

## Meeting Minutes

August 16, 2023

### **GWAC Members**

Ron Bernstein, GWAC Chair and President  
RBCG, LLC

Ron Ambrosio, Independent Energy  
Transformation Professional

Andrew Bordine, GWAC

Ron Cunningham, IT Enterprise Architect,  
American Electric Power

Paul DeMartini, Managing Partner, Newport  
Consulting

David Forfia, Principal Consultant, Utilicast

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

Ahlmahz Negash, Sr. Power Analyst, Tacoma  
Power

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

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 Friends**

Philip Court

Jeremy Roberts, Green Button Alliance

David Katz

Mark Knight

Olayinka Kolawole

Tim Schoechle

Russ Weed

### **GWAC Associate Members not present**

Rahul Bahadur, Associate

Jeff Morris, Associate

Mark Paterson, Associate

### **PNNL Support**

Susan McGuire, GWAC Coordinator

Ron Melton, PNNL Administrator

Jaime Kolln, PNNL Co-Administrator

Seemita Pal, PNNL

### **GWAC Associates & Emeritus**

Marc Costa, Associate

Mark Knight, Emeritus

James Mater, Emeritus

Stuart McCafferty, Emeritus

Ken Wacks

## Meeting Minutes

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Chair Ron Bernstein opened the meeting with a quorum.

Jaime announced that James Mater with QualityLogic as today's speaker.

Jaime asked if everyone has received the June meeting minutes. Ron B. said he did, and he has reviewed them and provided two minor edits and comments. Susie noted that those changes have been made.

Jaime asked for a motion to approve the minutes. David Forfia gave the motion and Farrokh Rahimi seconded the motion. The Council approved the minutes with no objections.

Jaime noted that Jeremy Roberts had sent a copy of his slide presentation and asked if it could be posted on the GWAC site. Jeremy agreed. Jaime said he would ask the GWAC to socialize it on LinkedIn.

**Action: post Jeremy Roberts presentation from the July GWAC meeting.**

Ron B. welcomed guest attendees and asked them to introduce themselves:

Olayinka Kolawole is attending on behalf of Chris Irwin, US DOE.

Philip Court with Ecogy Energy noted that he is interested in DERS and also grid issues and related software. Jaime added the Ecogy was a finalist in the DOE Plug and Play DER challenge with their Energy Services Interface (ESI) in Practice. Jaime added that ESI is very well aligned with past council work. Ron Bernstein suggested asking Philip to speak at a future GWAC meeting.

**Action: Ask Philip Court to speak on ESI at a future GWAC meeting.**

Russ Weed with Clean Tech Strategies introduced himself. Russ said the company employs subject matter experts including engineers and lawyers with expertise in energy storage. They work with storage development, flow batteries, LI, thermal and have worked with some national labs including PNNL.

Steffi Muhanji introduced herself with Environmental Sustainability at Microsoft. She is particularly interested in the last mile of decarbonization. She said it's been about three years since she last attended. Steffi presented at TESC20.

Tim Schoechle – has been involved with GWAC for nearly a decade but haven't gotten to join much in the last year or so.

Jaime reviewed the conference list.

Kay Aikin will be at RE+ Conference and likely the ISGT North America meeting, and maybe in Latin America. Ron Melton, Farrokh Rahimi and Lorenzo Kristov will be at the ISGT Latin America meeting.

Russ Weed suggested adding Energy Storage North America, January 2024 to the conference list.

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Farrokh asked if TESC should be on the conference list. Ron M. noted that there is no firm date yet for the conference. The group is in contact with RE+ about being co-located during their 2024 conference. Jaime and Ron M. will be meeting with RE+ representatives at the meeting next month to meet the RE+ contacts in person. A more detailed meeting will be held virtually later, with Ron B. included.

**Action: Jaime to make a slide for the TESC 2024 conference.**

Jaime mentioned the TE standard document that Don Hammerstrom and Steve Widergren, PNNL, just published. It is a fit with the focus of GWAC. Jaime has asked Don Hammerstrom to present on it at the September GWAC meeting.

Jaime asked Ron B. if he could reach out to his contact at eMerge about being a future guest speaker for GWAC and Ron agreed.

Jaime will talk with his contact, Tom Tansy at SunSpec about speaking at a future GWAC meeting. These two talks would likely be in November and December. Ron B. and Jaime will coordinate the dates for these speakers.

**Action: Ron B. to contact eMerge; Jaime to contact SunSpec about speaking at the GWAC meetings this fall.**

Jaime noted that PNNL staff are currently looking for any broken links on the GWAC website historical material. He asked Ron Melton about past recorded presentations that could be posted to the GWAC site. Ron M. said there might be one or two and he will check.

Jaime suggested keeping the recording from today's speaker, James Mater for use the website if James agrees. They will discuss it offline.

**Action: Jaime Kolln, Ron Bernstein, and James Mater to review the recording from today for retaining on the GWAC website.**

Jaime said the effort to refresh the GWAC mission and vision statements have started. He stated that we need to align them with the current DOE mission. Jaime has a document from the discussion at the 2021 F2F meeting with copious notes and comments. He is working with the copies of that discussion. Jaime is hoping the end product will align the vision so that it informs the mission statement. The vision should be in line with the DOE vision for GWAC. The work group will create strawman documents to present to the GWAC for feedback.

**Jaime Action: Schedule the mission/vision group to review the material that Jaime is compiling from previous meetings and develop strawman mission and vision statements.**

Ron B. added that in line with the updated vision for GWAC, he feels that it is time to change the name and emphasis of the TESC Conference. He'd like to increase the scope of the meeting and add to the list of participating organizations.

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Jaime agreed and said if there is to be a name change the upcoming meeting with RE+ would be a good place to do it.

Ron M. suggested we talk with Chris Irwin, DOE before committing to a name change. We need to seek his advice of the future vision of the conference.

Ron B. said the future conference could still include a track about Transactive Energy as a portion of the format.

A discussion followed; some concerns were noted about leaving a gap for future work in Transactive Energy. There was some discussion about the possibility of handing that conference off to another group. Another question came up if the future conference would accept papers, particularly if IEEE was no longer associated with the conference?

Jaime Kolln suggested that group may want to take up the TESC and make it their own.

Ron M. suggested a contest to name the new conference.

Points to discuss or consider when talking with RE+:

- Jaime and Ron M. will talk with them at the RE+ conference and then schedule a call later on to discuss more in-depth.
- Collaboration with IEEE is still a possibility even with the transition to RE+.
- Jaime mentioned that SC21 is also trying to collaborate with both RE+ and IEEE. They have had some issues to resolve.
- Ron M. noted that the tech support provided for publications by IEEE has strong value and a reputation for quality.
- Ron B. would like to discuss “beyond TE” for the name of the conference.
- Ken said TE is being used by advocates of dynamic pricing – often used by aggregators.

Jaime and Ron M. have been discussion options for a Spring 2024 GWAC F2F meeting. Jaime will schedule a meeting about it soon.

**Action: Schedule a Spring F2F discussion soon.**

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### GWAC Projects

Project	Grid Arch for Regulators	Grid Architecture White Paper	Grid Future States	GWAC Blog Content and Review Committee	THE NEXT BIG THING
Scope	Applying Grid Architecture in the Policy & Regulatory arenas	An introduction to Grid Architecture -- including best practices and real-world examples	Update Grid 3.0 Future States	Decarbonization, GA for Policy	Council's primary focus for the next year – results of F2F meeting.
Audience	Policy Makers	Geared to stakeholders who aren't familiar with grid architecture	Industry Stakeholders	Industry stakeholders, public facing website	Council, Friends, All Stakeholders
Status	Case studies in development	Collected inputs and comments from working party members	Submitted to PNNL for editing and information release	5 blogs released, 2 in queue	Seminar AHR Expo Presented
Actions	Group: Lorenzo Kristov, Larisa Dobriansky, Kay Aikin, Farrokh Rahimi, Chris Villarreal, Mark Paterson	Final document is being reviewed by GWAC	Final document is being reviewed by GWAC	Group: Kay Aikin, Ahlmahz Negash, Larisa Dobriansky, Ron Bernstein, Rahul Bahadur, Leonard Tillman, David Katz, Tim Schoechele, Heather Donaldson	Record Presenter Videos
Leadership	Lorenzo Kristov	Seemita Pal, PNNL	Ron Cunningham	Kay Aikin	Council

Kay said bridge to the future is planned as a blog. Kay has written the blog. Her video is done.

Kay said there is potential for eight blog posts.

Ron B. will be the video editor and will compile all the AHR videos into one with an introduction and ending.

Kay said at the Atlanta F2F meeting we agreed to break them into individual PPTs and relate each into a blog post.

Ron M. agreed each will have a blog post but thought the idea was that they all relate to each other.

Kay has a different vision of them supported by blog posts. Each one will drive traffic to the video.

Ron B. said taking them apart would have some bad sides because each one leads into the other. He also said that there is a logical sequence for them. Ron will look at them again. He said maybe they can stay separate but present in a certain order online as you watch each one. He had some ideas on how to index the videos to play in a certain order.

Jaime said if we allow people to skip everyone will go to Leonard's because it was the funniest.

Ron M. had some ideas about how to add something to show the relationship to the whole. Maybe an overview that would play before each standalone video.

**Action: Jaime to follow up with Kay Aikin about the blog posts. Jaime will reply to her about some other questions that she has. Jaime will review his video in relation to Kays.**

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**Action: Susie to invite Kay to Teams (she has 3 accounts already...) and send a link to the recorded videos. DONE**

Kay has an intro at the beginning and notes the relationship of her talk to Jaime's talk in the video. Jaime will review his video in context with Kay's and then will get it to Ron B.

**Progress & Accomplishments**

2007-2012 Grid-Interop Forum

2011 – [GWAC Interoperability Constitution Whitepaper](#) PNNL-20728

2011 – [Smart Grid Interoperability Maturity Model](#) Beta Version  
Electrical Power Engineering Academic Landscape

2010 - [Interoperability Decision Maker's Checklist](#) update

2009 – Interoperability Benefits Papers

- [Environmental Benefits](#)
- [Financial Benefits](#)
- [Reliability Benefits](#)

2008 – [Interoperability Context-Setting Framework](#) PNNL-17399

2007 – Interoperability Decision Maker's Checklist

2006 – [Interoperability Constitution](#):  
- [GWAC Constitution: Summary of Constitution Interview Process and Feedback January 2006](#)

Documents available internationally through the ISO/IEC:  
ISO/IEC TR 15067-3-2:2016 -- Information technology -- Home Electronic System (HES) application model -- Part 3-2:  
GridWise interoperability context-setting framework

ISO/IEC TR 15067-3-7:2020 -- Information technology -- Home Electronic System (HES) application model -- Part 3-7:  
GridWise transactive energy systems research, development and deployment roadmap

ISO/IEC TR 15067-3-8:2020 -- Information technology -- Home Electronic System (HES) application model -- Part 3-8:  
GridWise transactive energy framework

9 14

Jaime reviewed the GWAC history slide. He called out the Decision Makers Interoperability Checklist. It needed some updates such as updated references regarding cameras in cell phones.

Ron A. reminded everyone that next year is the 20-year anniversary of the GWAC.

Ron B. suggested that an anniversary meeting would be appropriate at the Spring F2F 2024 or maybe at the RE+. He added that we would do it at the conference, then we could have some emeritus GWACers, and they could present a panel with historical perspective.

James Mater is working on a presentation for RE+ and is extracting from that for this talk but probably OK presenting it. Ron B. will edit it and send to James, he will have the final say. Ron Bernstein can edit it and then we will send it to James Mater for review before we post it on the GWAC website.

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**Action: Capture James Mater’s talk from today for editing, reviewing, and posting on the GWAC website.**



Jaime Kolln introduced James Mater, Quality Logic and noted that James is a GWAC emeritus.

At QualityLogic James is a founder and Director of Strategy for Smart Grid.

James works in in the vehicle to grid space as we move toward electrification.

James is preparing a version of this talk for presentation at an EV conference in San Diego in May of this year. The paper was accepted and will be included in the proceeding.

James won't spend much time on standardization. He will try to focus today on what role GWAC can focus on in V2G issues. He will point out some topics that should be of interest.

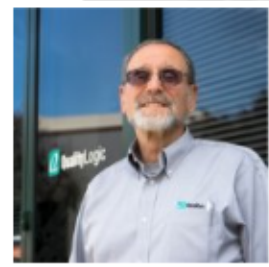
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## Today's Presenters

- **James Mater, Director of Strategy, Smart Energy, QualityLogic**

James is one of the industry-leading experts on smart grid standards, interoperability, and the maturity of ecosystems of products based on these standards. James has given dozens of presentations and authored multiple papers on interoperability in the smart grid. He is a member of both the UL 1741SC, IEEE 2030, SunSpec J3072 Profile and IEEE 1547 Work Groups. He Co-Chairs the V2G Forum.



## What is V2G?

- **We Think of Vehicle-Grid Integration (VGI) as:**

- Coordinating the charging of mobile storage systems (electric vehicles, trucks, buses, etc) to assist with grid demand management and
- Managing the use of the EV batteries as grid support Distributed Energy Resources (DER) when charging systems are capable of being DER.

- **V1G – i.e., one-way power flow with communications to influence charging schedules**

- **V2X – vehicle exports power to the X (building, another vehicle...)**

- **V2G – bi-directional power flows and communications**

- Requires Utility Interconnection agreement and grid support certifications to export power
- Grid support functions required for interconnected energy resources – e.g., Voltage/freq must trip, voltage/freq ride through, Anti-Islanding, etc
- These functions help stabilize the electrical grid



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He mentioned some new ideas for the use of car batteries as a storage system such as at a hunting camp or recreation camp where the vehicle is the power source for event.

He noted that V2G requires an agreement with utilities and that regulations may vary by location. There must be grid support functions in place. Functions are governed under 1547 and are specific.

Local level and macro level standards may apply.

EPRI looked at the value of this – and the cost, and any impact to rate payers.

### The Value of Vehicle Grid Integration (VGI): EPRI 2019 Study\*

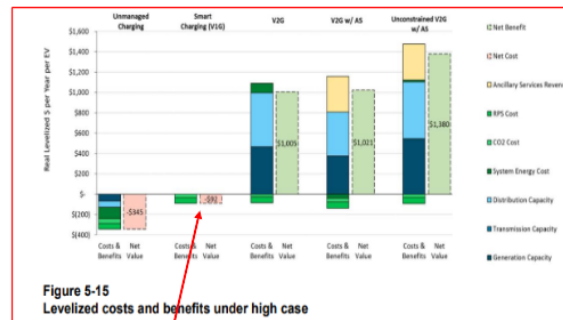


Figure 5-15  
Levelized costs and benefits under high case

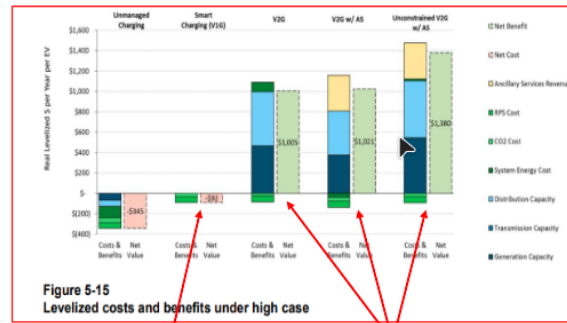
VIG Costs/Benefits

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### The Value of Vehicle Grid Integration (VGI): EPRI 2019 Study\*

- **Level 1 Charging** uses standard 120 Volt connection. Rate of charge comparable to running a dishwasher or microwave – minimal grid impact
- **Level 2 charging** can create a load 2-5 times greater than a typical household load, potentially causing grid stability issues.
- **EV owner charging behaviors** show that at least 20% of PEVs charge at peak hours. Combined with Level 2 charging rates, the impact of VIG and V2G applications can be estimated.
- **The study modeled only California PEV V1G and V2G scenarios and 3.3-5.0 mil EVs by 2030**
- **Key Conclusions:**
  - V1G is valuable only if charging during peak hours.
  - For short commutes and once fully charged, V1G services are not available.
  - V2G can generate over \$670 mil to 1 billion/year in CA Ratepayer benefits in 2030. Significantly more than V1G



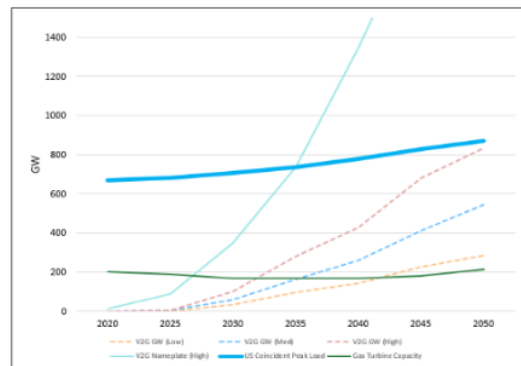
\* Open Standards-Based Vehicle-to-Grid: Value Assessment (epri.com). The term "VGI" denotes any method of using EV charging/discharging for grid support.

EPRI looked at the potential of VGI. They only looked at California in this study.

He added that 20% of EVs are charged at peak hours.

### Why V2G Matters

- **Huge potential to upend how we make, store and use electricity:**
  - EPRI estimates just for CA, V2G is \$1 billion/year in potential value<sup>1</sup>
  - Total EV battery capacity will exceed total US peak electricity demand in 2035<sup>2</sup>
- **EVs as DERs are treated like other DERs: subject to Utility Interconnection requirements**
  - INCLUDES UL 1741 SB (IEEE 1547-2018)
  - SAE J3072 requires IEEE 1547 conformance in onboard grid support inverters
- **However, EVs as DER more complex**
  - Scheduling, charging level, location, transportation purpose
  - IEEE 1547 has a new Task Group on V2G for IEEE 1547



1. Open Standards-Based Vehicle-to-Grid: Value Assessment (epri.com)  
 2. Presented at an October 2022 EPRI Webex. Based on EIA projections of EV populations

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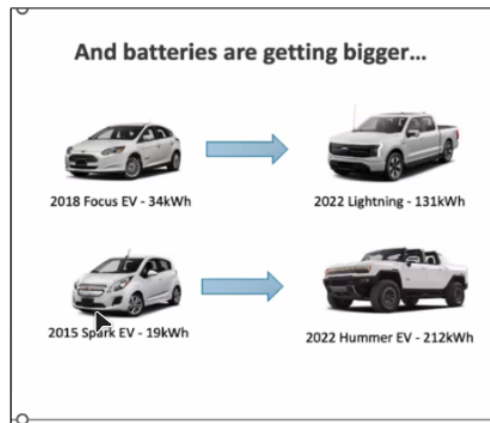
They project that capacity will exceed peak demand at a point in the future (shown). It showed tremendous potential and opportunity. It could be an industry game-changer.

Once you treat EVs as Dist Energy Resources, in California today you can do bi-directional power flows if you have a certain model of charging station, you could be doing it today; some vendors are doing it now. He noted that the issue of voiding the consumer warranty on the battery has been changed.

There are work groups looking at the next update of 1547 to make it more friendly for EVs.

### Bi-Directional Charging: Catching on

- Publicly (or reported) announced plans for bi-directional capabilities on EVs



Source: Flex Power Control presentation during Veloz Webinar 8/23/2022 and SGO DR and DER Conference, October 13, 2022

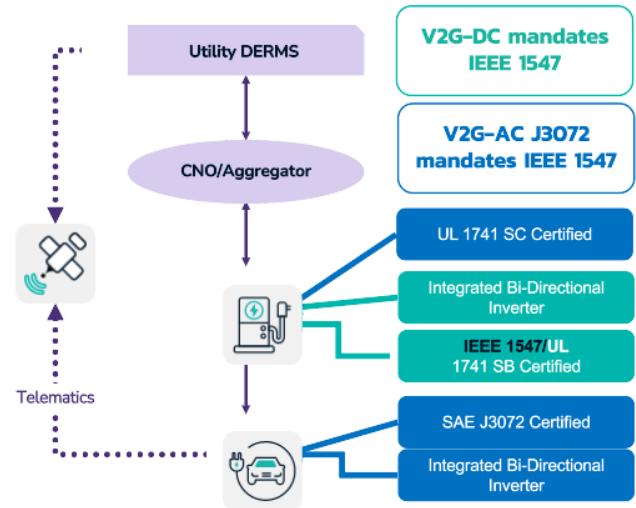
Lucient can typically get 500 to 600 miles per charge. However, it's likely many are only used for local errands and sit there with unused capacity.

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### Interconnection for EVSE as DER

- **IEEE 1547 is a REQUIREMENT for V2G in the US**
  - Interconnection standard for all DERs
  - ANY EXPORT to the Grid requires IEEE 1547 compliance.
  - IEEE 1547-2018 is the latest version and is required starting in 2022
  - SAE J3072 requires IEEE 1547 conformance in onboard grid support inverters
- **EVs as DERs are treated like other DERs: subject to Utility Interconnection requirements**
  - UL 1741 SB is the new certification requirement – certifies IEEE 1547 Compliance
  - V2G-DC can be interconnected with UL 1741 certification TODAY!



With a UL inverter, DC current, as long as the charging station can do all the things as a utility as a DER, all it's really doing is reversing the power flow.

V2G AC gets more complex. For the SAE J3072 standard – we will put a smart inverter on the vehicle itself and have the charge just be AC.

- Charging stations are a lot cheaper
- The vehicle becomes more valuable as a V2X.
  - o Ford lightning can be made fast enough.
  - o Back up for power outages

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## Challenges from the V2G Forum

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li><b>1. End-end standards, certifications and interoperability</b> <ol style="list-style-type: none"> <li>a. Reliable, interoperable, certified HW and SW</li> <li>b. AC standardization issues unique</li> <li>c. Certification or self-certification of EVs</li> </ol> </li> <li><b>2. Harmonization of standards (barrier to moving forward)</b> <ol style="list-style-type: none"> <li>a. Competing industry standards including other DER systems and integration of all DER</li> </ol> </li> <li><b>3. Quantifying value of V2G to utility and customers</b> <ol style="list-style-type: none"> <li>a. Incentives and compensation for customers, aggregators, others</li> <li>b. Costs and feasibility of installation of V2G</li> </ol> </li> </ol> | <ol style="list-style-type: none"> <li><b>4. Distribution utility preparation.</b> <ol style="list-style-type: none"> <li>a. Visibility of DER resources</li> <li>b. Hosting capacity data and utility situational analysis of EVs</li> <li>c. V2G integration with other DERs,</li> </ol> </li> <li><b>5. Regulatory: interconnection and roadblocks</b> <ol style="list-style-type: none"> <li>a. Lack of policy vision</li> <li>b. Interconnection speed, ease of use. Alignment at federal level of requirements</li> </ol> </li> <li><b>6. Customer experience</b> <ol style="list-style-type: none"> <li>a. Support for EV, CNO and EVSE OEMs to deliver compelling customer experience</li> </ol> </li> <li><b>7. Battery technology</b></li> <li><b>8. Workforce development</b></li> </ol> |
|--|---|

James noted a good deal of interest in this area at conferences he has attended.

He commented about how to do V2G on a structure that doesn't support it. Many pilots have been done but they are all one-offs. We don't have any good models yet. Some groups have some good ideas that they are looking at. He said that right now we are kind of in a chicken and egg place.

Helping customers understand it and benefit from it is one obstacle.

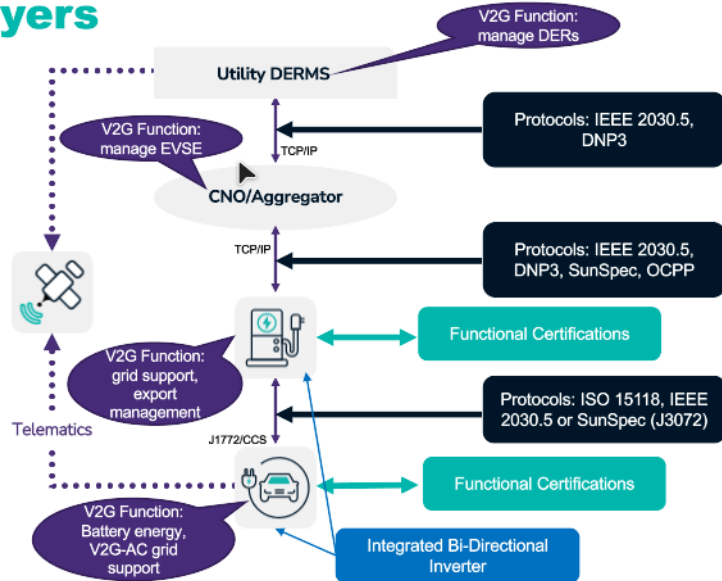
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### V2G Architectural Layers

#### 3 layers of V2G architecture

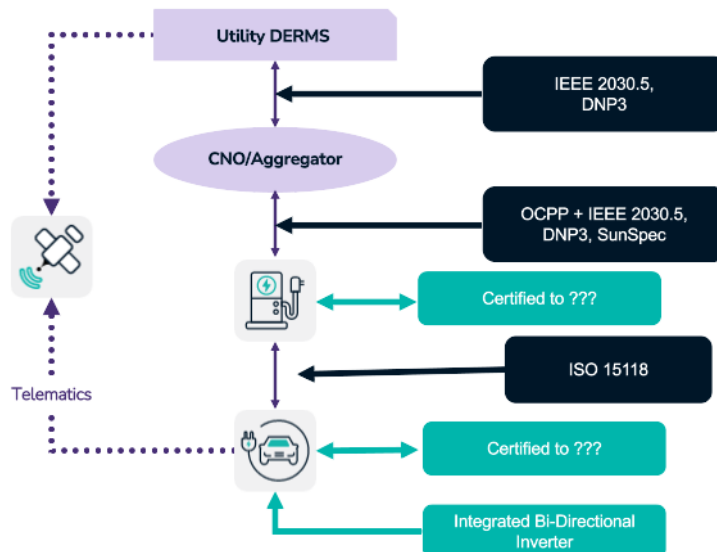
- Functional layer
    - Which system does what
    - Functional requirements and certifications
  - Physical/Network layer
    - Mostly TCP/IP
    - But unique EVSE-EV comms
    - And proprietary telematics
  - Messaging protocol layer
    - Exchange of actionable information
    - Standards for syntax and semantics
- NOTE: The focus is on mandated CA and NEVI protocols which do not include CHAdeMO.



### A Split Inverter Model?

#### Use Case: Inverter on EV; Grid Codes on EVSE

- Bi-directional EV Inverter
- EVSE receives and implements Grid Codes; "micro-manages" EV Inverter
- Grid interactions – EVSE/EV Combination certified to UL 1741 SB or other Grid Codes.
- Accommodation of other EVs?
- Standards and certification gaps
  - EVSE certification to ???
  - EV certification to ???
  - Interface standards certification



James noted that Europe has different codes than the US.

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OCP/15118 charging infrastructure for example. There are multiple challenges for V2G.

James mentioned the V2G forum coming in October.

### Want to Work on V2G? Participate in V2G Forum



- **Co-Chaired, Sponsored 1st V2G Forum Feb 28-Mar 1, SCE**
- **V2G Forum October 18-19, Detroit**
- **DRAFT Agenda**
  - Day 1 – Introduction to V2G – ½ day Workshop
  - Day 2 – Learning Day: Panels, Breakout Sessions
  - Day 3 – Working day. SCE TAB WGs, V2G Policy WG
- **Interim Work Groups tackling key Challenges to V2G**

James has given this presentation to a few groups, and more are scheduled. He always finds a lot of interest.

At the V2G meeting S. Calif. Edison will be involved. He is arranging some panel presentations.

He closed saying V2G is a compelling opportunity, and he hopes that GWAC will consider if there is something the Council can do to help in this area?

Jaime is heading a session on standards and harmonization at the V2G conference. James commented that the evolution of this seems to be quite a mess at this time, but it is showing some signs of progress.

Jaime mentioned expectations of how the system will perform when connected.

Ron M. said he's seen that some non-EV owners have wild expectations.

Paul De Martini said the other thing that should come into play would be the utilities. We should think of how all distributed resources contribute to it. EV charging is one part of the puzzle. DER can contribute. Architecturally we need to use all resources, not just EVs. We need to think across the portfolio. He mentioned flexible connections.

Jaime agreed and said Chris Irwin has noted that EVs are a driver; a hot topic; OE is very interested. They are a large load coming online.

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James added that Chris Irwin is a committee chair for the upcoming V2G Forum. He was a speaker at the first V2G forum.

### GWAC F2F at Knoxville, TN

Jaime recognized the thoughtful arrangements for the F2F coming up in Knoxville by Aaron Snyder and the EnerNex team. There are some cool events planned at EPRI and at U Tennessee Knoxville.

Aaron also has a recipe for a shrimp boil based on a recipe of Erich Gunther but with a twist.

Jaime emphasized that we are planning send the RSVPS to EnerNex by the end of the week.

Jaime would like to have EnerNex give a presentation at the F2F meeting.

Jaime would like EnerNex to have a 30-minute time slot on the agenda.

**Action: Jaime to get with Aaron Snyder to schedule a presentation by EnerNex at the F2F in Knoxville.**



## —○ Planning the "TE" Conference

- At RE+ in Annaheim, CA September 9-12, 2024
  - Format TBD
  - Tutorials are usually offered in advance of the conference
  - May be broken up inn up into shorter sessions to allow other show activities
- Schedule Organizing Committee (OC) Meeting
  - Coordinating with Aaron Smallwood for SEPA regarding RE+ co-location
  - May collaborate with IEEE (Masoud Nazari - IEEE SBLCS Architecture Subcommittee). Awaiting confirmation from RE+
- Council Members Participating in the Organizing Committee
  - At Least 4 Council Members
  - GWAC will Share Leadership Roles w IEEE OC Members
  - Organizing positions needed to fill: Conference Chair and Treasurer are filled; Technical Chair (Farrokh?), Secretary, sponsorship chair
  - Sponsorship lead is one of the key spots needed
  - David Forfia has volunteered to be the Treasurer
  - The IEEE application is the first step and also a conference budget.
  - Call for participation is the kickoff; it will include a timeline of due dates by authors and presenters.

Farrokh is interested in training someone else to be the technical chair for the GWAC Conference.

Ron M. said we need to decide if we will accept papers at this meeting. If not, then the IEEE connection may not be needed and likely we would not need a treasurer.



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### —🕒 “Next Big Thing” / “Back from the Future”

- Presented at AHR Expo
- Recordings to be Developed and Published to YouTube
  - Weekly release upcoming
- What next?
  - Webinar planning
  - Development of a concise slide deck
  - More web page updates 😊



Jaime will be sending Ron B. two more videos.

Jaime suggested some future webinars on the Next Big Thing.

The Grid Architecture paper that Seemita is leading has been sent to a PNNL editor; edits are in progress.

Lorenzo had to leave early today so no updates regarding the regulatory white paper.

Ron C. noted that he is making final edits with the PNNL editor for the Future States white paper.

**Action: Jaime will follow up with Lorenzo regarding David Katz use cases for the Ontario portion of that paper**

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### —○ Liaison Reports

- NIST – David Wollman
- Green Button – Jeremy Roberts
- EPRI – Sean Crimmins, Ben Ealey
- IEEE PES – Farrokh Rahimi
- ASHRAE, CTA, CABA – Ron Bernstein
- ISO/IEC, IREC – Ken Wacks
- SEPA – Aaron Smallwood
- NARUC – Jeff Morris
  
- *Are there other organizations we should be hearing from?*

#### **Liaison Reports**

Jeremy Roberts – Green Button; Will likely restrict the TLS version to 1.3 in the next version of the standard which should be in the first Qtr of 2024. That will limit it to four acceptable ciphers for communications. Certifications for Ontario are roughly 2/3 complete. We should hit the mandated deadline by November 2023.

Ron Melton – IEEE; there is a new task force - Ron M. noted that at the recent conference he suggested that the Smart Buildings, Loads and Customer Systems work group form an EV task force to talk about EV integration. Steve Pollens took this on and they have formed an EV task force on to look at EV Challenges.

Ron will get the tech council minutes and send to Jaime Kolln and Frank Tuffner at Jaime's request since he and Frank have an EV task for Chris Irwin. He said information on the IEEE Electric Vehicle Council is posted on the technical council webpage. Veronica Rabel gave a presentation at the Technical Council meeting that Jaime and Frank might be interested in.

Ron M. also noted that IEEE PES GM will be in Seattle for 2024. CA

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Ron Bernstein – CABA: They have had a name change; CABA is now ASHB, the Association for Smarter Home and Buildings. They changed their name. <https://www.ashb.com/>

[The recent ASHRAE past president will give the GWAC a presentation at the GWAC F2F at EnerNex. He was president of an organization of over 300,000 people so GWAC has the honor of hosting him in person.](#)

## —● Liaison Reports

- NIST – David Wollman
- Green Button – Jeremy Roberts
- EPRI – Sean Crimmins, Ben Ealey
- IEEE PES – Farrokh Rahimi
- ASHRAE, CTA, CABA – Ron Bernstein
- ISO/IEC, IREC – Ken Wacks
- SEPA – Aaron Smallwood
- NARUC – Jeff Morris
  
- *Are there other organizations we should be hearing from?*

Ron B. For ASHRAE – there will be a presentation at the Knoxville F2F from the recent past president of the decarbonization of the build environment. It is a 300K member organization and the immediate past president will be attending.

ISO/IEC - Ken Wacks; there is on the energy management side they are developing a second generation of the energy management framework for use in homes and buildings. It centers around the energy management agent. They have a proposal for taking the framework concepts and implementing it on the application platform that is embedded in the residential gateway. Tim Schoechle is the project leader for that. There are two proposals out for ballot now by the member nations. One will extend the residential gateway called the home electronic system gateway to include applications and to specify an application for energy management and measurement with the acronym MEMMA Energy Management

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and Measurement application to be hosted on the platform, and in conformance with the Energy Management Agent Framework standard. The original standard was published in 2012.

It's the second edition working its way through the system and is expected to be completed by next year.

For IREC we had a great presentation last week from a very innovative European company called Net to Grid. It's based in the Netherlands as well as in Greece. The speaker presented on nonintrusive load monitoring as a way of helping consumers manage energy.

Next month our speaker will be Trevor Hardy from PNNL who will talk about Transactive Energy. Anyone can attend the next meeting; they are open to the public. The next meeting date is September 22.

Dave Wollman and Aaron Smallwood are not able to be on the call today.

Ken posted a link to the IREC: Customer Grid Edge committee page; URL <https://irecusa.org/our-work/customer-grid-edge/>

[Ken invited anyone interested in speaking to the Customer Grid Edge committee to let him know.](#)

Ron mentioned some presentations that will happen at the RE+ meeting.

Ron M. and Ron C. are involved with SEPA, and they are pushing the use of the Common information model for CIM standards, especially as they relate to the distribution system operation. The first analysis of part one is 61970 is nearly complete. Aaron Snyder may have some more information. It is starting to be reviewed within the Grid Architecture Working Group.

Aaron Snyder noted a correction saying it is 61968 Part 1. For the actual application integration. The one ending in 970 is later in the list. They will do the 61968 ones first. Aaron added that the work is progressing, and he noted that 6150 got adopted. So architecturally important is the substation automation piece and it is filling in the information model and related information exchange for power system modeling and exchanging data between all those things.

Jaime also asked the group if they wanted to move the December GWAC meeting up a bit since it is falling on December 20. The group agreed.

**Action: Susie to reschedule the December GWAC meeting a week earlier.**

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Upcoming GWAC Meetings

Date	Topic or Speaker	Format	Other
August 16, 2023	GWAC Meeting - 10:00am to 12:00pm PT	Online	James Mater, QualityLogic
September 20, 2023	GWAC Meeting - 10:00am to 12:00pm PT	Online	
October 3-5, 2023	GWAC Face to Face Meeting – EnerNex, Knoxville, TN	In Person	EnerNex (Knoxville)
	GWAC F2F @ T&D Expo or ISGT NA?		
November 15, 2023			
December 20, 2023?			
September 9-12, 2024	TESC 24		Anaheim, CA

Jaime Kolln thanked James Mater for his presentation today.

Ron Bernstein thanked today’s Emeritus, Guests, Friends and GWAC for their attendance today and gave a special thank you to GWAC Emeritus James Mater for being the guest speaker.

Ron Bernstein noted that the next GWAC meeting will be held Wednesday, September 20 and he adjourned the meeting.