



Virtual Power Plant Forum

November 19, 2024 • San Francisco

www.smartgridobserver.com/VPP

According to the U.S. Department of Energy, coincident peak demand on the grid will rise approximately 60 GW over the next six years, from roughly 740 GW to 800 GW. At the same time, fossil assets are retiring. Roughly 200 GW of peak-coincident demand must be served with new resources coming online by 2030. Tripling the current scale of Virtual Power Plants (VPPs) could address 10-20% of this expanding demand. This could avoid about \$10B in annual grid costs, and much of the money that is spent on VPPs would flow back to participating consumers.



To help utilities and other industry stakeholders capitalize on this trend, the **Virtual Power Plant Forum**, November 19, 2024 in San Francisco, examines the latest technology advances, VPP deployments, and lessons learned to date from real-world case studies. The emphasis is on key enabling technologies, business models and policy developments that allow energy providers to capitalize on the VPP model. The Forum is a focused networking and information-sharing opportunity in which industry executives can envision, develop and refine their VPP strategy going forward.

Topics to be Addressed Include:

- Role of VPPs in a long-term strategy for energy resiliency
- The state of enabling technologies and business models for all stakeholders
- Accommodating electrification load growth and more intermittent renewable energy on the grid
- Evolution of VPP implementations and projects
- Real-world case studies of VPP success - lessons learned to date
- VPP strategies for meeting reliability needs and reducing energy costs
- Re-envisioning the customer relationship and empowering the energy end user
- Leveraging VPPs to deliver cost savings, grid resiliency, flexibility and climate benefits
- The process for solar companies to become VPP co-developers
- Going beyond solar Net Metering and backup power: Actively orchestrating grid edge and customer-owned BTM assets
- Satisfying changing requirements for resource adequacy
- Regulatory and policy issues affecting VPPs, including FERC Order 2222
- Cooperation between utilities and aggregators for effective VPP implementations
- Providing cost-effective ancillary services to RTOs/ISOs
- Going beyond DERMS to fully orchestrated, system-wide control platforms
- Integration with existing infrastructure and systems
- Control and communication methods between grid operators, VPP operators and DERs
- Utilizing DER aggregations to promote decarbonization of the power sector
- Standards issues and progress: ensuring device interoperability
- Best practices and roadmaps for future growth and success

Organized by:



Agenda

Note: Subject to change.

Tuesday, November 19, 2024

8:00 - 9:00 am Welcome Coffee & Registration

9:00 - 9:30 am

Opening Address: Facing the Grid Needs for a 2050 Net Zero Economy

Achieving the goal of economy-wide decarbonization requires a deeper discussion of how our electric system will look in 2050. For the first time in decades, utilities are being faced with the challenge of significant load growth, driven by advances in computing and industrial growth. In addition, incorporating new loads from electrification of buildings, industry and transportation could require a significant increase in our electrical infrastructure needs. The need will be keenly felt in the distribution system, and the grid edge, which we are defining as the electric infrastructure between the feeder and the plug. Our big challenge for tomorrow is how can we right-size the electric grid to address the load growth while minimizing impact to our ratepayers and taxpayers, and still achieving the goals of a clean energy economy. We will discuss the potential for multiple technologies and solutions, ranging from greater clean energy integration to more advanced distribution system planning methodologies.



Ram Narayanamurthy

Deputy Director, Building Technologies Office
Office of Energy Efficiency & Renewable Energy
U.S. Department of Energy

9:30 - 10:00 am

Distributed Energy Resources and VPPs: Addressing The Remaining Obstacles

With rapid advances in artificial intelligence and the introduction of many digitized connected devices, the aggregation, management and orchestration of DERs is becoming practical and profitable. Turning a portfolio of DERs into a virtual power plant is closer to reality than may seem. A simple back-of-the-envelope calculation suggests that a typical solar house with a battery in a sunny place such as HI, CA, AZ, NM, Australia or many other places can operate self-sufficiently for 90+% of hours in the year without any need for grid-supplied electricity. With a bi-directional EV, this number goes even higher. The implication for the power system is that their role is gradually shifting from central to residual energy provider, offering backup, firming or balancing services to future prosumers and prosumagers (i.e., prosumers with storage). While many challenges remain to be addressed, this session explores the implications of these developments and the emerging business models that will make it feasible, practical and economically viable to aggregate large portfolios of DERs as VPPs.



Fereidoon P. Sioshansi, Ph.D.

President
Menlo Energy Economics

10:00 - 10:30 am

Supporting the Grid in the Long Term: Principles for Durable VPP Implementation

Virtual power plants (VPPs) - aggregations of grid-integrated distributed energy resources (DERs) - can be part of the toolkit to achieve affordability, reliability, resilience, safety, and decarbonization objectives for the grid and its customers. But, how do we design and implement these programs now to ensure they can durably provide benefits in the long term? How do we plan for, integrate, and compensate DERs and VPPs to support the grid of the future? This session explores VP3's *VPP Policy Principles*, a consensus document developed by RMI and 25 VPP providers detailing the core set of conditions required to support and scale VPPs to deliver benefits to the grid and its customers. The session will also highlight a few VPP case studies exemplifying these implementation principles around the US, drawing from VP3's *VPP Flipbook*, a collection of 14 VPP case studies.



Avery McEvoy

Senior Associate, Carbon-Free Electricity Practice

RMI

10:30 - 11:00 am Networking Coffee Break

11:00 am - 12:00 pm

EVPPs: Leveraging EV Charging Flexibility for Grid Reliability

Electric vehicles are rapidly evolving from transportation modes to critical assets for grid resiliency. This panel discussion explores the potential of EVs as virtual power plants through the lens of the stakeholders involved in this transition. WeaveGrid, PG&E, an EV automaker, and a charging provider will share their perspectives and real-world experiences in harnessing EV fleets as flexible virtual power plants. By examining the critical roles of each stakeholder, we will delve into the technical, economic, and policy frameworks necessary to unlock the full potential of VPPs, ultimately reducing energy system costs. This session will highlight how collaboration across the value chain can accelerate the integration of EVs into the grid, providing tangible benefits to both EV owners and the broader energy ecosystem.



Smriti Mishra

Senior Director
Strategic Growth

WeaveGrid



Amy Costadone

Principal Product Manager
Vehicle-Grid Integration

PG&E



Diana Gilmore

eMobility - Energy & Utility Partnerships

Wallbox Chargers

12:00 - 1:00 pm Lunch Break

1:00 - 2:00 pm

Securely Stacking and Maximizing the Value of Virtual Power Plants

As the energy landscape evolves, virtual power plants (VPPs) have emerged to play a crucial role in enhancing grid reliability, delivering economic benefits, and supporting renewable integration and decarbonization. This session will host a deep dive discussion into strategic approaches for securely stacking and maximizing the value of VPPs. Experts from the energy sector will share insights on leveraging VPPs to provide value to customers through demand response and energy savings, ensuring resource adequacy in a dynamic grid environment. Security and trust practices will be shared as well as how to participate effectively in energy markets, and serve as cost-effective non-wires alternatives to traditional grid infrastructure investments. Attendees will gain valuable insights into the strategies, opportunities and challenges associated with VPP implementation and learn best practices for optimizing their value stack.



Chris Johnson

Vice President & General Manager
Energy Solutions
Intertrust



Cameron Briggs

General Manager and Head
of Future Energy
Origin Energy



Julian Durand

Chief Security Officer and SVP Product Management
Intertrust

2:00 - 2:30 pm

The Virtual Power Plant Liftoff in California

This session will focus on California's efforts to utilize virtual power plants (VPPs) to support grid reliability and reduce costs related to distribution upgrades. Since the heat wave events in August 2020, California energy regulators have created a number of incentive programs and regulatory frameworks to utilize customer distributed energy resources (DERs) and support technology development. Virtual power plants (VPPs), as an emerging concept, have a growing role in achieving this goal. However, the policy landscape is extremely complex and issues range from developing the "right" grid signals to optimize resources, and compensate customers to incorporating VPPs in resource adequacy and distribution planning. Key Takeaways:

- The policy landscape to fully utilize VPPs is underway in California. The policy development is extremely complex and fragmented.
- There are still limited market programs to incentivize customers and compensate for their contribution to grid reliability and reducing systems costs, especially in the distribution system.
- California's experiment with utilizing VPPs to create strategic reliability reserves has been successful.



Kadir Bedir, PhD

Supervisor - Distributed Energy Resources

California Energy Commission

2:30 - 3:00 pm Networking Coffee Break

3:00 - 3:30 pm

Residential and Fleet EV Virtual Power Plants to Orchestrate Grid Resources and Accelerate Transportation Electrification

Governments globally have taken the initiative in investing in renewable energy and transportation electrification plans globally. When the plan to dramatically grow the share of renewable energy resources and EVs in the power generation mix is realized, it will weaken grid security and controllability and can cause serious challenges for power grid operators. A VPP can solve this problem by integrating intermittent distributed energy resources (DERs) through information and communication technologies to deliver a single generation profile. This session will focus on two use cases where smart EV charging solutions and VPP for residential and fleet EVs were implemented at SEV Faroe Island and at TATA Motors in India to electrify 3000 residential EVs and hundreds of e-buses, and optimize the grid to reduce integration impacts.



Shishir Shekhar, MSEE, MBA, SMIEEE

Senior Director & Global Head of Technology - EV & Energy Transition Business

Landis+Gyr AG

3:30 - 4:00 pm

Origin Loop VPP Case Study: Building a Sustainable, Resilient Energy Grid

This case study will demonstrate how the Origin Loop VPP not only supports individual energy independence and cost savings but also plays a crucial role in advancing the transition to renewable energy sources and creating a more resilient and sustainable energy grid. The Origin Loop Virtual Power Plant (VPP) represents a pioneering advancement in energy grid technology, leveraging a network of 1GW of residential assets to create a smart, responsive, and efficient energy management system. This case study explores the implementation and impact of the Origin Loop, highlighting its innovative use of solar batteries, electric vehicle (EV) smart charging, hot water optimization, and behavioral demand response strategies.



Brendan Manzie

General Manager - Future Energy

Origin Energy

4:00 - 5:00 pm

Enhancing Virtual Power Plant Performance through Automation

Although VPPs are being recognized as a transformative solution to create a cleaner, more flexible and resilient electric grid, orchestrating large aggregations of distributed energy resources to consistently and predictably respond during grid events remains a challenge. The lack of trust in VPP solutions is slowing deployment at a time when utilities and grid operators look to ensure resource reliability in the face of increasing strain on the grid. This session will explore how automation can drive stronger performance from VPPs. Advanced automation capabilities can help streamline workflows and improve accuracy across all aspects of VPP operations, from integrating DERs into energy programs at scale, to transacting in markets and reliably responding to grid events. Through case studies and expert insights, this session will demonstrate the key automation pathways for deploying efficient, low-cost and reliable VPPs at scale.



Andrew Hoffman
Chief Development Officer
Leap



Casey Donahue
CEO
Optiwatt



Michael Siemann
Distinguished Engineer
Resideo

5:00 - 6:00 pm Drink Reception

Speaker Bios

Kadir Bedir, PhD manages the Distributed Energy Resources (DER) Unit in the California Energy Commission. His role involves evaluating DER integration strategies in California and guiding policy decisions. Prior to this role, Kadir oversaw CEC's demand flexibility R&D projects and led the development of California's EV Infrastructure Projections (EVI-Pro) framework, which was implemented nationally by the National Renewable Energy Lab (NREL). He helped the Governor Brown administration to develop the state's first EV charger deployment goals in 2018. Kadir is an electrical engineer with an interdisciplinary Ph.D. in energy and transportation studies from the University of California, Davis.

Cameron Briggs is the General Manager and Head of Future Energy for Origin Energy, one of Australia's largest energy companies. His team leads Origin's innovation and strategy activities as they chart the course that defines what the future of the company will be. He also leads Origin's US activities from Palo Alto, California where he and his family reside. He has a diverse background with senior leadership roles in Start Up companies, Government, and the Energy Industry. He holds a PhD in applied physics and an MBA in finance and economics from the University of Queensland.

For 20 years, **Amy Costadone** has led cross functional teams and product roadmaps to deliver complex solutions that improve customer experiences and deliver a cleaner energy future. In her current role as Principal Product Manager for PG&E, she leads PG&E's strategic direction on vehicle to grid integration. In previous roles, Ms. Costadone created and led a team focused on a portfolio of energy data products, which

leverage smart grid data to empower consumers to reduce energy usage, foster market innovation, and help California assess and set clean energy policies. She earned a degree in Electrical Engineering and Management Information Systems from the University of Texas at Austin. Amy is the mother to two children and while she isn't playing acronym soup in her day job, she enjoys playing an unpaid uber driver, mid-tier soccer and baseball coach, and encouraging kids to find their magic as a scout leader.

Casey Donahue is CEO at Optiwatt. The company's app connects connect home electricity rate data with EV battery metrics to show the cost of every charge.

Julian Durand is a product leader with a proven track record of launching and scaling products to global markets, with shipments reaching hundreds of millions. At Nokia, he was instrumental in developing the first music phone. At Qualcomm, Julian innovated and led product groups, driving advancements in eSIM and IoT technologies, and introduced a hardware security platform, establishing new market opportunities. He is credited with ten issued patents, with several more pending. His portfolio spans SaaS and PaaS solutions in construction telematics, real-time child monitoring, and cyber risk data analytics. Julian holds a B.Eng from Carleton University and an MBA from the University of Southern California (USC). A CISSP-certified professional, he is an active member of the Forbes Council and a regular speaker at industry events like IoT Slam. He maintains citizenship in Canada, the USA, and Italy.

Diana Gilmore works in eMobility, Global Strategic Partnerships and Business Development for WallBox Chargers, interfacing with technology and commercial leaders in organizations involved in the transition to clean transportation. Diana has worked as engineering consultant for Pixada USA, strategic partnership & account manager for EVBox, and strategic account executive at Ultra Clean Technology and Cenveo, bringing extensive experience in technical fields including Semiconductor, Robotics and Electric Vehicle Infrastructure as well as connections with key manufacturers, hosts, consultants and industry experts.

Andrew Hoffman is Chief Development Officer at Leap. Andrew has a track record delivering over 1 GW of next generation cleantech products to evolve the grid. He is a strategic thinker at the nexus of customer & grid needs, evolving tech, and policy & business drivers. His experience includes working across stakeholder groups - utilities, PUCs, ratepayer & customer advocates, grid operators, financiers, and cleantech entrepreneurs - to build clean energy products.

Christopher Johnson is Intertrust's Vice President and General Manager of Energy Solutions, responsible for spearheading initiatives that establish secure and trusted connections to distributed energy resources. His extensive experience in strategic energy solutions and proactive leadership helps customers to unlock the value of energy resources through flexibility orchestration platforms. These efforts are pivotal for advancing sustainable energy, balancing energy grids, lowering costs, and increasing value for end customers, utilities, and asset owners. Prior to joining Intertrust, Christopher was Managing Director of Enterprise Innovation & Technology at American Electric & Power (AEP), where he was in charge of enterprise strategy for distributed energy resources, electrification, and research and development.

Brendan Manzie is General Manager of Future Energy at Origin Energy, one of Australia's largest energy companies, and has been with Origin for over 15 years. Here Brendan contributes experience in renewable energy systems, innovation management, and product development. Prior to this, Brendan worked at GE in Australia and then the UK, serving as head of pricing at GE Capital for 2 years. Brendan holds a bachelor of commerce from Queensland University.

Avery McEvoy is a Senior Associate in RMI's Electricity practice, where she helps run the Virtual Power Plant Partnership (VP3). VP3 is a coalition of industry voices working to scale the market for virtual power plants by catalyzing industry and influencing the necessary policies, regulations, and market rules-in ways that benefit communities and society. Avery leads VP3's regulatory and policy work, and project manages and facilitates their biannual convenings. Prior to working on VP3, Avery performed data analysis assessing the climate benefits of distributed energy resources and their role in decarbonizing the residential sector, modeled how to cost-effectively replace existing and proposed gas plants with portfolios of clean energy, and

modeled solar-plus-storage microgrids for critical facilities across Puerto Rico to increase energy resilience and autonomy. Prior to RMI, Avery was a lecturer in the Civil and Environmental Engineering department at Stanford University on energy resources and energy efficiency. Avery has bachelor's and master's degrees in environmental engineering with a focus in renewable energy.

Smriti Mishra is Senior Director of Strategic Growth and Alliances at WeaveGrid. WeaveGrid provides utilities with a technology platform to actively optimize EV charging load, through greater understanding of customer behaviors and delivering on layered value streams for the grid. Smriti was among the founding team at WeaveGrid and led the team through several stages of 10x growth, including landing and launching programs with several of the largest utilities in the country. Smriti has expertise in energy innovation, aggregation, and building industry collaborations. Prior to WeaveGrid, she was a Director at National Grid, where she led joint ventures for distributed energy for the unregulated business. Smriti has also previously operated demand response portfolios as a P&L owner, whose team managed over \$100M in annual revenue. She has developed several joint ventures that were first-of-kind with unique regulatory structures and bridges for public/private partnership.

Ram Narayanamurthy is the deputy director of the Building Technologies Office, in the Office of Energy Efficiency & Renewable Energy at the U.S. Department of Energy. He joins DOE with more than two decades of experience in development and deployment of building technologies. Prior to DOE, he led the Buildings Program at the Electric Power Research Institute (EPRI), where his team focused on strategies for decarbonization of the building stock in both existing and new construction, based on large-scale deployments. The team's notable accomplishments included development of the first production built zero energy community, decarbonized solutions for retrofits in affordable housing communities, and smart energy communities. Ram has also worked extensively with state organizations such as the California Energy Commission, New York State Energy Research and Development Authority, and cities to advance building decarbonization. He brings experience in working with many large homebuilders, affordable housing developers, HVAC manufacturers, and utilities to assist in scaling emerging technologies.

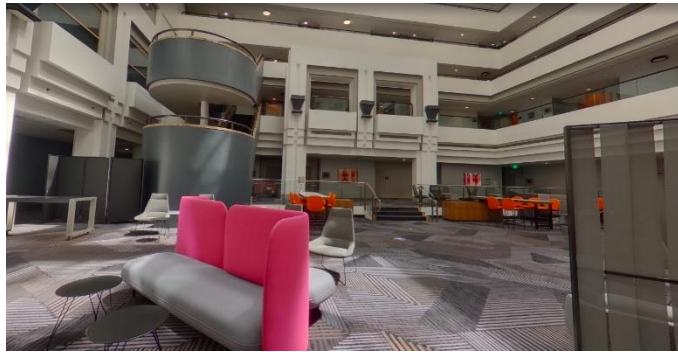
Shishir Shekhar is a technology and business leader with 15+ years' experience across innovation, R&D, product management and strategy functions in technology, Utilities, Green Energy and Automotive Industries. Currently, Shishir serves as a Sr. Director and Global Head of Innovation and Technology Strategy at Landis+Gyr Inc and Sr. Director and Global Head of True Energy, A Landis+Gyr company, located in Copenhagen, Denmark. Shishir is responsible for Product Innovation, Technology Strategy and R&D for Electric Vehicles and New Energy Solutions at Landis+Gyr Inc.

As the leader of Resideo's Energy Sciences team, **Michael Siemann** drives the strategic direction, development, and analysis of the company's diverse portfolio of products and services that shape the energy landscape. Michael has focused on developing residential energy efficiency and load management solutions, starting from their inception in a start-up environment and guiding them through acquisition and integration into a prominent multi-billion dollar company. Michael's formal training was in Heat Transfer and HVAC having received a PhD in Mechanical Engineering from the University of Maryland specializing in the Thermal, Fluid, and Energy Sciences.

Fereidoon P. Sioshansi, Ph.D. is President of Menlo Energy Economics, a consulting firm based in San Francisco, California, advising clients in the energy sector. He is the editor and publisher of EEnergy Informer, a monthly newsletter with international circulation. His professional experience includes working at Southern California Edison Co., Electric Power Research Institute, NERA, and Global Energy Decisions. He has edited/co-edited 16 books published by Academic Press including the following: *Electrifying virtually everything*, forthcoming in 2025; *The Future of Decentralized Distribution Networks*, 2023; *Energy Communities*, 2022; *? Variable Generation, Flexible Demand*, 2020; *Behind the Meter: Digitalization, Aggregation, Optimization, Monetization*, 2020; *Consumer, Prosumer, Prosumager*, 2019; *Innovation and Disruption at the Grid's Edge*, 2017; *Future of Utilities, Utilities of the Future*, 2016; and *Distributed Generation*, 2014.

Event Venue

San Francisco Marriott Marquis 55 4th Street, San Francisco



Sponsorship Packages

Gold Level Sponsor

Value: \$3,000

- Logo recognition as Gold-Level Sponsor
- Tabletop exhibit in networking break and reception area
- 3 complimentary conference passes
- Top logo positioning in Official Program Guide, event website, and email communications
- Corporate description with hyperlink on event website
- Logo in on-site banners and signage
- Company information or insert included in registration portfolios distributed to all attendees
- Attendee List provided one week prior to, and following the event

Silver-Level Sponsor

Value: \$2,000

- Logo recognition as Silver-Level Sponsor
- Tabletop exhibit in networking break and reception area
- 2 complimentary conference pass
- Logo positioning in Official Program Guide, event website, and email communications
- Corporate description with hyperlink on event website
- Logo positioning in on-site banners and signage
- Attendee List provided one week prior to, and following the event

Bronze-Level Sponsor

Value: \$1,000

- Logo recognition as Bronze-Level Sponsor
- 1 complimentary conference pass
- Logo positioning in Official Program Guide and event website
- Corporate description with hyperlink on event website
- Logo recognition in on-site banners and signage

To arrange your participation, Contact Daniel Coran, program manager, at dcoran@smartgridobserver.com

Media Partners



[Guidehouse Insights](#) is a premier market intelligence and advisory firm covering the global energy transformation with a focus on emerging resilient infrastructure systems. Our goal is to present an objective, unbiased view of market opportunities across dozens of industry verticals. Guidehouse Insights is not beholden to any special interests and is thus able to offer clear, actionable advice to help clients manage transformation, unfettered by technology hype, political agendas, or financial influences that are inherent in emerging technology markets. Visit www.guidehouseinsights.com



[Skipping Stone](#) is an energy consulting and technology services firm that assists a wide variety of market participants to navigate market changes, capitalize on opportunities and manage business risks. Skipping Stone has delivered measurable bottom-line results for over 270 clients globally. Headquartered in Boston, the firm has offices in Atlanta, Houston, Los Angeles, Tokyo, Singapore, and London. Visit www.skippingstone.com



[AltEnergyMag.com](#) is a dedicated online B2B publication featuring minute by minute news, daily hot stories, along with weekly articles, interviews and case studies featuring key issues about various Alternative Energy Technologies ... always at the cutting edge.



[Energy XPRT](#) is a global marketplace with solutions and suppliers for the energy sector, with product catalogs, articles, industry events, publications & more.

Registration

Equipment and software vendors, consultants, and services providers \$395.00

Non-Profit Organizations, Academic, Government \$295.00

Note: .edu, .gov, or .org email address required

Visit www.smartgridobserver.com/VPP/register.htm to register securely online

About the Organizer:



The [Smart Grid Observer](#) is an online information resource serving the global smart energy industry. SGO delivers the latest news and information on a daily basis concerning key technology developments, deployment updates, standards work, business issues, and market trends worldwide. SGO produces several conferences each year on topics such as EV charging, V2G, ICS cybersecurity, grid modernization, and more. Visit www.smartgridobserver.com