4th Edition

October 22-24, 2024 Detroit

V2G Business, Policy and Technology Forum

Addressing Challenges, Achieving the Potential of V2G

V2G: Are we there yet? The state of enabling technology, standards, policy and processes

The 4th edition of the **V2G Business, Policy & Technology Forum**, October 22-24, 2024 in Detroit brings together top industry players, working groups, utility professionals and others who are focused on the successful development and implementation of vehicle-to-grid in the United States.

Building on the success of previous editions, the Forum offers a neutral venue in which different V2G stakeholders can come together to work on accelerating V2G standardization and adoption in North America.

The goal is to examine obstacles and challenges to effectively achieving the potential of V2G, and to identify appropriate solutions and implementation success strategies for grid operators and other stakeholders across market verticals.

The Fall 2024 edition will take a special look at the state of enabling technologies for V2G, including standards progress, interoperability issues, residential and fleet charging, integration with V1G infrastructure, and more. In addition to in-depth presentations and panel sessions, the Forum will include breakout roundtable discussion in which attendees can interact in small groups to examine key topics.

If V2G is important to the future of your organization, you are encouraged to take part in these discussions.

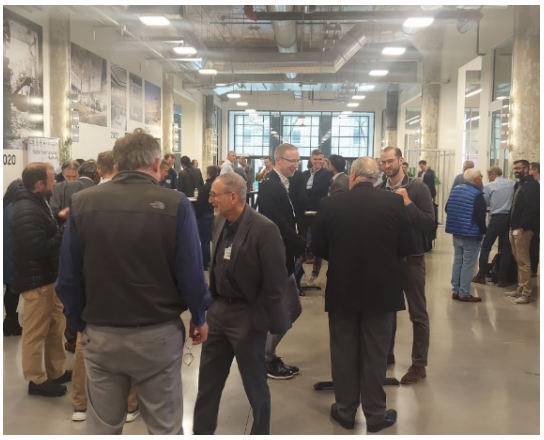
"Great! Didn't think I could learn much more on the topic but the Forum was very enlightening."
- Joshua McDonald, Consulting Engineer, Southern California Edison

"Excellent conference. Gathering of so many diverse experts provided a clearer statement of problems and gaps but above all focused on solutions. Great networking!"
- Bjoern Christensen, Managing Director, Next-Dimension Advisors

www.v2gforum.com/Detroit

Organized by: SGO Smart Grid Observer

V2G Demos



The Forum in October will include an exhibition area in which organizations are encouraged to showcase technology advancements, device and equipment demonstrations related to standardization of V2G technologies. Exhibitors will receive adequate floor space to accommodate equipment and displays. ACM's facilities include testing bays with power and garage doors to enable bringing vehicles into the demonstration areas.

The conference will be held at the **American Center for Mobility (ACM)** in Detroit, which features extensive infrastructure for equipment demonstrations and exhibits, supported by a 90-MW DTE Energy substation on site and both six 208 V and six 480 V outlets for charger systems.

Exhibitors will have the opportunity to showcase their V2G technology leadership and innovations to key industry executives attending the 3-day Forum. As an official EV interoperability demonstration lab site supported by the U.S. DOE, ACM has the goal of driving grid-integrated EV charging and widespread deployment of interoperable solutions in North America.

Research and interoperability testing of V2G technology is on ACM's roadmap and this event is an opportunity to accelerate the realization of that goal for ACM, further accelerating the development and adoption of standardized, scalable V2G technology. Participating in this exhibit at the V2G Forum is a unique opportunity to participate in this sector-leading ACM showcase and their associated initiatives.|

Any company ready to demonstrate standards-based V2G technology is invited to submit an expression of interest to dcoran@v2gforum.com

Technologies appropriate for showcasing within the demos include:

- Bidirectional charger advancements meeting grid interconnection requirements (US, EU or other grid codes)
- DERMS with V2G capabilities based on standardized communications and fucntional technologies
- Simulation and emulation for V2G standards-based Use Cases
- V2G test systems and tools supporting IEEE 2030.5, OCPP 2.1, J3072, IEEE 1547, ISO 15118-20 Amend 1, ISO 15118-2 Edition 2, CHAdeMO 2.0, 3.0 and ChaoJi, UL 1741 SC testing, simulations and analysis
- V2G-DC and V2G-AC CA Rule 21 interconnection process advancements
- CNO/CPO systems supporting standardized V2G
- V2G cybersecurity device and end-end standards demonstrations
- Any demonstrations should include certified, pre-certified or prototype implementations of the existing and emerging standards for V2G
- Standards harmonization and international coordination for V2G

About the Organizer

The Smart Grid Observer is an online information portal and weekly e-newsletter serving the global smart energy industry. SGO hosts a number of conferences each year focused on issues of high relevance for the global clean energy industry. The goal is to foster information exchange and high-quality, one-to-one networking among industry professionals. Topics include EV charging infrastructure, grid modernization, V2G, cyber security, microgrids, EV battery innovation and more.

For a list of upcoming and recent Forums, click here

Agenda *Note: Subject to change*

Tuesday, October 22, 2024

9:00 am - 12:00 pm

Workshop 1: V2G Technology Deep-Dive: Progress and Challenges in Making V2G Fully Certifiable

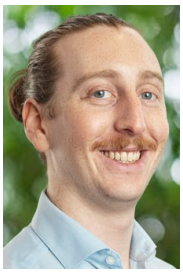
Nikoo Kouchakipour
Senior Advisor and Manager, Electrification Technology
Quanta Technology, LLC

Joshua McDonald
Consulting Architect and Engineer
Southern California Edison

12:00 - 1:00 pm Lunch

1:00 - 4:00 pm

Workshop 2: V2G Policy & Regulatory Issues



Zach Woogen
Interim Executive Director
Vehicle-Grid Integration Council (VGIC)

4:15 - 5:15 pm

Organized Brainstorming and Networking by Topic

5:15 - 6:15 pm Networking Reception

Wednesday, October 23, 2024

8:00 - 9:00 am Welcome Continental Breakfast & Coffee

9:00 - 9:15 am

Opening Welcome Remarks

Reuben Sarkar
President & CEO
American Center for Mobility

Brian Calka
Vice President, Distribution Operations
DTE Energy

Jacob Mathews
Senior Advisor, Standards & Reliability
Joint Office of Energy and Transportation

9:15 - 10:15 am

Opening Plenary Panel

EVs are the future of transportation, and Vehicle-to-Grid is the future of EVs. This opening panel will provide an overview of where we stand in the journey toward V2G in the U.S., highlighting key developments, progress and hurdles that still remain. Executives from electric utility, auto OEM, government and bidirectional enabling technology sectors will provide a context for the exhibits, live demos and sessions over the next two days, setting the stage for the Forum proceedings.

Moderator
James Mater
Director of Strategy, Smart Grid
QualityLogic

Dave McCreadie
EV-Grid Integration Strategy and Business Development
Ford Motor Company

Alexandra Cattelan
Chief Operating Officer
Fermata Energy

Shannon Anderson
Manager; EV Vehicle-Grid Integration
Nissan Motor Corporation

Caroline Wilcox-Miller
Sr. Product Manager Electrification
Sunrun

10:15 - 10:45 am

Plenary: Bringing Tech to Life in a Standardized Way

Alissa Harrington
Automotive and Charging Partnerships
WeaveGrid

Andrew Cifala
Solution Architect - Smart Grid & Alternative Energy Technology
Keysight Technologies

Glenn Skutt
Chief Technology Officer
Fermata Energy

Ben Burns
Leader of V2X
Eaton

James Mater
Director of Strategy,
Smart Grid
QualityLogic

Richard Mueller
Manager of Engineering
Technology
DTE Energy

10:45 - 11:15 am
Networking Coffee Break

11:15 am - 12:15 pm
Demos and Exhibits open

V2G Live Demos by:
- WeaveGrid / Wallbox / Kia
- Fermata Energy

V2G Test Bed Demo by:
- Keysight Technologies / QualityLogic / Heliox Energy (A Siemens Business)

12:15 - 1:45 pm
Lunch Break (Demos and Exhibits open)

Track A

2:00 - 3:00 pm
EV VPPs: Pathway to Scale V2G?

There is growing interest in the use of virtual power plants (VPP) to provide much needed capacity to the grid by harnessing the untapped potential of distributed energy resources (DERs). This includes the recent passage of landmark VPP legislation in Colorado and Maryland that requires utilities to procure VPP capacity and provide compensation for the distribution services provided.

This session will explore VPPs as an avenue to capture the massive VPP potential that electric vehicles (EV) with V2G systems will represent in the coming years. The panel moderator will lead a curated conversation with leading VPP experts to explore the potential for the VPP pathway to scale V2G. The conversation will cover the following topics:

- What distinguishes a VPP from a DER aggregation?
- Will VPP programs create opportunities currently not available for V2G?
- Are there other VPP assets that would be complementary with V2G when combined in a heterogeneous VPP?
- What is the appropriate role for electric distribution companies and aggregators in the VPP space?
- What are the critical elements in the design of a VPP program to optimize the value of V2G?

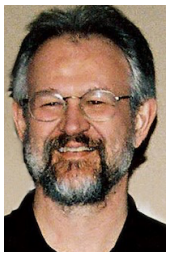
The panel moderator will ask each of the panelists to respond to a set of prepared questions and allow opportunity for audience participation.

Steve Letendre, PhD
Senior Director of Regulatory Affairs
Fermata Energy

Max Parness
EV Charging Solutions |
Senior Manager - Grid Services
Toyota Motor North America

Jen Downing
Engagement Officer,
Loan Programs Office
U.S. Department of Energy

Ben Shapiro
Principal, Transportation
RMI



Douglas Jester
Managing Partner
5 Lakes Energy

3:00 - 3:30 pm

Addressing Key Gaps to Incorporate VGI and V2G Benefits in Utility Planning

In prior work, E3 has quantified the value of VGI to utilities and to customers. However, despite numerous studies showing that VGI has value, more work is needed to convince planners and regulators that VGI is a viable resource with value for the distribution and bulk grid. In particular, additional **public** reports that can be widely distributed and referenced in industry forums will be helpful to move the conversation forward.

This session aims to address key gaps preventing utility planners from considering VGI deployment at scale. E3 will provide a brief summary of how benefits of VGI have been shown in prior studies. We will also describe why utility system planners and operators remain skeptical or unconvinced of real-world benefits of VGI, including concerns around reliability, predictability, and locations of VGI contributions.

The session will then describe what analysis will be convincing for system planners: first, modeling specific high value use cases of VGI, such as distribution deferrals; second, modeling VGI as a resource in planning models; third, larger scale demonstration projects that demonstrate a reliable response. E3 will summarize key results needed from analysis and demonstration projects to move forward from pilots to VGI deployment at scale. This includes sufficient data to stochastically represent performance in planning models, such as distribution of load reductions during peak period, percent of vehicles plugged in, charging and participating in a given hour, percent opt-out rates, as well as the ability to represent performance during extreme events, not just average days.

Eric Cutter
Partner
Energy and Environmental Economics, Inc. (E3)

Track B

2:00 - 2:30 pm

Enabling V2G Infrastructure With Adaptable Smart Panel Technology

Eaton is developing key technology that sets the groundwork for a V2G future. As V2H is the initial and most readily capable use-case, this feature will enable deployment of V2X capable systems. Eaton is enabling this transition with the launch of it's first round of smart panels. These panels tackle key challenges in the marketplace and provide flexibility for all customers.

With UL1741 compliance at the premise these systems are designed to be future ready for V2G integrations that consider other DERs at the premise. This session will cover the whole-home energy system and what complications arise for the V2G use-case. What if they have PV, ESS? How will these system interact with a new V2G installation? How can industry approach this question in an open and collaborative way so we can achieve our V2G goals.

Key takeaways:

- Enabling the adoption of V2X technology
- Establish base network of V2X capable homes (using V2H)
- Leverage this existing network as utility adoption and programs develop

Santino Graziani, PhD
HEMS System Architect
Eaton

2:30 - 3:00 pm

Innovative V2G Solutions: Market-Ready Tech Demonstration and Discussion

This session will highlight the key partners involved in the Wallbox (Quasar 2), Kia (EV9), and WeaveGrid demonstration at the V2G Forum, emphasizing their roles and contributions. We will discuss the primary goal of the demonstration: to showcase the ability of market-available V2G technologies to charge from and discharge to the grid seamlessly. Panelists will highlight recent milestones and achievements, such as the number of installations, geographic coverage, and customer feedback, and will explain the setup of the V2G demonstration, including the equipment and software used.

Valerie Frank
Senior Product Manager
Weavegrid

Lorenzo Garcia
Product Manager
Wallbox Chargers

Diana Gilmore
Business Development, Energy and Utility Partnerships
Wallbox

Alex Pawlowski
Senior Regulatory Strategy Specialist, Product Strategy & Mobility
KIA North America

3:00 - 3:30 pm

Bridging The V2G Gap: Integrating V2H-Capable EVs in National Grid's Flexibility Programs

As utilities and automakers seek to rapidly solve new load management challenges, incorporating vehicle-to-home (V2H) integrations into existing demand flexibility programs can accelerate widespread vehicle-to-grid (V2G) deployment. In this session, Ford and EnergyHub share key learnings from the launch of V2H-capable EVs in National Grid's Massachusetts ConnectedSolutions battery demand response program.

We will explore the process of adding Ford Lightning EVs to the program, which have been dispatched in parallel with the grid and in tandem with the ConnectedSolutions battery portfolio. Operating under the same program parameters and incentives as stationary battery energy storage systems (ESS), Ford Lightning EVs have covered home load across dozens of dispatches, reducing daily peak load.

This initiative lays the foundation for full V2G export capability at scale as more EVs are enrolled. This case study offers lessons for stakeholders in the V2G ecosystem, highlighting the challenges and opportunities ahead in the journey to widespread V2G deployment.

Key takeaways:

- Learn how utilities can work with OEMs to incorporate V2X into existing flexibility programs.
- Discover how V2X-capable EVs can be dispatched under the same parameters and incentives as stationary battery ESS, providing a turnkey program launch strategy.
- Learn how to design flexibility programs that enable V2X at scale as technological and regulatory changes accelerate.

Jeff Huron
Senior Manager
EV Business Development
EnergyHub

Sunil Goyal
Sr. Product Manager - Energy Services
Ford Motor Company

3:30 - 4:00 pm
Networking Coffee Break

Track A

4:00 - 4:30 pm
Scaling V2X: The Importance of Vehicle-to-Customer Friendly Solutions

Jonathan Levy
US Managing Director
Kaluza

The consumer is now generating power and is moving to the center of the energy equation. EV drivers, through bidirectional charging, have the ability to store and supply energy, transforming from passive customers to active participants in the energy market. Recognizing this shift, the automotive and energy industries have already shifted their technology investments, but all the stakeholders have to keep an eye on enhancing the end customer experience, ensuring that V2X solutions are seamless and intuitive.

Kaluza's surveys and trials with thousands of UK drivers have highlighted two significant challenges: V2X requires a substantial upfront commitment without clear value, and there are limited opportunities to engage customers with smart charging.

In this session, Jonathan Levy, US Managing Director at Kaluza, a leading energy software platform, will discuss lessons learned from programs in Europe on the importance of creating compelling program incentives and developing a seamless, "set and forget" experience with backend complexity management. Jonathan will also explore how the US V2X industry can move beyond pilot mode, focusing on the constraints posed by current platform architectures that slow down progress. This session promises to provide valuable insights into developing customer-friendly V2X solutions that can scale.

4:30 - 5:00 pm
Must Power for Transportation Electrification Come from Utilities? The Potential of Locally-Owned Solar Powered Charging Stations

The California Public Utility Commission assumes the only way to bring electricity to public charging stations is to pay the investor-owned utilities to add new capacity. We challenge that assumption. Our modeling shows that it is cost-effective for local property owners to build carport-mounted solar arrays over parking lots to power charging stations directly without adding utility capacity to a site. This also facilitates the goal of shifting charging to the daytime when cars are at work.

Further, V2H capable cars that charge during the day and carry energy home in the evening are a form of transmission. This energy can alleviate the need to upgrade local distribution lines to permit building electrification. The availability of EV V2H energy in the evening will substantially reduce the need for utility-scale batteries to provide power after sunset.

Key takeaways:

- Locally-owned solar powered charging stations are feasible.
- This allows building charging stations without adding utility infrastructure.
- Bidirectional cars charged during the day can carry charge home in the evening; reducing the requirement to upgrade distribution circuits to permit building electrification.

Jose Torre-Bueno, PhD
Executive Director
Center for Community Energy

Track B

4:00 - 4:30 pm

Early Results of Residential AC V2G Aggregation

The Mobility House currently provides technology and operations for AC V2G products for residential customers in France and Germany. This session will report initial data and learnings from these programs, including the groundbreaking partnership with Renault's energy business, Mobilize, for the V2G technology behind the 2024 R5. We will share details of the product offering to vehicle owners, including the bidirectional charger and green electricity tariff and discuss how the structure of the EU regulatory environment enables AC V2G interconnection for consumers and aggregation of those assets for wholesale trading.

Key takeaways:

- Technical challenges of AC V2G interconnection,
- Aggregation of residential V2G systems for wholesale market participation,
- Incorporation of those wholesale values into a variable residential rate without exposing the customer to financial risk,
- How are these elements commercially available and viable in Germany, France, and other EU markets, but not in the US, and does a pathway exist to get there in the US?

Russell Vare
Vice President of Vehicle Grid Integration
The Mobility House

4:30 - 5:00 pm

U.S. Department of Energy Perspectives on the Importance of V2G

Theodore Bohn
Principal Electrical Engineer
Argonne National Laboratory

5:00 - 6:45 pm

Networking Reception + Informal Brainstorming
Sponsored by Honda

Thursday, October 24, 2024

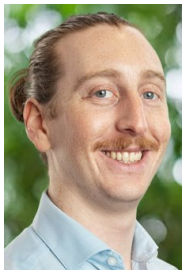
8:00 - 9:30 am
Welcome Breakfast - Exhibits and Demos Open

9:30 - 10:45 am
Plenary Session: V2G Policy and Regulatory Developments, Issues and Challenges

Moderator
Blake Heidenreich
Strategic Advisor,
Transportation Electrification
Southern California Edison

Noel Crisostomo
Physical Scientist, Office of Policy
U.S. Department of Energy

Brittany Blair
Senior Analyst, Research &
Industry Strategy
Smart Electric Power



Zach Woogen
Interim Executive Director
Vehicle-Grid Integration Council (VGIC)

10:45 - 11:15 am
Networking Coffee Break

11:15 am - 12:30 pm
Preconditions for Serial Production and Mass Deployment of V2G

This panel reports on efforts by a cross-industry group to create the conditions for V2G to be based on mass-produced components, enabling low-cost V2G systems, able to be readily permitted, and with access to multiple markets. The regulatory conditions are now coalescing at both the state and federal level. Focused on EV charging, the panel will review the regulatory pathways available for interconnection, injection, metering, and utility versus RTO market access.

Up to now most V2G has used DC charging stations because standards and regulations developed for solar inverters are more adaptable to a bidirectional DC charger at a permanent location, with inverter installed within the charging station. Similarly, the process of configuring a DC station inverter with local grid codes is more analogous to methods for solar and for fixed location storage. In the last couple of years, the needed standards have been developed for mobile inverters, making standards-compliant AC V2G practical. The main motivation for AC charging is the much lower station cost.

On the vehicle side, many or most global OEMs have announced coming vehicles with bidirectional AC chargers onboard, but few have adopted high-function signaling for V2G. The appropriate standards, SAE J3072, J3068, and J3400, now all passed, provide comprehensive standards for AC charging, IEEE1547 compliance, and high functionality V2G.

Moderator
Prof. Willett Kempton
Department of Electrical and Computer Engineering
University of Delaware

Rodney McGee
Department of Electrical and Computer Engineering
University of Delaware

Ryan O'Gorman
Business Strategy and Delivery Lead
Ford Energy Services

Scott Baker
Lead Business Solutions Analyst
PJM Interconnection

12:30 - 1:30 pm
Lunch - Exhibits and Ad Hoc Demos

12:30 - 1:30 pm
Informal Lunch Discussion Group: V2G Policy - Moving the Ball Forward

Discussion Leader
Blake Heidenreich
Strategic Advisor, Transportation Electrification
Southern California Edison

1:30 - 2:30 pm
Southern California Edison V2G Technical Advisory Board Progress Update

Jordan Smith, P.E.
Consulting (Principal) Engineer, Grid Technology Innovation
Southern California Edison

2:30-2:45 pm
Coffee Break

Track A

2:45 - 3:45 pm
Costs and Feasibility of V2G Installation: Enhancing Customer Experience and Acceptance

There are approximately 140M homes in the United States and about one in three have a load center smaller than 200 amps, which makes it highly likely those homeowners will require a load center upgrade or a load shedding alternative. Electric vehicle purchasers continue to indicate they want home charging, but at the lowest potential cost. This session will examine this infrastructure challenge as planning for the move toward V2G gets underway in the U.S.

We will also discuss the importance of reducing installation cost (electrician time) for end customers. Electric Vehicle buyers face two fundamental problems: 1) There is no charging solution at the point of sale (i.e., referrals to marketplaces and or electrical shops), and 2) Poor customer experience (High friction buying experience: dealers are ill equipped to advise and customers are left to call contractors on their own. Legacy electrical shops won't offer a quote until after they've visited the home). The customer experience is misaligned with the current EV market -- luxury buyers want a white glove experience, while non-luxury buyers want predictable costs. Current market solutions deliver neither. This session will examine technology strategies for addressing this key hurdle, focusing on simplifying electrification through software-driven installation as a service.

Ben Burns
Leader of V2X
Eaton

Eric Owski
Chief Executive Officer
Treehouse

Track B

2:45- 3:15 pm

V2G: Breaking Down Regulatory Silos To Capture Optimal Value

To unlock the V2G potential of EV/EVSE technologies, it is both necessary to lay an EV/EVSE-industry specific regulatory foundation, and to integrate these efforts into overall Grid Modernization. This session will discuss foundational efforts to overcome "regulatory roadblocks" to EV industry-specific technology deployment, leveling the playing field by addressing the benefits of their unique technical and operating characteristics.

The talk will also discuss how these foundational efforts are shaping an "holistic" framework to evolve a dynamic, digitized and decentralized "Integrated Grid," drawing upon the capabilities of "smart" communications and control technologies; distributed intelligence; and new data management and analytical tools and methods. EV/EVSE technologies with smart enabling technologies are distinctively supporting the development of an interactive, distributed Grid that can create value, using wholesale and retail markets to coordinate and optimize multiple resources to generate a wide range of costeffective grid services and customer benefits; expand the delivery of efficient and reliable electricity services and improve overall social welfare.

Key takeaways:

- Unlocking the potential of V2G requires both laying an EV/EVSE industry specific regulatory foundation and integrating reform efforts into the comprehensive development of a new Grid Operating System;

- EV-EVSE industry specific regulatory changes need to assure that the unique technical and operating characteristics of these distributed technologies are taken into account in utility planning, investment/procurement and operations to realize their benefits;
- Foundational EV/EVSE industry specific reforms and standards need to be integrated into overall Grid Modernization to assure that they help shape the parameters and functionalities of a new dynamic, digitized, and decentralized “Integrated Grid;”
- EV/EVSE with enabling “smart” technologies and new data management and analytical tools can distinctively influence the parameters and functionalities of a new Integrated Grid and, therefore, need to be reflected in a new electric utility sector regulatory paradigm to support an Integrated Grid and accelerate V2G;
- Regulatory reforms are underway both to lay an EV/EVSE industry-specific foundation, (reducing legacy barriers and levelling the playing field for these distributed resources); and to contribute to the development of a comprehensive regulatory framework for Grid Modernization (regulatory changes and innovations to capture optimal value from the “multi-use/application” of EV/EVSE resources interacting with other distributed energy resources within a “digitalized” and “interconnected” electric sector).

Larisa Dobriansky
Chief Business & Regulatory Innovations Officer
General MicroGrids

3:15 - 3:45 pm

Wireless Charging for V2G

WiTricity’s wireless EV charging is a technology that enables Vehicle-to-Grid (V2G) applications, which can help create a more sustainable and stable energy grid. Unlike conductive chargers, which require you to plug in your EV, wireless chargers automatically connect when the vehicle is parked over the receiver, ensuring that your EV can contribute to the grid even if you forget to plug it in. Because the grid may demand power at various times, the "always connected" nature of wireless charging means there will be no missed V2G opportunities.

Now, EV owners can take part in the many advantages that V2G charging provides, including powering the grid, the home and appliances, even if their particular EV is not equipped with V2G technology.

Pamposh Zutshi
Senior Director of Product Management
WiTricity

Track A

3:45 - 4:15 pm

Cybersecurity and Cyber-Physical Security of V2X Systems

This session will present on the V2X research at Idaho National Lab focused on cybersecurity and cyber-physical security of V2X systems, funded by US DOE VTO and CESER offices.

- Overview of the V2X Café at Idaho National Laboratory's Electric Vehicle Infrastructure Lab (EVIL)
- Hardware, research scope, and capabilities used for VTO EVs@Scale Cybersecurity Pillar and the US DOE CESER EV SALaD program
- Anonymized findings so far from the VTO EVs@Scale Cybersecurity Pillar
  - For V2X systems (V2H and V2G) intended for light duty and medium duty EVs
- Present on EV SALaD Cybersecurity best practices demonstration (collaborative effort: INL, PNNL, SNL funded by US DOE CESER office)
- Sept. 2024 demo
  - Demonstrate identified exploitable vulnerabilities from 3 V2X systems
  - Highlight potential impact severity from exploited vulnerabilities based on consequence-driven vulnerability assessment and lab-based hardware / software evaluations to verify: Grid Impacts, Safety, Hardware damage, Denial of Service, Data Theft/Alteration
- 2025 demo (adding onto 2024 demo)
  - Demonstrate identified exploitable V2G and V2H vulnerabilities
  - Demonstrate mitigation solutions to identify, and respond to exploits or anomalies
  - Highlight recommended V2X cybersecurity and cyber-physical security best practices
- Invite industry participation and collaboration with this “V2X Cyber Best Practices” demonstration project

Richard "Barney" Carlson
Research Engineer, Electric Vehicle Infrastructure Lab (EVIL)
Idaho National Laboratory

Track B

3:45 - 4:15 pm

Implementation, Demonstration and Validation of UL 1741 SC at NREL

In 2022, DOE announced the Vehicle to Everything (V2X) Memorandum of Understanding (MOU) to establish a collaboration for accelerating development and commercialization of V2X. Under the V2X MOU, NREL focused on the V2G AC ecosystem and has confirmed that the UL 1741SC is a key standard for the V2G AC deployment in the field. This session will summarize the investigation work and reveal NREL’s VGI evaluation platform including V2G AC.

The audience will be taken to a walk-through of V2G enabler programs, standards, summary of communication paths, and the research findings, and will learn about what NREL’s future work for V2G AC. The audience will also be able to learn about NREL's VGI research capabilities, including V2G AC.

Key takeaways:

- V2G relevant programs and standards outlook
- Communication paths
- NREL's future work and its evaluation platform

Yukihiro Hatagishi
Electric Vehicle Charging Hardware Systems Researcher, Advanced Vehicles and Charging Infrastructure Department (AVCI)
National Renewable Energy Laboratory (NREL)

4:15 - 4:45 pm

Moving the Needle - Achieving Interoperability is Key to Scaling V2G Worldwide

One of the biggest challenges for scaling V2G is the non-interoperable protocol and non-standardized grid codes. This lack of standardization prevents economies of scale, real market competition, and price reductions for the V2G infrastructure, thereby delaying the widespread adoption of bidirectional technologies. A true breakthrough can only be achieved if solutions for both AC and DC bidirectionality, including the relevant grid code aspects, are developed, and standardized globally. To address interoperability issues, The International Energy Agency in May 2024 has initiated the HEV TCP Task 53: Interoperability of Bidirectional Charging (INBID).

This task aims to test conformance to the upcoming ISO 15118-2X amendments related to bidirectional charging. It has two main objectives:

1. Ensure interoperability between bidirectional charging stations and vehicles.
2. Ensure interoperability between bidirectional charging stations and distribution grids.

Companies, universities, and institutions from participating IEA partner countries (US DOE has already signed on) are invited to join the effort to make bidirectional charging interoperable by becoming industry partners of INBID Task 53.

Bjoern Christensen
Managing Director
Next-Dimension

4:45 - 5:00 pm

Closing Plenary Session

Sample Attendee Feedback

"Very informative. The ability to talk to experts in the field as well as meet potential partner was the most valuable aspect"
- Shannon Anderson, Senior Planner, EV Infrastructure and V2X Strategy, Nissan North America

"Everything was well organized, ran smoothly, and was on time. Lots of great discussion"
- Sammy Nabahani, Solutions Engineer, WeaveGrid

"Really glad I attended -- good connections and ideas"
- Greggory Kresge, Senior Manager, Utility Engagement and Transportation Electrification, World Resources Institute

“Excellent. The wealth of experience present was terrific, beakout sessions helpful, and networking was essential”
- Brian Gregory, Compliance Leader, Emporia Energy

“A great conference to hear from industry-leading contributors and the advancement and needs of the V2G community. Additionally, a good networking space.”
- Nathan Wang, Product UL Solutions

"Great to see people in person who are highly involved in V2G"
- Yukihiro Hatagishi, EV Electronics Lead / V2X OBC, Diamond Electric Mfg. Corporation

"Great attendance and mix of attendees"
- Russel Vare, Auto OEM Partnerships, Kaluza

"Excellent, outstanding! Relevant, focused and high-value"
- Ted Witham, PE, Eaton Corporation

Platinum Sponsors

Eaton is a leader in designing, manufacturing, and supplying drivetrain, powertrain systems and critical components that reduce emissions and improve fuel economy, stability, performance and safety. Eaton is an intelligent power management company dedicated to improving the quality of life and protecting the environment for people everywhere. We are guided by our commitment to do business right, to operate sustainably and to help our customers manage power -- today and well into the future. Visit www.eaton.com

Honda is working toward its global goal of zero environmental impact by 2050 through its "Triple Action to Zero" approach, including achieving carbon neutrality for all products and corporate activities, 100% utilization of renewable energy, and resource circulation, utilizing 100% sustainable materials by reprocessing products back to raw materials and reusing those materials in the creation of new products. Toward this goal, Honda will strive to make battery-electric and fuel cell electric vehicles represent 100% of auto sales in the U.S. and globally by 2040. Visit honda.com

At Keysight (NYSE: KEYS), we inspire and empower innovators to bring world-changing technologies to life. As an S&P 500 company, we're delivering market-leading design, emulation, and test solutions to help engineers develop and deploy faster, with less risk, throughout the entire product life cycle. We're a global innovation partner enabling customers in communications, industrial automation, aerospace and defense, automotive, semiconductor, and general electronics markets to accelerate innovation to connect and secure the world. Learn more at Keysight Newsroom and www.keysight.com.

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Quality Logic delivers full spectrum QA products and services to technology companies in rapidly evolving markets, or where transformative technologies are changing the world. QualityLogic is a highly respected provider of test products and QA test and engineering services. The Company provides a flexible menu of services that scale to meet customers' evolving needs. QualityLogic's customers include technology companies around the world in a wide range of industries. Visit qualitylogic.com

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WeaveGrid is a software company building data products to enable the electric transportation transition. The SaaS company's platform connects a growing wave of electric vehicles to an electric grid that was not designed to support the high power needs of widespread charging. WeaveGrid uses cutting-edge data science and optimization to bring value to all stakeholders in this transition, including utilities, automakers, and drivers. Visit weavegrid.com

Fermata is a leading platform services provider of intelligent Vehicle-to-Everything (V2X) bidirectional charging technology, including Vehicle-to-Grid (V2G), Vehicle-to-Home (V2H), and Vehicle-to-Building (V2B) solutions. The company was founded in 2010 to accelerate the adoption of bidirectional energy technology solutions through inspiration and innovation. Fermata Energy's proprietary technology enables its customers to manage EVs as distributed energy resources by selling excess energy stored in parked EV batteries to offset costly peak demand charges. Visit fermataenergy.com

Event Partners

Grid Forward is a 501(c)(6) non-profit trade association dedicated to promoting and accelerating grid modernization in the western U.S. and Canada. Grid Forward has more than 150 member organizations representing regional utilities, advanced technology providers, energy markets, major energy users, higher education, government agencies, non-profits and other electric grid stakeholders. We deliver community, expertise and resources for leaders who are working to modernize the grid by way of advanced technology solutions, updated regulatory and business practices, pathways for funding and improved corporate culture. Visit gridforward.org.

Founded in late 2017, the Alliance for Transportation Electrification is a nonprofit trade association uniting a broad coalition of utilities, manufacturers, electric vehicle supply equipment vendors, engineering firms and others to promote electric vehicles in state-level policy across North America. Visit www.evtransportationalliance.org

Vehicle Grid Integration Council (VGIC) is a national 501(c)(6) membership-based advocacy group committed to advancing the role of electric vehicles and smart EV charging through policy development, education, outreach, and research. Visit www.vgicouncil.org

The Smart Electric Power Alliance (SEPA) is a nonprofit organization that envisions a carbon-free energy system that is safe, affordable, reliable, resilient and equitable. SEPA has a very specific role in the journey towards carbon-free. Our mission is to accelerate the electric power industry's transformation to a modern energy future through education, research, standards, and collaboration. SEPA has over 1,000 members (including 700+ utilities) who continuously rely on us to make smart clean and modern energy choices. Visit www.sepapower.org

In collaboration with partners and communities, WRI's Electric School Bus Initiative aims to build unstoppable momentum toward an equitable transition of the entire U.S. school bus fleet to electric by 2030, bringing health, climate and economic benefits to children and families across the country and normalizingelectric mobility for an entire generation. For more information on the Initiative, visit www.wri.org/initiatives/electric-school-bus-initiative

Founded in 1972, EPRI is the world's preeminent independent, non-profit energy research and development organization, with offices around the world. EPRI's trusted experts collaborate with more than 450 companies in 45 countries, driving innovation to ensure the public has clean, safe, reliable, affordable, and equitable access to electricity across the globe. Visit www.EPRI.com

The SunSpec Alliance is a trade alliance of more than 170 solar and storage distributed energy industry participants, together pursuing information standards to enable "plug & play" system interoperability. SunSpec standards address operational aspects of solar PV power and energy storage plants on the smart grid -- including residential, commercial, and utility-scale systems. Visit www.sunspec.org

The American Center for Mobility offers a one-of-a-kind global development center to transform the way industries advance safe, sustainable, and secure mobility technologies. Our vision is to enhance the quality of our lives through the enablement of future mobility solutions. ACM's approach is to achieve growth and prosperity for our ecosystem through partnerships. Visit www.acmwillowrun.org

For over 40 years, IREC has made clean energy possible for millions of Americans through cutting-edge solutions that advance renewable energy, electric grid modernization, and energy efficiency. Today, our work continues in response to the urgent need to transition to clean energy -- to mitigate climate change, improve the resiliency of our communities, and ensure all people benefit from a just transition to a clean energy future. Visit www.irecusa.org

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Sponsorship Options

Platinum - $6,500

- Recognition as official Lunch, Wi-Fi or lanyard sponsor (website, onsite signage and tent cards)
- Tabletop exhibit space
- 4 complimentary passes
- Top-level logo visibility on event website and in all marketing communications
- Top-level logo recognition throughout the conference, during breaks and session introductions
- Virtual Exhibits display page / booth (available for full year after close of Summit)
- Opportunity to help guide overall program
- White paper or executive interview published on event website
- Attendee list
- Special introductions and one-to-one meetings facilitated by SGO
- Corporate description with link on Sponsors page
- Post-conference communication with attendees

Gold - $4,500

- Recognition as official Coffee Break sponsor (website, onsite signage and tent cards)
- Tabletop exhibit space
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- Special introductions and one-to-one meetings, facilitated by SGO
- Logo visibility on event website and in all marketing communications
- Logo recognition throughout the conference, during breaks and session introductions
- Corporate description with link on "Sponsors" page
- Post-conference communication with attendees

Silver - $3,500

- Tabletop exhibit space
- 2 complimentary passes
- Attendee list
- Virtual Exhibits display page / booth (available for full year after close of Summit)
- Prominent logo visibility on event website and in all marketing communications
- Prominent logo recognition throughout the conference, during breaks and session introductions
- Corporate description with link on "Sponsors" page

Bronze - $2,500

- 1 complimentary pass
- Attendee list
- Virtual Exhibits display page / booth (available for full year after close of Summit)
- Prominent logo visibility on event website and in all marketing communications
- Prominent logo recognition throughout the conference, during breaks and session introductions
- Corporate description with link on "Sponsors" page

To arrange your participation, contact:

Daniel Coran, Program Manager, dcoran@smartgridobserver.com, +1-815-310-3343

Registration

Main Conference, Standard Rate - equipment and software providers, consultants, and services providers *Access to sessions, lunches, networking coffee breaks, exhibits/demos and drink reception on October 23-24, as well as presentation PDFs and attendee list.*	$995.00
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