# PLMA is the Voice of Load Management Professionals

PLMA (Peak Load Management Alliance) is a non-profit organization founded in 1999 as the national voice of load management professionals. It is a community of experts and practitioners dedicated to sharing knowledge, and providing resources to promote inclusiveness in the design, delivery, technology, and management of solutions addressing energy and natural resource integration. PLMA seeks to advance practical applications of

"PLMA membership enables easyaccess to a wealth of information about demand response. The combination of the conferences, archive of past presentations and contacts with members of the organization is hard to match."

# Richard Philip, Duke Energy

dynamic load management and distributed energy resources by providing a forum where members educate each other and explore innovative approaches to program delivery, pricing constructs, and technology adoption.

# **Become a PLMA Member at** www.peakload.org

# **MEMBERSHIP BENEFITS INCLUDE...**

Networking & Relationships • Expertise & Knowledge Sharing Thought Leadership • Training Courses & DR Dialogues Market Intelligence • Industry Recognition



# November 4-6, 2019 St. Petersburg, FL

# FEATURED SPONSORS enel x Powering Business Worldwide

# Monday, November 4, 2019

8:00 - 9:00 am | SHARED EVOLUTION TRAINING & INTEREST GROUP BREAKFAST

# 9:00 am - 4:30 pm | Evolution of Demand Response to Distributed Energy **Resources: Fundamentals and Path Forward**

Co-Chairs Mark Martinez, Southern California Edison; and Christine Riker, Energy Solutions

This one-day course explains how today's demand response initiatives are evolving to interact with an emerging future with distributed energy resources for peak load management and much more. The course content expands on the Evolution of Demand Response whitepaper and discussion.

| Track A   | Track B   |
|---|---|
| 9:00 – 11:00 am   | 9:00 – 11:00 am   |
| <b>Women in DM</b><br>Co-Chairs Melissa Knous, Duke Energy; Isabel<br>Sepulveda, EnergyHub; and Lenore Zeuthen,<br>Zeuthen Management Solutions   | Beneficial Electrification & Building<br>Decarbonization – You Can't Have One<br>Without The Other!<br>Co-Chairs Troy Eichenberger Tennessee Valley   |
| Join us for a networking session. We'll start with informal breakout tables and share new DSM   | Authority; and Steven Koep, Beneficial<br>Electrification Ambassador  |
| projects, jobs, responsibilities - come ready to<br>talk about what you're working on, or working<br>towards! During the second half we'll discuss<br>mentoring: what it entails, what we've<br>experienced, plus effective strategies for career<br>development in the DSM industry. This session<br>is ideal for those wanting to hone their<br>mentoring skills as senior managers leading<br>diverse teams, as well as for DSM professionals<br>seeking to advance their careers. | Presenters: Carla Frisch, Rocky Mountain Institute;<br>Bob DiBella, ICF; Patrick McCoy, Sacramento<br>Municipal Utility District; and Paul Miles, PECO, an<br>Exelon Company  |
|   | All across the country, co-op, public power and<br>investor-owned electric utilities are moving<br>forward with Beneficial Electrification (BE) and<br>Building Decarbonization efforts intended to<br>reduce overall GHG emissions from the<br>residential built environment. The recently |
|   | of 80-90% by 2050, primarily attributed to the<br>'greening of the grid' and the advancement of<br>heat-pump technology for heating, cooling and<br>water heating. Looking at both new<br>construction and retrofit, electrification can not  |

only cut emissions, but also "can lead to consumer capital cost savings, bill savings and life-cycle cost savings, in many circumstances." Hear from electric utilities large and small about the BE and Bldg DeCarb efforts currently underway and gain a better understanding of this important opportunity.

# Monday, November 4, 2019 (cont.)

11:00 am - 12:00 pm | SHARED EVOLUTION TRAINING & INTEREST GROUP LUNCH

#### Track A (cont.)

#### 12:00 - 2:00 pm

#### Global Load Management

Co-Chairs Scott Coe, GridOptimize; Jon Hilowitz, Orange and Rockland Utilities; and Ross Malme, Skipping Stone

Please join the Global Load Management interest group to explore several innovative technologies coming from companies based in countries from around the world. Mark Bailey of the UK-based Connected Energy will discuss the reuse of EV batteries for dynamic frequency response and power quality support. Tobais Weghorn of Germany-based Next Kraftwerke will discuss the aggregation of wind farms into a Virtual Power Plant to enhance performance in electricity trading. And Andrew Tanner of Australia-based Greensync will explore the global shift from utilities to aggregators of DERs, focusing on Australia, New Zealand, and the UK. The session concludes with an interactive discussion with the panelists and interest group members, exploring where the United States is leading the way and where we may be lagging either other countries and or other markets.

#### Second Life EV Batteries: Their Role in Energy Storage

Mark Bailey, Connected Energy Limited

Flexible Wind Power: How a European Generator Earns More by Producing Less Tobias Weghor, Next Kraftwerke

The Global Shift Towards Flexibility Marketplaces: Realizing DER Value-Stacking Andrew Tanner, GreenSync

# Track B (cont.)

# 12:00 – 2:00 pm

**Connected Devices** Co-Chairs Justin Chamberlain, CPS Energy;

Poornima Eber, National Grid; Olivia Patterson, Opinion Dynamics; and Tamer Rousan, Ameren Presenters: Tom Hines, APS; David Peterson, APS;

Ralph Masiello, Quanta Technology; Farnaz Farzan, Quanta Technology; Eric Mallia, FleetCarma; Chris Ashley, EnergyHub

The Connected Devices interest group will have a range of interesting topics including a session on performance tracking for direct load control devices, Connected devices and a Future DSO, and Solve Your EV Ouestions interactive session. In the first session, we'll have BGE share how they manage over 400,000 devices and ensure they are operating as expected, to ensure sound business decisions are made. Following this session, Quanta Technologies and Arizona Public Service will discuss connected devices and a future DSO. As grid support technologies continue to evolve, connected devices can emerge as one potential NWA tool that utilities could use in lieu of traditional grid support solutions. This presentation will discuss how connected devices can provide grid support function, what frameworks exist today for utilities to value it compared to other traditional grid solutions, and what type of market or future system operator is required to realize the full potential of NWA and connected devices. Finally, we'll set up an interactive session to Solve Your EV Questions. This interactive session will focus on questions to address to EV vendors, including how to develop a program, how to select a device, dispatching, and grid impacts.

# Monday, November 4, 2019 (cont.)

# 2:00 – 2:30 pm | REFRESHMENT BREAK

Track A (cont.)

### 2:30 – 4:30 pm

#### **Customer Engagement**

Co-Chairs Andrea Simmonsen, Idaho Power Company; Sharyn Barata, Opinion Dynamics; Scott Jarman, Austin Energy; and Tracy Schmidt, Tennessee Valley Authority

Presenter: Emma Rieves, E Source

Back to the Future – Engaging EVs with DR

Bring your ideas and join the conversation for connecting customer EVs with DR. While EVs are a small portion of vehicles on the road, they have the potential to add significant and disruptive load in the future. Managing this growing load is an emerging topic in demand response. Unlike residential DR, EVs are different than technology tied to a home with a wide variety of approaches to manage or influence charging behavior and location, as well as different players. Customer transitioning to EVs must shift how they think about fueling their vehicle so they're able to go when and where they desire.

Learn from our panel of experts the best ways to engage EV customers to make your program a success. Find out who and how to target, what does and doesn't work, and how to assess the results. Then roll up your sleeves and dig in for some hands-on activities to expand the conversation and take learnings to the next level.

#### 4:30 – 5:30 pm | PLMA Meetup

All workshop, interest group, and training registrants are welcome to attend to network and learn how to make the most of the Conference activities.

### 6:00 - 8:00 pm | Board of Directors Meeting

Business meeting with working dinner only for Board members and At-Large Representatives listed at www.peakload.org/Leadership.

8:00 – 10:00 pm | PLMA Member Welcome Reception on the Esplanade

Download the Socio app on your mobile device, and give it a shake to see more info on agenda, speakers, and sponsors (or enter code PLMA).

# Wi-fi hosted by EnergyHub

# **Track B** (cont.)

# 2:30 – 4:30 pm

### **DER Integration**

Co-Chairs Rich Barone, Hawaiian Electric Company; John Powers, Extensible Energy; and Jamie Coffel, Honeywell Smart Energy

### Load Flexibility as a Grid Resource Workshop

In this two-hour workshop, we will address the growing need for innovation in delivering grid services from behind-the-meter DERs. Attendees will participate in a structured exercise of providing a price-responsive DER portfolio that delivers specific grid services in wholesale and retail markets. Each team will suggest behind-the-meter technology, communication protocols, customer engagement / automation approaches, and all other design parameters required.

# Tuesday, November 5, 2019

# 7:30 – 8:30 am | BREAKFAST BUFFET in Sponsor Lounge

#### **Morning General Session 1**

Co-Chairs Melissa Knous, Duke Energy; and Andrea Simmonsen, Idaho Power

### 8:30 - 8:40 am | Opening Remarks

Michael Brown, Berkshire Hathaway, NV Energy and PLMA Chair

# 8:40 - 9:00 am | Welcoming Remarks

Bob Donaldson, Manager – Residential Demand Response, Duke Energy

Bob Donaldson is Manager of Demand Response in Residential Markets at Duke Energy. He currently manages over 1500 & 700 MWs of dispatchable summer & winter load, respectively, in six states across the Carolinas, Midwest, and Florida. Bob has a Bachelor of Science degree in Mechanical Engineering from N.C. State University. He is a Registered Professional Engineer in North Carolina, is a Certified Energy Manager & Demand-Side Manager with the Association of Energy Engineers, and is a Licensed Electrical Contractor in NC. Bob also served as a member and chair of the DistribuTech Demand Response Advisory Committee for seven years.

#### 9:00 – 9:45 am | A Panel Discussion on the Move to a Transactive Energy Market: Engaging Prosumers While Optimizing the Electricity System with Location- and Time-Specific Price Signals

Moderator Rich Barone, Hawaiian Electric Company

Panelists: Dave MacRae, Opus One Solutions; Alex Rojas, Ameren; Paul Tyno, Buffalo Niagra Medical Campus; and Liuxi (Calvin) Zhang, Commonwealth Edison

DERs are fundamentally changing energy supply and demand wherever they are located, opening up opportunities for new business models based on a platform approach to the grid-DER relationship. A Distributed System Platform (DSP) facilitates a transactive energy market by exchanging system data such as prices, DER availability, DER schedules, and load forecasts between the utility, its customers and the broader grid. In doing so, a DSP allows for the creation of new markets and interactions that ensure that the right DER is paid the right amount of money for the right energy service.

This facilitated discussion will offer utility, customer and solution provider perspectives on how price signals generated in a transactive energy market reveal valuable opportunities for system optimization, including energy efficiency, demand response, load displacement, load reduction and conservation behavior. Panelists will discuss the customer perspective, major lessons learned, challenges that still need to be addressed, and impacts to utility business models in future DSP models.

# 9:45 – 10:15 am | Flexible Buildings DR Preference Tool

Margaret Taylor, Lawrence Berkeley National Laboratory

Flexible commercial building operations are an important option to help support grid stability in a future with greater renewables penetration. Commercial building participation in demand response (DR) programs, however, is not as widespread as many had predicted or hoped; one explanation has been uncertainty about acceptable service level adjustments. Our project focuses on reducing this uncertainty by providing potential participants with tailored recommendations on potential DR actions. These recommendations are provided via an open-source decision tool that can dynamically rank flexible load control options. Our presentation will focus on the preference elicitation research we are conducting with actual building energy managers regarding the risk-benefit tradeoffs they consider acceptable, as well as how this research is being incorporated into the tool. Note that this research is the result of implementing a survey instrument that was informed by an interview study; the interviews are interesting regarding the current state of DR decision-making.

#### 10:15 – 10:45 am | REFRESHMENT BREAK in Sponsor Lounge

Morning General Session 2

Co-Chairs Michael Ohlsen, City of Tallahassee Utilities; and Joseph Childs, Eaton

# Tuesday, November 5, 2019 (cont.)

# 10:45 – 11:15 am | Cutting Edge Data Providing Insight into the Future of Residential DR Aggregation

Sam Delay, Tennessee Valley Authority; and Curt Puckett, DNV GL

TVA has supported the multi-year technology demonstration of WH, Batteries, and Thermostats having collected data that characterized the resource performance. This gives TVA access to unique interval load and detailed operations data on more than 250 households with grid enabled, whole house battery systems, programmable thermostats, and water heaters. This unique cluster of load control devices presents an opportunity for TVA to engage in experimental research to advance their understanding of what might be capable in a future aggregated demand response world. The project team analyzed aggregate load reductions during system peak conditions and are in the process of developing a distributed energy resource (DER) aggregation modelling concept for simulating technical impact and economic cost-effectiveness based on different circuits, locations and customer demographics. This enables future calibrated modelling of LPC Aggregator strategies to understand ways they could potentially perform for future bulk power market developments. The presentation will highlight the rich data supporting this work and our progress to date.

#### 11:15 am – 12:00 pm | Quick-Ramp, Customer Engagement: Price-Motivated Residential DR with 15 Minutes Notice

Carlos Lopez, London Hydro; and Peter Steele-Mosey, Navigant

London Hydro launched a regulator-sponsored technology-enabled fast-ramp (15 min notice) critical peak pricing pilot in 2018. London Hydro's commitment to proactive participant engagement delivered. In addition to reducing On-Peak TOU energy consumption by 5% (on days with no critical price!), participants delivered as much as 1 kW of DR during hot events. Most importantly, a rotating random selection of 15% of participants whose enabling technology was disabled for events succeeded in delivering as much as 0.4 kW of DR through behavior alone - and that with only 15 minutes' notice.

#### 12:00 – 1:30 pm | LUNCH BUFFET in Sponsor Lounge

#### Afternoon General Session 1

Co-Chairs Paul Miles, PECO, an Exelon Company; and Ruth Kiselewich, ICF

### 1:30 – 2:30 pm | Get Smart: Con Edison and Eversource Manages Peak Load and Meets Customer Needs Through Pilots

Annie Ramkissoon, Con Edison; Zach Sussman, Con Edison; Candice Tsay, Con Edison; Leigh Winterbottom, ICF; and Michael Goldman, Eversource

Customer awareness, enrollment, and engagement are critical to innovating peak load management. Through the lens of pilots and demonstration projects, Con Edison and Eversource will discuss their approaches to customer-centered rate and technology initiatives for peak load management – from conception, to design, execution, and evaluation. Panelists will cover key topics relevant to load management practitioners, including customer engagement around demand rates, gas DR, varied technologies (storage, solar), and traditional DR. Panelists will share lessons learned for utilities to consider at each phase, including: pilot design (Con Edison's Smart Energy Plan), implementation (Con Edison's Smart Home Rate), approaches to partnerships/trade allies (Con Edison's Smart Gas Water Heating) and balancing program scale and customization for customers' technology solutions (Eversource's C&I Demonstration Project).

# 2:30 – 3:00 pm | Gas Non-Pipe Alternatives – Assessing the Value and Potential of Deferring Gas System Capital Expenditures

Josh Bode, Demand Side Analytics; and Marc Sclafani, Central Hudson Gas & Electric

Much like electricity distribution, gas infrastructure investments are driven by peak demand. When demand is high, gas pressure drops and can lead to an inability to transport gas to enduse customers. The work implemented at Central Hudson is one of the first comprehensive assessments of a utility's gas systems for non-pipe alternatives and the ability to use distributed energy resources (gas) to defer or avoid capital costs associated with upgrading gas pipelines.

EV load, and determining the amount of manageable EV

load now and into the future.

# Tuesday, November 5, 2019 (cont.)

#### 3:00 – 3:30 pm | REFRESHMENT BREAK in Sponsor Lounge

#### **Afternoon General Session 2**

Co-Chairs Christine Riker, Energy Solutions; and SaLisa Berrien, COI Energy Services

# 3:30 – 4:00 pm | Demand on Demand - The Latest Residential Customer Engagement Challenge

Moderator Ann Fracas, Apogee Interactive; Brian Pippin, JEA Brian Pippin, JEA; and David Kus, Lakeland Electric

Utilities are being forced to take a fresh new look at rate structures and how to best communicate and educate customers about them. This is due in part to the flat or declining load forecast coupled with a declining load shape caused by solar adoption. Utilities are moving away from flat or tiered rates to Time of Use and now Demand rates. In answer to the customer education challenge, JEA took a unique approach to proactively explain rates, putting the power of customer choice in their customer's hands. They established a strategy around customer engagement to communicate complex rates with enabling hardware. This presentation will illustrate lessons learned and the impacts of customer education and enabling hardware on peak load management, and how these energy providers plan to move forward.

# 4:00 – 4:30 pm | Smart Analytics for C&I DR: Understanding Existing Customers to Enhance Program Performance

#### Scott Jarman, Austin Energy; and Leigh Holmes, CLEAResult

This presentation will examine how Austin Energy has intelligently applied analytics to deepen their understanding of their C&I DR participants and enhance their DR program performance. At the portfolio level, analysis of event data can highlight issues such as participation fatigue that often follows sequential events, low occupancy that often occurs at educational facilities, event communication failure and much more. At the participant level, event data can be used to create score cards that rank their performance against industry standards, show additional incentives they could have earned, and offer recommendations for improvement. These score cards offer a starting point for a dialogue with customers that can lead to coaching and resolution of underperformance issues.

### 4:30 – 5:00 pm | Sponsor Showcase Lightning Round

manage energy better

Landis,

Gyr

In this 30 minute session you will hear from several of our sponsors about the essence of their solutions. Our Co-chairs have vetted the presentations and helped the sponsors get their key messages compressed down to 3 minutes. This is not a marketing pitch, but a statement from the sponsors on specific examples of how they provide value.

ORACLE

#### **Showcase Presenters:**



Inc.

Mark Willingham Energy Federation

Steve Kenny Wendy Lohkamp Landis+Gyr Oracle Utilities

Vendy Lohkamp Lowell Todd Oracle Utilities RF Demand Solutions

RFDemand Solutions

Kristen Kadetsky Uplight

uplight

#### 5:00 – 7:00 pm | NETWORKING RECEPTION in Sponsor Lounge Hosted by Oracle Utilities

A key value to PLMA events is the opportunity to network with conference participants. Join us for a cocktails and appetizers. Come and share what you learned and get additional details about your topics of interest.

| Wednesd | ay, Novem | ber 6, 2019 |
|---------|-----------|-------------|
|---------|-----------|-------------|

| Track A   | Track B  | Track C  |
|---|--|--|
| Co-Chairs Laurie Duhan,<br>Baltimore Gas and Electric; and<br>Debyani Ghosh, Navigant   | Co-Chairs Justin Chamberlain,<br>CPS Energy; and<br>Meridith Nierenberg, West<br>Monroe Partners   | Co-Chairs Kitty Wang, Energy<br>Solutions; and<br>J.T. Thompson, Enbala  |
| 8:30 – 9:00 am  | 8:30 – 9:00 am   | 8:30 – 9:00 am   |
| State of the Market:<br>Utility Demand Response<br>Insights<br>Brenda Chew, Smart Electric<br>Power Alliance<br>The demand response market<br>is continuing to evolve as  | Gas DR Pilots at Con<br>Edison Company of NY<br>Rachel Charow, Con Edison;<br>Michael Sanchick, Con Edison;<br>and Michael Siemann, Resideo<br>Con Edison launched two<br>innovative Gas DR pilots for   | Profiling and Managing<br>EV Charging Load – TVA<br>and FleetCarma<br>Drew Frye, Tennessee Valley<br>Authority; Eric Mallia,<br>FleetCarma<br>Tennessee Valley Authority   |
| legacy programs retire and<br>new technologies and pilots<br>are adopted. This presentation<br>will provide high-level insights<br>into the results of SEPA's 2019<br>utility demand response<br>surveying effort, and will<br>discuss the state of AC switch,<br>thermostat and water heater<br>programs, as well as<br>commercial and industrial<br>(C&I) automated and customer<br>initiated programs across the<br>U.S. Beyond the numbers, this<br>presentation will discuss the<br>latest trends, detailing how DR<br>is playing a role in transactive<br>energy and EV managed<br>charging, and how the role of<br>DR may continue to expand in<br>the coming years. | the winter of 2018/2019. There<br>is a BYOT gas pilot for<br>residential customers, and a<br>performance-based gas DR<br>pilot for commercial and<br>industrial customers. Fresh off<br>the pilot, Rachel<br>Charow/Charles<br>Umberger/Michael Sanchick<br>(1-2 panel members, TBD),<br>CECONY DR Program<br>Managers, and Michael<br>Siemann Ph.D., Resideo<br>Engineering and Data Science<br>Manager , will provide a<br>general overview of the pilots,<br>goals and initial findings on<br>gas DR. This presentation will<br>be compelling to the audience<br>members who are considering<br>adding gas/winter DR<br>programs to their suite of<br>DR/EE programs. | (TVA), in conjunction with<br>FleetCarma, has launched an<br>electric vehicle load profiling<br>program called SmartCharge<br>Nashville to better understand<br>the current and future impact<br>electric vehicle charging has in<br>their service territory. Using<br>real-world EV charging and<br>driving data, Drew and Eric wil<br>evaluate and discuss interim<br>results from the SmartCharge<br>Nashville program. They will<br>also share insights into how<br>utilities can leverage real-<br>world charging data to make<br>data-driven decisions for<br>system planning, demand-side<br>management strategies, and<br>customer engagement. The<br>SmartCharge Nashville<br>program collects EV driving<br>and charging from 200<br>participants. This data is<br>utilized to compare<br>weekday/weekend charging,<br>energy consumed during<br>on/off-peak, % of charging<br>conducted with L1/L2/DCFC<br>stations, and home vs. away<br>charging. TVA is also utilizing<br>this data to address questions |

# Download the Socio app for more agenda information

| Wednesday, November 6, 2019 (cont.)   |   |   |
|---|---|---|
| <b>Track A</b> (cont.)  | <b>Track B</b> (cont.)  | <b>Track C</b> (cont.)  |
| 9:00 – 9:30 am  | 9:00 – 9:30 am  | 9:00 – 9:30 am  |
| Highways, By-ways and<br>Road Construction –<br>Starting a DERMS Journey<br>Angie Boone, Evergy; and<br>Andrea Carrillo, Evergy<br>The Evergy Energy Solutions<br>team officially began planning<br>this DERMS journey more than<br>two years ago and has now<br>successfully completed the<br>first leg of this trip. From the<br>original "someday" vision, to<br>vendor selection, to our Phase<br>1 launch for Summer 2019; we<br>will share successes,<br>challenges and lessons<br>learned in developing and<br>integrating this complex new<br>system – so far it's already<br>been quite a ride! So, pack<br>your bag, grab your shades<br>and join us as we speed into<br>the future of our new<br>Distributed Energy Resource<br>Management System. | Tug of War or a Tag Team?<br>Interplay of DERs and DR<br><i>Touseef Mohammed, CPS Energy</i><br>With the cost of distributed<br>energy resources (DER) like<br>photovoltaics and energy<br>storage on a rapid decline, an<br>increasing number of small and<br>medium-sized businesses (SMB)<br>and large commercial<br>customers are opting to jump<br>on the bandwagon of adopting<br>cost-effective renewable<br>technologies to diversify their<br>energy mix. The increased<br>penetration of DERs on the<br>utility grid has its own set of<br>challenges and opportunities<br>with its value proposition often<br>compared with demand<br>response (DR) and its incentive<br>structure. This session will<br>present load research case<br>studies on commercial<br>customers in CPS Energy's<br>service territory using their end<br>use AMI data to better<br>understand this value<br>proposition and the impact of<br>DERs not only on distribution<br>and integrated resource<br>planning but also on optimizing<br>a utility's DR portfolio in this<br>changing landscape. | Vehicle Electrification<br>Programs at JEA – Past,<br>Present, Future<br>Payson Tilden, JEA; and Josh<br>Duckwall, GDS Associates<br>JEA's Non-Road Electrification<br>programs and passenger car<br>EV charging programs have<br>evolved substantially over the<br>past few years, incorporating<br>lessons learned from around<br>the country as well as from its<br>own evaluations. By engaging<br>community involvement and<br>keeping a close relationship<br>with its customers, these<br>programs are now some of th<br>best examples of progressive<br>thinking in the southeast and<br>are still growing. From well-<br>designed incentive offerings t<br>a forward thinking strategic<br>team, JEA will highlight some<br>of the key lessons learned<br>along the way and provide a<br>glimpse into the future of the<br>electric transportation efforts<br>to serve its over 460,000<br>electric customers. |

| Wedn                                     | esday, November 6, 201                     | <b>19</b> (cont.)                              |
|--|--|--|
| <b>Track A</b> (cont.)                   | <b>Track B</b> (cont.)                     | <b>Track C</b> (cont.)                         |
| 9:30 – 10:00 am                          | 9:30 – 10:00 am                            | 9:30 – 10:00 am                                |
| Evaluating Future<br>Peak Loads with DER | Is Client and Implementer<br>Anxiety About | Ahead of the Curve –<br>EVSE Billing & Control |
| Adoption Forecasting                     | Regression-Based DR                        | Brad Rains, Seven States Power;                |
| Patrick McCoy, Sacramento                | Evaluation Warranted?                      | and Matt Kiesow,OATI                           |
| Whitaker, Clean Power Research           | Jesse Smith, Demana Side                   | Seven States Power                             |
| This presentation will address           | In Pennsylvania Act 129                    | aroup of Electric Vehicle                      |
| an emerging challenge: how to            | mandates DR load reductions                | Network Providers and OATI to                  |
| forecast the adoption of                 | on peak summer days. For                   | help promote adoption of                       |
| Distributed Energy Resources             | PECO, a C&I DR aggregation                 | Electric Vehicles. Specifically,               |
| (DERS) and the resulting load            | program is key to meeting this             | Electric Vehicle Supply                        |
| system. Load management                  | PUC has now established the                | Equipment (EVSE) in the public                 |
| practitioners are increasingly           | customer baseline (CBL), the               | and fleet charging spaces to                   |
| evaluating opportunities to              | most commonly used method                  | ensure easy planning,                          |
| control and optimize DERs.               | for calculating settlement                 | integration, and control of                    |
| DERs as alternatives to                  | payments, as the least                     | OATI EVolution system is one                   |
| conventional asset                       | EM&V methods. The preferred                | of the EVSE Network                            |
| investments. But to get the full         | approach, customer-specific                | Management Services offered                    |
| picture, they need a detailed            | regression, caused anxiety                 | by 7SP. Each EVSE managed in                   |
| understanding of future DER              | among implementers and                     | EVolution supports dynamic                     |
| accurate representation of               | utilities who see it as a risk.            | and is enrolled as a                           |
| associated grid impacts, and             | the Pennsylvania Statewide                 | controllable DR asset to 7SP                   |
| the ability to model rate                | Evaluator and PECO,                        | member cooperative demand                      |
| design and cost trajectory               | developed an innovative                    | response system. This new                      |
| scenarios. The Sacramento                | approach, using a variety of               | program model of extending                     |
| (SMUD) and Clean Power                   | individual customer                        | familiar with to their public                  |
| Research (CPR) partnered to              | applied a per-customer testing             | charging needs and allowing                    |
| build a customer-level DER               | protocol to determine the                  | easy direct to utility billing                 |
| adoption forecast software               | method that best predicts the              | charges will push greater EV                   |
| tool. This is the first time that        | actual demand on event-like                | adoption.                                      |
| data customer behavior data              | days. This presentation will               |  |
| and machine learning have                | evaluation and will discuss                |  |
| been combined in a tool to               | whether the observed                       |  |
| provide on-demand DER                    | differences between methods                |  |
| adoption forecasts for analysts,         | merit concern from utilities               |  |
| strategists, and planners across         | and implementers.                          |  |

the utility.

# program model of extending the home rates members are familiar with to their public charging needs and allowing easy direct to utility billing charges will push greater EV adoption.



# **Plan Now to Attend** the 41<sup>st</sup> PLMA Conference

Scottsdale, Arizona April 20-22, 2020

**Presentation slides and conference photos** will be online at www.peakload.org/40th-Conf-Resources

renters Lessons learned on hard-to-reach ratepayer recruitment, education, and enrollment DR potential from ultra-low usage electric water heaters Stacked grid services potential of GIWH in Hawaii.

#### Wednesday, November 6, 2019 (cont.) 10:00 – 10:30 am | REFRESHMENT BREAK in Sponsor Lounge Track F Track D Track E Co-Chairs Jeff Perkins, ERS; and Co-Chairs Allison Hamilton Michael Smith, National Grid NRECA; and Richard Philip, Duke Energ 10:30 - 11:00 am 10:30 - 11:00 am 10:30 - 11:00 am **Grid Interactive Water** Logistics of the Country's **Connected Devices and Heating: A Gateway For First Utility-operated** the Future of Rate Desig **Engaging Hard-To-Reach** Microarid Cluster Deepak Aswani, Sacramento Municipal Utility District; and Juan Rodriguez, ComEd Ratepayers William J. Burke, Virtual Peake Rich Barone, Hawaiian Electric Getting to groundbreaking: this Company; Forest Frizzell, Shifted As utility rates become more case study of ComEd's recently-Energy Forest; and Yvette installed microgrid on Chicago's complex (TOU, demand Maskrey, Honeywell Smart Energy South Side will focus on lessons charges, etc.) utilities must design new ways to help Stakeholders from across the learned from the successful power sector have recently launch of a public-private customers save money without sacrificing comfort. and urgently increased partnership to fund, develop, attention on barriers and This presentation will discu and approve a utility-scale value streams that utilities opportunities to engage clustered urban microgrid. renters, multi-family housing provide both customers the Background: In February 2018, dwellers, low and moderate are enrolled in new rates as the Illinois Commerce income ratepayers, and Commission approved ComEd's well as solving the operatio disadvantaged communities. challenges that come with plan to construct the first utility-Such ratepavers are usually operated microgrid cluster in new energy sources. Examp stuck with the most inefficient of this will include time-ofthe nation in Chicago's form of water heating, electric optimization or residential Bronzeville neighborhood. A resistance, as landlords have devices, energy arbitrage key component of the little incentive to install solar or microgrid is battery storage, (physical hedging), and heat pump solutions. This customer engagement tied to onsite solar power presentation will review the around cost savings. This wi generation. ComEd's microgrid outcomes from a recently is expected to serve more than be built around the learning completed 19-unit grid from the powerminder 1,000 customers, including interactive water heating program with SMUD. critical service providers such as (GIWH) pilot project at Manoa www.smud.org/en/Corporat the Chicago Police Department, Gardens, an elderly low-Landing-Pages/PowerMind and will connect with an income rental housing existing microgrid on the complex on Oahu. A campus of the Illinois Institute collaboration between of Technology. This connection Hawaiian Electric, Hawaii will create one of the most Energy (Hawaii's energy efficiency public benefits fee advanced clustered urban administrator), and Shifted microgrids in the United States. Energy, the pilot delivered This discussion will include the notable insights into the project's history, stakeholders, following topic areas: Benefits goals, and expected results for of electric water heater DER for the community. low-income communities and

|   | Wedn  | esday, November 6, 201   | <b>9</b> (cont.)   |
|---|---|--|--|
|   | Track D (cont.)   | Track E (cont.)  | Track F (cont.)  |
|   | 11:00 – 11:30 am  | 11:00 – 11:30 am   | 11:00 – 11:30 am   |
| า,  | Water Heaters as a Peak   | <b>DER Integration in Florida</b>  | Advantage Power Pricing:   |
| V   | Pricing Tool – Multi-   | Michael Ohlsen, City of  | Lessons from   |
| n,<br>y<br>gn<br>rer<br>re<br>siss<br>can<br>at<br>sonal<br>oles<br>use<br>fill<br>gs | Water Heaters as a Peak<br>Pricing Tool - Multi-<br>family, Multiple-vendors,<br>Multi-Events<br>Rebecca Brisson, Portland<br>General Electric; Jessica<br>Atwater, CLEAResult; and Gavin<br>Hume, EnbalaPortland General Electric's<br>Connected Water Heater<br>Program uses a fleet of more<br>than 4,500 electric water<br>heaters at 30 different<br>multifamily properties to ease<br>pressure on peak pricing days.<br>As of the program's creation,<br>PGE estimated each water<br>heater delivers an average of<br>0.5 kw in capacity – without a<br>risk of cold showers to the end<br>user. Leveraging the local logic<br>of the DR module installed on<br>the water heater, the DRMS<br>knows when to release a water<br>heater that's at risk of running<br>out of hot water, so tenants<br>aren't impacted. This<br>presentation discusses why we<br>started in multifamily, the key<br>successes and challenges we<br>faced creating this capacity<br>resure on back of a construction | DER Integration in Florida<br>Michael Ohlsen, City of<br>Tallahassee Utilities; and Rick<br>Meeker, Nhu Energy<br>Distributed energy resources,<br>including solar, energy storage,<br>and demand response, are<br>taking on an increasingly<br>significant role in Florida that is<br>expected to continue to grow.<br>Florida stakeholders have<br>recently been working<br>together to understand the<br>value proposition,<br>opportunities, challenges, and<br>solutions to integrating these<br>resources more extensively<br>into utility operations in a way<br>that benefits customers and<br>maintains and improves<br>system reliability and<br>resilience. This presentation<br>will discuss activities and<br>results of the Florida Alliance<br>for Accelerating Solar and<br>Storage Technology Readiness<br>(FAASSTeR), a Dept. of Energy<br>funded project that includes all<br>of Florida's municipal electric<br>utilities, along with a number<br>of other partners and<br>stakeholders. Nhu Energy, the | Advantage Power Pricing:<br>Lessons from<br>Comparative Study of 3<br>Alternative Rate Plans<br>Daniel Carr, Alectra Utilities; and<br>Dave Thomson, BEworks<br>Rate treatments can be a cost-<br>effective tool to influence<br>customers' consumption<br>behavior by providing a clear<br>and predictable price signal. At<br>the same time, customers are<br>not homogenous and perceive<br>different benefits from such<br>programs. Providing and then<br>delivering on the promise of a<br>worthwhile program while<br>managing the complexity of a<br>pilot program with nearly<br>10,000 customers in three rate<br>plans with a control group of<br>equal size comes with<br>challenges. Thanks to the<br>support of its partners and<br>funding through the provincial<br>regulator, Alectra Utilities has<br>reaped valuable lessons in<br>deploying rate programs for<br>residential customers. These<br>include the merits of various<br>rate designs, customer |
| er  | process, and how we plan to scale it to achieve significant   | FAASSTER project lead organization, along with City  | behavioural nudges, and<br>enabling technology.  |
|   | curtailment. Plus, we'll run an   | of Tallahassee will provide  |  |
|   | event in real-time to   | project research results   |  |
|   | demonstrate our control   |  |  |
|   | of the programs in PGE's PLMA   |  |  |

pace-setter award winning

demand response portfolio.

program implemented.

| Wednesday, November 6, 2019 (cont.) |                                  |                                   |
|-------------------------------------|----------------------------------|-----------------------------------|
| <b>Track D</b> (cont.)              | <b>Track E</b> (cont.)           | <b>Track F</b> (cont.)            |
| 11:30 am – 12:00 pm                 | 11:30 am – 12:00 pm              | 11:30 am – 12:00 pm               |
| Heating Up Water Heater             | <b>Getting Your Residential</b>  | Introducing New Rates             |
| DR: Results and Lessons             | Customers Amped on               | with Help from Dr. Seuss          |
| Learned from a Winter Pilot         | Battery Storage for Load         | Susan Gilbert, Apogee             |
| Chase Cortner, Georgia Power;       | Management                       | Interactive; Ahmad Faruqui, The   |
| and Shannon Kahl,                   | Clare Valentine, E Source        | Brattle Group; and Joel Gilbert,  |
| Illume Advising                     | Customers love batteries but     | Apogee Interactive                |
| Georgia Power's Water Heater        | not necessarily for load         | This panel opens with a           |
| Demand Response Pilot               | management. Residential          | tongue-in-cheek reading of an     |
| provided 100 residential SF         | customers increasingly           | abbreviated adaptation of Dr      |
| customers a new grid                | purchase batteries for backup    | Seuss' classic Green Eggs and     |
| connected water heater with         | power, in an effort to rely less | Ham. ( e.g., "I DO NOT Like you   |
| the goal of assessing impacts       | on their utility. So how can     | new rate plan, I do not like it,  |
| from demand response events         | utilities strengthen customer    | Sam I am."), which includes       |
| called across electric resistance   | relationships and get grid       | phrases raising the usual utility |
| (n=30) and heat pump water          | benefits by enrolling            | and customer concerns. As in      |
| heaters ( $n=70$ ), as well as to   | customers with batteries in      | the story, turns out customers    |
| test the effect of pre-heating      | load management programs?        | can be laught to appreciate       |
| on energy savings and               | E Source surveyed over 7,000     | designed to get the               |
| the process of installing now       | residential utility customers in | participants laughing and         |
| water beaters and connecting        | north America on their           | learning With that short          |
| them to the DR platform the         | understanding of batteries. In   | introduction, this                |
| team documented several             | this session we'll share         | distinguished panel includes      |
| lessons learned, ranging from       | customer insights that will      | Ahmad Faruqui's experience        |
| the feasibility and cost of         | help you engage with             | over decades of rate              |
| installation to the provisioning    | residential customers on         | transformation consulting in      |
| of each unit's control system to    | battery storage, support the     | the US and abroad, the            |
| the DR platform. In this            | business case for your           | detailed experience with a        |
| presentation, we will provide       | initiatives, and boost           | TOU/CPP rate at Tampa             |
| the lessons learned and key         | enrollment in these programs.    | Electric, and a demonstration     |
| considerations for pilot design,    | We'll answer questions like:     | of the tools lampa Electric and   |
| implementation, and                 | How well do customers            | other utilities are using to help |
| evaluation. Additionally, we        | understand battery-related       | customers embrace, or at least    |
| will share the energy and           | Jargon? Why are customers        | structures                        |
| DP events and findings from         | interested in batteries? How     | structures.                       |
| post-installation and post-DR       | for batteries and what           |                                   |
| event customer experience           | prevents them from               |                                   |
| surveys designed to assess          | purchasing storage systems?      |                                   |
| customer satisfaction with          | What resources do customers      |                                   |
| their water heater, the demand      | need to make decisions about     |                                   |
| response events, and Georgia        | batteries? How do batterv        |                                   |
| Power. Lastly we will touch on      | initiatives influence customer   |                                   |
| survey results from our             | perceptions of your utility?     |                                   |
| customers where we asked            |                                  |                                   |
| how they would prefer to have       |                                  |                                   |
| a full scale water heater           |                                  |                                   |

# Wednesday, November 6, 2019 (cont.)

### 12:00 – 1:30 pm | LUNCH BUFFET in Sponsor Lounge

#### **Closing General Session**

Co-Chairs Olivia Patterson, Opinion Dynamics; and Jenny Roehm, Schneider Electric

#### 1:30 – 2:30 pm | Moving from Single "Cylinders of Excellence" to an Integrated and **Finely Tuned Engine**

Brett Feldman, Navigant; Justin Chamberlain, CPS Energy; Paul Wassink, National Grid; Greg Wikler, AESP; and Mathew Sachs, CPower Energy Management

Whether we call it iDSM or iDER, the most difficult challenge to developing and delivering these programs is integration. In this session, we will discuss opportunities to overcome the silos associated with traditional energy management programs and move toward more efficient, integrated programs in order to increase cost-effectiveness, streamline program delivery, and simplify customer participation. The panel will offer perspectives that highlight best practices and lessons learned for integrated programs. Historically, utilities offered customer energy programs in silos such as energy efficiency, demand response, and solar photovoltaic. Over the last decade, there have been efforts to combine EE and DR programs. The need for Integration has grown more pressing with the anticipated proliferation of new resources like microgrids, energy storage and electric vehicles. In this lively and interactive session, we will discuss key barriers and strategies for moving beyond barriers, how utilities are integrating programs in spite of barriers and perspectives on what the future holds. Be prepared for audience participation as we will also be taking real time polls throughout the session.

#### 2:30 – 2:40 pm | Welcome to Scottsdale

Bruce Brazis, Arizona Public Service; Mark Gagen, Salt River Project; and Tom Hines, Tierra Resource Consultants

2:40 – 2:45 pm | Closing Remarks Paul Miles, PECO, an Exelon Company

2:45 – 3:15 pm | ICE CREAM SOCIAL in Sponsor Lounge with ULME

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