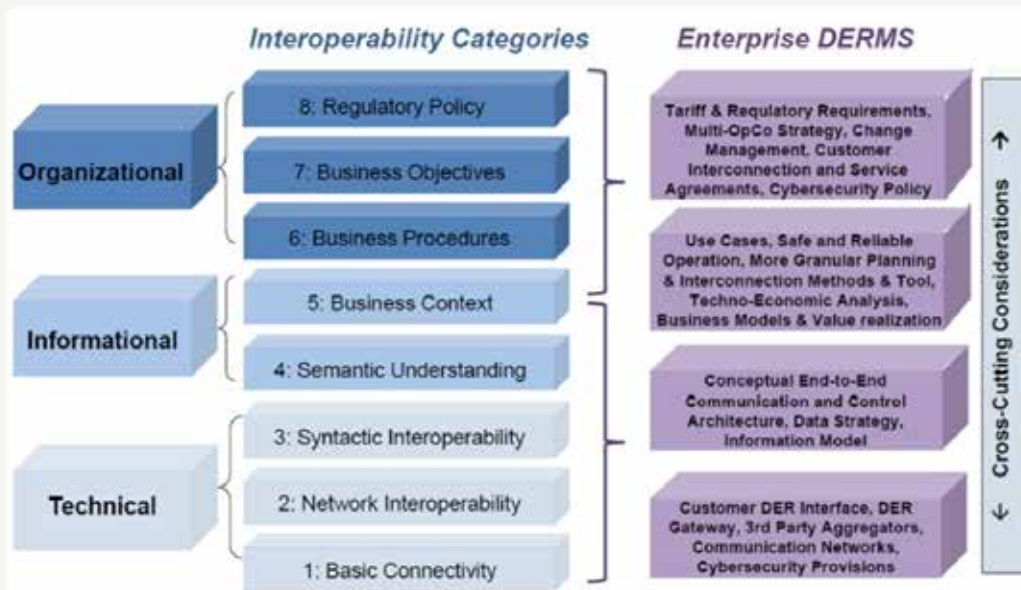
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DERMS Architecture to Serve as an Abstraction Layer to Manage the Evolution of DER Integration Over-Time



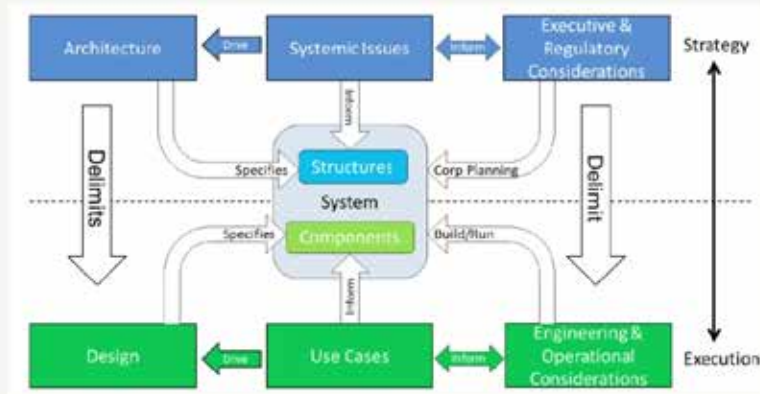
Beyond Technical Interoperability: Interoperability Across Structures



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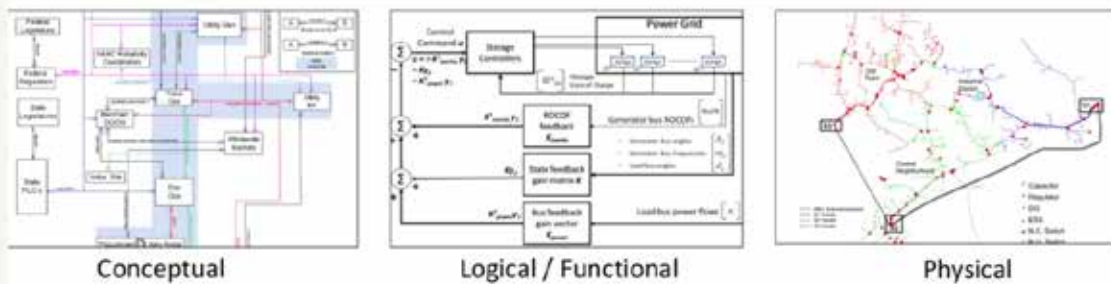
Relationship Architecture and Design to Planning and Execution



Reference: Selected Grid Architecture Principles and Consequences September 2019

Grid Architecture Levels of Abstraction

- Conceptual – structure, connectivity, classes of entities, “black boxes,” technology agnostic, starting point for logical / functional design
- Logical / Functional – structure, connectivity, input / output relationships, functional behaviors, technology independent, starting point for physical design
- Physical – structure, connectivity, physical system components



Reference: Seemita Pal and Ron Melton. Training Webinars on Electricity System Planning for New England Conference of Public Utilities Commissioners June 9, 2022

Yashar suggested a new GWAC work product on architecting DERMS.

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Call To Action for GWAC

Establishing a Working Group

GWAC proposes forming a dedicated working group to develop the DERMS architecture framework.

Leveraging Existing Frameworks

The group will build on the past frameworks, e.g., Transactive Energy Framework and

Community Engagement and Innovation

Broad community involvement ensures the framework addresses real challenges while encouraging innovation.

Iterative Development Process

Development will be iterative, incorporating industry feedback.



Lorenzo 10:32 AM

L Please provide GW TE Framework v 1.1 for all of us.

Marc Costa 10:35 AM

MC how does the physical layer integrate into the previous 2 slides on DERMS - it seems that is the bottleneck for a lot of folks on the deployment side, as well as in planning

Mark Costa posted a question in chat, “How does the physical layer integrate into the previous two slides on DERMS? I seems that is the bottleneck for a lot of people on the deployment side as well as in planning.

Ron Melton thanked Yashar for a nice presentation. He said that this work product would be very complimentary to the one that Kay Aikin and Mark

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Paterson just completed. It would be a nice link with other results from various efforts.

Ron Bernstein suggested to bring this up later in the meeting under new business.

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Marc Costa asked about the DERMS qualities and the physical layer – is the physical layer is an optimization for something for the DERMS platform and if so, how would you integrate those? Also, how would you integrate the physical layer?

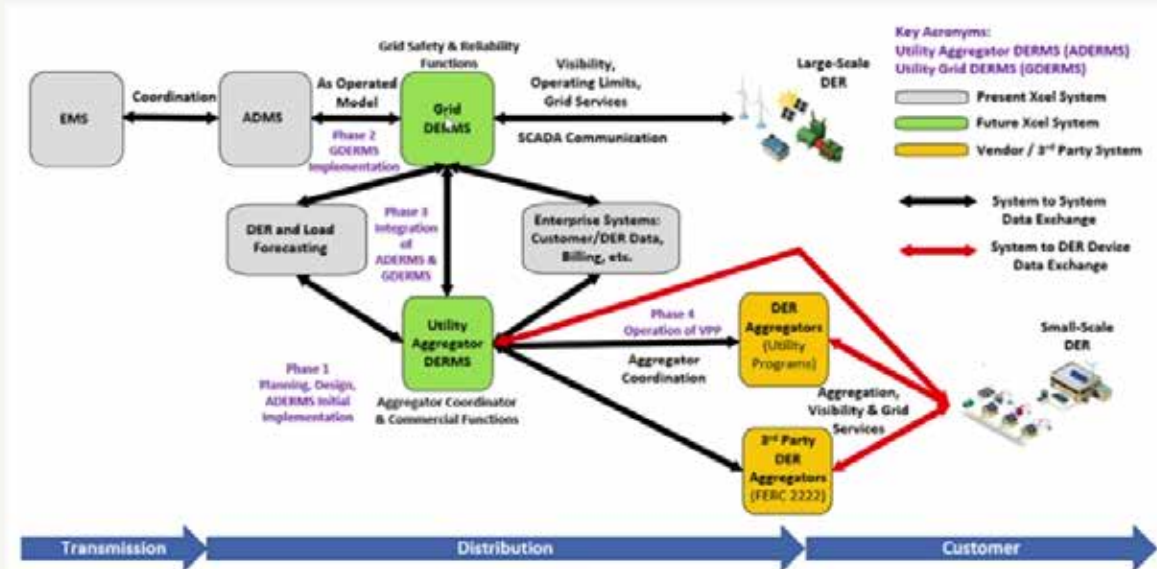
Yashar said that instead, maybe we don't go to the physical layer – the architecture work is important. This is not a sequential activity. Given the components that we have today, DERMS vendors give us a product as a component, and we can't create the architecture that accts for available components. It starts with architecture and ends with design. We need to keep an eye on the components in the market as well as the maturity level.

Ken Wacks asked if in DERMS interconnections if Yashar showed utility based...what is the distinction?

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DERMS Architecture to Serve as an Abstraction Layer to Manage the Evolution of DER Integration Over-Time



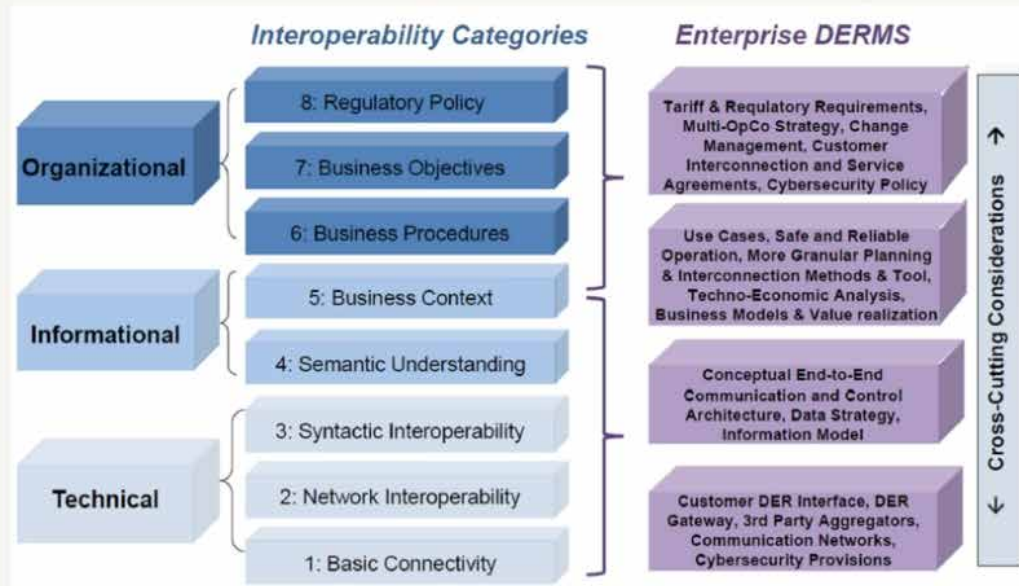
Yashar said that Green is utility based. DER Aggregators that act on Xcel Energy's behalf and also implement utility aggregators. They are independent VPPs. They have to interact with utility systems to be sure there is no double counting.

Ken Wacks asked if in the marketplace for DER Aggregators – does Yashar expect that it will grow to be significant, and that the utility will become a player in the marketplace?

Yashar confirmed that some models indicate that; third parties get compensated. They don't interact with the MISO. It is very clean. But market aggregators need to interact with ISOs and distribution utilities, which is very challenging.

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Beyond Technical Interoperability: Interoperability Across Structures

Lorenzo Kristov asked a question in the chat:

Lorenzo 10:39 AM

L Are DER in this vision assumed to be only customer-sited BTM devices, or does it also include front-of-meter supply resources, e.g., 2-10 MW distribution-connected solar+storage?

What's the role of the utility DERMS in coordinating with the TSO/ISO at the T-D interfaces?



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Yashar replied that the model should include front of the meter and behind the meter DER. Both DER types should be included. The role of aggregating DERMS is very important – there can be no double counting.

Lorenzo replied there is a lot of volatility with five minute forecasts. Maybe the DSO is the best entity to come up with short term forecasts. Have you thought about this?

Yashar said he thought Lorenzo's comments were interesting, and he will need to think about this more.

Bruce Nordman  10:49 AM

BN Signing up with an aggregator is optional. What if many or most people don't want that? Is there some scale at which the model breaks down if what is being offered to customers is not what they want? Recent experience in California and Australia suggests that is plausible and likely. Tariffs are NOT optional.

Hayden Reeve commented that with the regulatory policy requirements for third parties trying to stand up their own DERMS system, many are not getting timely access to the data needed.

Yashar agreed and said it is a major bottleneck with the implementation of FERC 2222. There is some talk about a DER registry.

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Melton, Ron (ICLOUD) 10:50 AM

RM One point to keep in mind is that Yashar has proposed a working group - so he has just outlined a possible scope - the scope will need to be refined and then the architectural framework defined by the group.



Marc Costa 10:51 AM

MC this diagram was what my question was about. We will have vpp1.0 if that physical system isn't firmly embedded in this relationship model



Bruce Nordman 10:51 AM

BN I notice that the architecture doesn't include the customer as an entity - only as something that is acted on.

kay aikin 10:52 AM

KA I wanted to ask my question which is the idea behind "DERMS Architecture" is actually too limiting... we are really talking about Operational Coordination. How do we develop an architecture that allows Operational Coordination? DERMS is a component in this.



Today's guest speaker, Yashar Kenarangui is proposing a new white paper working group to be focused on scalable and resilient DER coordination platforms, outlining architectural challenges, and industry gaps. Meeting participants discussed the potential scope.

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Jaime Kolln announced that the Bridging back from the future paper has been published and is available on the GWAC Website. The regulators paper is being finalized.

Regarding the regulators paper, Lorenzo said that they are waiting for an update on the graphic design. Finalization of the graphic is needed before the paper can be published. He noted that Matt McDonnell was not on the call today; Matt is working with the PNNL graphic designer. Lorenzo will follow up with him on the status of the graphic.

Ron Bernstein noted that once the regulators paper is complete a webinar video of it can be created.



GWAC Symposium 2027 “New Energy Landscape”

Dates	26-Jan	26-Feb	26-Mar	26-Apr	26-May	26-Jun	26-Jul	26-Aug
Task	Initiate symposium project	Identify venue	Save the Date (NEW)			CONFIRM DATE/LOCATION Identify Venue	Cost Structure & Fees, Lock in keynotes	Open registration
	Identify partner	Identify budget	Establish rules for review process			Budget, Initiate keynote search	Review content	Marketing
				Hold face-to-face planning meeting (Nashville)		Hotel room blocks		
						Issue public announcement		
Dates	26-Sep	26-Oct	26-Nov	26-Dec	27-Jan	27-Feb	27-Mar	27-Apr
	Define logistics	GWAC content - work products and future direction			Speaker slides due	Create printed material	Event	
	Establish staff roles and responsibilities	Hold face-to-face planning meeting (Portland, Maine)			Event Logistics			Post event follow up Videos Upload presentations

Regarding the GWAC Symposium scheduled for March 2027 in Tampa, Florida, with curated speaker presentations. GWAC members will host sessions and have submitted abstracts of their session topics, Jaime has

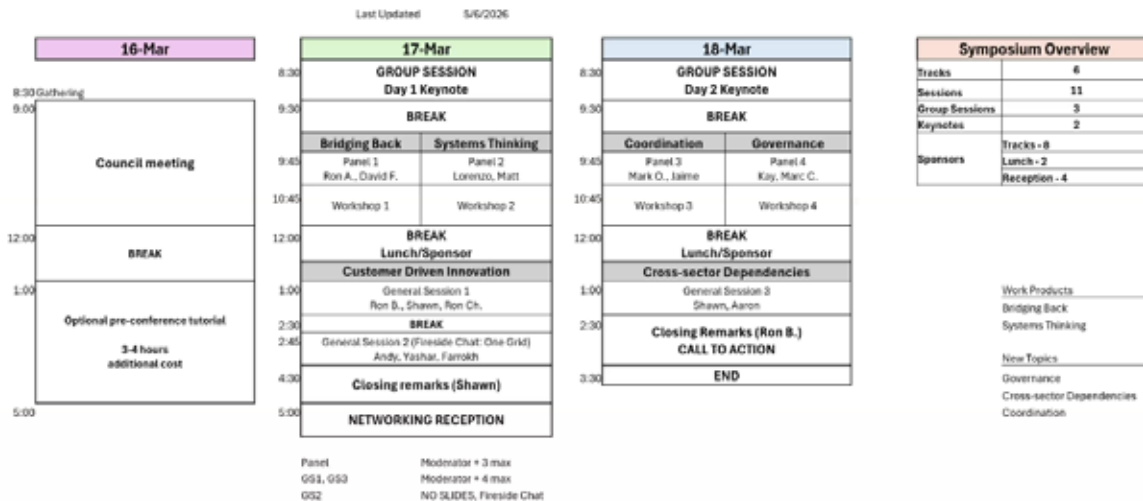
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created a list of them. Sponsors will be needed to offset the cost of lunches and refreshments. A sponsor call is being drafted.



GWAC Symposium 2027



Ron B. asked the GWAC to save the dates for the event.

Ron Ambrosio said that the university is excited to host the GWAC Symposium. He said that the space has been reserved for March 23, 24 and 25, 2027. It is the week after their Spring Break.

Aaron found the Spring Break dates:

Aaron Snyder 11:39 AM

AS

USF Spring Break 2027 is scheduled from March 13 to March 20, 2027.

The University of South Florida Tampa campus will observe Spring Break during **March 13-20, 2027**. This week-long break provides students an opportunity to relax, travel, or participate in organized events and trips <https://www.usf.edu/spring-break/>. Popular destinations for USF students during this period include **Cancun, Punta Cana, Cabo San Lucas, Fort Lauderdale**, and various **cruise options** <https://www.usf.edu/spring-break/>.



Ron A. will confirm the dates with the university.

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Ron Bernstein said that an MOU would be helpful.

Jaime reviewed the Symposium Agenda outline.

Kay Aikin suggested removing the topic titled “governance” and name it “regulation to coordination.”

Jaime Kolln suggested it be called, “regulation of coordination.”

Jeremy Roberts provided a link to the Smart Energy Exchange meeting in Denver, Colorado, Nov. 2 – 4, 2026. [Smart Energy Exchange](#)

Lorenzo Kristov asked about the GridWise Transactive Energy Framework v.1.1 paper.

It can be found on the GWAC Website under publications: [2019.05 TE Framework Update](#)

James Orenstein – proposed Rushi Sharma Frank as a plenary speaker.

Kay Aikin said that Rushi is a thought leader with a group based in Washington D.C.

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Liaison Reports

- NIST – ?
 - Green Button – Jeremy Roberts
 - EPRI – Ben Ealey
 - IEEE PES – Farrokh Rahimi
 - ASHRAE, DLC (Design Lights Consortium) – Ron Bernstein
 - ISO/IEC, IREC, CTA – Ken Wacks
 - SEPA – Aaron Smallwood
 - NARUC – Jeff Morris
 - GridWise Alliance – Shawn Chandler
 - OpenADR Alliance - Bruce Nordman
- *Are there other organizations we should be hearing from?*

Green Button – Jeremy Roberts: Jeremy said they are working on a charge initiative, they are putting something together for regulators.

There is not much to report this month. Green Button had a meeting in Denver recently and Jereme will update GWAC on that meeting once the summary is published.

Dave Wollman has been meeting with Green Button, but they are still looking for a liaison from NIST.

Jaime mentioned that he had recently attended Plug Fest at Knoxville. He found it very interesting, and he said everyone was very open to discussing their work.

IEEE – Farrokh Rahimi said the IEEE PES General Meeting will be held July 19 - 23 in Montreal Canada.

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Ron Ambrosio suggested that someone from the IEEE PES Central FL section as a speaker at the symposium if there is a fit.

Jaime Kolln said if there is anyone wanting to put together a panel at the Grid Edge Tech Conference, Jaime would be happy to help coordinate a panel. He will be attending.

Bruce Nordman noted a study that came out recently about managed charging. There was a recent study that came out of California. He said most vehicle owners were not interested in participating. Incentives were offered to thousands of people but less than 5 % of the people surveyed were interested in doing it. If most people don't want it then it probably won't work.

Ron Bernstein noted that there are some challenges.

Bruce said there are some real solutions as well.

Ron Bernstein noted that there will be an ASHRAE Summer meeting next week in Austin Texas.

He will not be attending in person, but he will be attending virtually.

There will be a couple of initiatives covered. There will be a couple of editions of the guide spec that will be coming out at this meeting. Ron had been involved with those.

He said DLC just came out with updates on connected lighting and what it means to be connected.

Jaime Kolln noted he will be attending the Grid Edge Conference and he said if anyone is interested in putting together a panel he would help coordinate that effort.

Ken Wacks said ISO and IEC are focused on interoperability. They have just concluded 9 days of meetings on interoperability and on developing a series

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of standards with a common lexicon to support applications including energy management. That was at the top of the agenda in a number of areas.

On CTA side – they are working to support a universal communications interface for devices, starting with water heaters.

They want to be sure that regardless of the Communication protocol chosen by the manufacturer we can communicate locally or from an aggregator or from a utility. We support utility centric energy management and consumer centric energy management.

SEPA – no new updates

NARUC – Shawn Chandler said Washington state had enacted an electric transmission authority back in March. Montana, Nevada and Oregon are exploring similar models for grid infrastructure builds. That is really about state transmission authorities. Pennsylvania had released a first of its kind large load model tariff. The PUC had a non-binding model Terra framework which was required for large load customers to pay for upgrades via a cost allocation payment model. PJM had a pretty rough meeting with the Maryland Governor, Wes Moore, who had called for a special September auction and had criticized their

plan around affordability and reliability.

He noted the Liquid Cooling Act of 2025 which is Senate 3269 that promotes the adoption of energy efficient liquid cooling for AI data centers that was referred to the Committee on Environmental and Public Works. Shawn said if anyone is interested in the full list of all acts in both the Senate and the House as well as state activity please reach out to him and he will help you get the information needed. The list comes out monthly.

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Upcoming GWAC Meetings

Date	Topic or Speaker	Format
June 17 th , 2026	Yashar Kenarangui - Applying Grid Architecture Concepts to DERMS	
July 15 th , 2026		
August 19 th , 2026	NARUC recap?	
October 19-22, 2026	Portland Maine!!!!	

Bruce Nordman may be able to be the guest speaker for August.

Ron Bernstein said he has been talking about a new project that has to do with defining some regulatory and policy which we can call constraints and ideas from an end user. An owner end user of a large organization where in a situation where the power system has an issue, it directly affects the organization's ability to meet it's mission objective. So, they are looking to see what it would take to develop a policy and regulatory framework from an owner's perspective. When they enter into a large agreement with either a private or public utility, what should the constraints look like?

If anyone has some ideas on this topic, please reach out to him. He would love to get some feedback on this idea.

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Adjourn

Next GWAC Online Meeting: July 15, 2026



<https://gridwiseac.org/>