The **5th Annual Demand Response & Distributed Energy Resources World Forum**, October 16-17, 2018 in Costa Mesa, CA brings together stakeholders from across the DR / DER industry and internationally to examine the latest technology advances, case studies, and business strategies for optimizing demand response, energy efficiency, DER integration and control, and demand side management programs. The event will help utilities and C&I end users realize the full economic benefits of incorporating these capabilities into their operations, and leveraging the next-generation smart grid to optimize performance.

**Topics to be Addressed Include:**

- The evolving business model for the 21st Century energy provider
- Integrating and controlling distributed energy resources
- Refining market design to accommodate DERs
- Regulatory and policy trends impacting DR and DER
- DER standards and developments: towards unification
- New technologies and strategies for maximizing demand response performance
- Big Data analytics in optimizing DR, energy efficiency, and DER management
- The role of electric vehicles and energy storage going forward
- Tools and techniques for addressing the Duck Curve
- And more!

"Excellent dialog and exchange of thought. I liked the forward thinking and discussion of future directions."

--- **Jack Peterson, Manager - Energy Operations Support, Southern California Edison**

"The event was well organized and extremely informative. I have already recommended it to colleagues."

--- **Leigh Holmes, Manager of Utility Programs, EnerNOC, Inc.**

Organized by **SGO Smart Grid Observer**
DAY 1 – Tuesday, October 16, 2018

8:00-9:00 am  Continental Breakfast

9.00-9.30  **Keynote Address**
- Jill C. Anderson, Vice President, Customer Programs & Services, **Southern California Edison**

9.30-11.00 am  **Balancing the Value of DERs Between Utility, DER Operators and End-Customers**

Utility industry leaders will discuss the challenges integrating Distributed Energy Resources (DER) and Demand Response while maximizing the value derived from DERs to multiple stakeholders: customers, DER operators, DR program participants and the utility. The panel will discuss ways to align DR and DER programs to support decarbonization, transport and building electrification as well as customer energy choice. Topics to be addressed include:

- Engaging the DER Customer: energy choice and utility alignment
- DER Interconnection: capturing DER data for future value
- How to align DERs to optimize grid objectives and solve the duck curve
- Leveraging electric vehicle charging and energy storage to balance the grid

- Ted Reguly – Director - Growth and Technology Integration, **San Diego Gas & Electric**
- Mark Esguerra, P.E., Director, Integrated Grid Planning, Grid Integration and Innovation, **Pacific Gas and Electric**
- Vibhu Kaushik, Director, Grid Technology and Modernization, **Southern California Edison**
- Andrew Dillon, Senior Principal, Energy & Utilities Practice, **West Monroe Partners**

11:00-11:30 am  Coffee Break

11:30-12:00  **Keynote Address**
- J. Andrew McAllister, Ph.D. , Commissioner, **California Energy Commission**

12:30-1:30  Industry Networking Luncheon

1:30-2:00 pm  **Reinventing the Electric Utility**

With the advent of rooftop solar, energy storage, prosumers, mergers, regulatory pressures and other challenges, electric utilities are at a crossroads with evolving business models, changing consumer expectations, and regulatory changes. Skipping Stone surveyed industry professionals to provide insight into how the industry is reinventing itself to be successful in this new environment. The majority of survey participants, about 90%, were electric utilities (IOU, municipals, cooperatives, federal) with industry trade associations and solution providers making up the remainder. All U.S. regions and Canada were represented.

Participants overwhelmingly (92%) agreed utilities need to adapt their business model to ensure their future success. This presentation discusses the key findings of this survey, including top focus areas for new utility business models...
and factors influencing changing business models. Detailed results of the survey will be shared as part of the conference proceedings.

- Ross Malme, Partner, Skipping Stone

2:00-2:30 pm  DER in ISO/RTO Markets: Understanding FERC's Recent Orders

As the DER industry works to figure out how to best incorporate energy storage into their solutions, recent FERC orders may impact the opportunities companies pursue. Contrary to most FERC orders, the Electric Storage Participation in Markets Operated by RTOs and ISOs (Order 841) reaches all the way down to include behind the meter energy storage. This talk will help participants understand what is included in Order 841, how the ISO/RTOs are working to implement it, and the implications on potential future business models for DERs.

- Kerinia Cusic, Board President, Center for Renewables Integration

2:30-3:00 pm  Networking Coffee Break

3:00-4:15 pm  Supporting the Grid: Connected Buildings

National power grids face several emerging challenges that are still in search and need of feasible solutions. These challenges are accentuated by the increasing proliferation of renewable energy and of distributed energy resources. The challenge of renewable energy sources (such as solar and wind) is their relatively uncontrollable, dynamic and uncertain nature. Furthermore, the increasing use of distributed generation and storage resources (such as roof top PV, downstream-the-meter energy storage and electric vehicles) adds a new dimension to the Grid’s challenges - that of electrons flowing to and from buildings. With 75% of electricity produced in the US used to operate buildings, it is imperative that buildings play an integral role in the solution to the Grid's challenges.

This session will review the role buildings can play in supporting power grids. The premise for any such role is that buildings need to be ‘connected’ to the Grid, with real time communication from and to the building’s energy systems. The panel will review technologies and solutions required for connected grids, as well as discuss (regulatory and rate) changes needed to enhance the business case for connected buildings.

- Mary Ann Piette, Senior Scientist and Director, Building Technology and Urban Systems Division, Lawrence Berkeley National Laboratory
- Lois Gordon, President, ASWB Engineering
- Dr. Mukesh Khattar, Technical Executive, Data Centers, Electric Power Research Institute (EPRI)
- David Hungerford, Senior Scientist, California Energy Commission
- Michel Kamel, CEO, MelRok

4:15-4:30 pm  Networking Coffee Break

4:30-5:30 pm  DR, CA Rule 21, DER Management: Communications Protocols and Integrated DR/DER Management

The goal of this session is to explore the relationship between traditional DR management, the emerging DER challenges and management, California Rule 21 for DER management and the communications protocols that do or could support distributed grid service operations.
The fundamental differences between managing DR resources and DER resources are 1) any generation resource that supplies energy back to the grid comes under regulations designed to insure grid reliability while DR resources are considered most often in terms of peak load management which is governed by different motivations, rules and organizations; 2) the utility organizations that deal with DR are usually customer-oriented teams with little to do with actual grid management operations while DER is in the purview of operational teams concerned with protection, control and grid reliability.

From a messaging perspective, DR is typically focused on informing and incentivizing load management behaviors with minimal focus on specific device control. DER messaging, however, can be much more focused on individual device control which implies device discovery of capabilities, status, and performance and detailed device control instructions. OpenADR was designed for the DR model. IEEE 2030.5 is well designed for the DER messaging model. The session will start with overviews of the CA Rule 21 model for DER management, move on to alternative models that are under consideration and end with a discussion of the challenges and wisdom of attempting to manage DR and DER resources as a combined portfolio of assets.

- Mike Bourton, Vice President of Business Development, Kitu
- James Mater, CEO, Quality Logic
- Walt Johnson, Technical Executive, EPRI
- Rolf Bienert, Technical Director, OpenADR Alliance

5:30-6.30 pm  Drink Reception

DAY 2 – Wednesday, October 17, 2018

8:00-9:00 am  Networking Breakfast

9:00-9:30 am  DER Interconnection and Enabling DER Data to Drive New Value Streams

DER and DR systems represent a new class of information to track and manage, driving the need for new DER Data Management systems. This presentation will show how proper management of DER data can unlock multiple new value streams, including aligning DER assets to grid objectives and enabling DER smart pricing contracts. New methods will be discussed that leverage DER data with utility systems to increasing the ability of the grid to accept higher levels of renewable energy, and unlock DER data to drive Transactional Energy strategies and programs that boost grid reliability.

- Andrew Dillon, Senior Principal, Energy & Utilities Practice, West Monroe Partners

9:30-10:30 am  Auto-DR Applications and Initiatives at Municipal Utilities

Municipal utilities are intricately embedded in the communities they serve. This session looks at case study profiles of municipal DR programs, and how DR is being used as a foundation in the move toward integrating and managing distributed energy resources. We will look at the technologies and sectors that are being targeted by DR programs focusing on the status of ADR and OpenADR adoption and will discuss utility perspectives on programs and projects that more broadly include DERs in their service territories. We will examine how experience in demand response
programs help inform and enable utilities to layer on additional DERs such as electric vehicles, thermal storage and more. The case study of Ft. Collins Utility is one such municipal utility that will be discussed in this light.

- Dr. Pablo Bauleo, Sr. Energy Services Engineer, Fort Collins Utilities
- Kitty Wang, P.E., Senior Project Manager, Energy Solutions

10:30-11:00 am  Networking Coffee Break

11:00-12:30 pm  Panel Session: International Markets and Opportunities

- Peter Weigand, Chairman and CEO, Skipping Stone
- Camila Schoti, Head of Regulatory and Government Affairs, ENEVA
- Shota Kobayashi, Manager of Market Development & Commercial Operation, EnerNOC
- Andy Marshall, Practice Director, Distributed Energy Resource Management, Landis+Gyr
- Riccardo Pagliarella, New Energy Product Specialist, Hydro Tasmania, Australia

12:30-1:30  Industry Networking Luncheon

1:30-2:00  Unlocking the Value of DERs: Integration and Control Through Behind-the-Meter IoT Networks

With a focus on next-generation, energy-producing and energy-storing assets taking center stage in the global energy discussion, little has been said about the role and necessity of behind-the-meter energy networks in unlocking the total value of data capabilities from the wide variety of DERs currently available. Realizing the advent of mass asset connectivity to a wide variety of DERs of varying makes, model and vintage through IoT enablement, as well as a built-in, cyber-secure framework from asset to cloud, behind-the-meter energy networks provide the greatest promise for energy efficiency, resiliency and self-sufficiency. Moving beyond SCADA and utilizing the latest in communication protocols, use cases for these networks are proving beneficial to companies on both sides of the meter, with utilities, energy service providers, and application providers, as well as commercial and industrial customers, benefitting from the superior networking capabilities and real-time data these networks provide.

- Key business factors impacting the total costs of behind-the-meter connectivity
- Real-world success stories from both sides of the meter
- The Energy IoT approach to integrating operational systems for greater operational flexibility
- How Energy IoT networks become the lifeblood of Auto DR
- The reality of real-time data from behind-the-meter energy networks and its impact on companies on both sides of the meter
- The role of behind-the-meter energy networks in overcoming 2G/3G communications obsolescence

- Eric Reichel, Vice President, Customer Success, Blue Pillar

2:00-2:30  Creating a Facility's Digital Twin through Big Data and the IoT

Within energy management, the ability to create a digital version of a building's physical infrastructure has a practical application. Using occupancy, comfort, and thermal models a digital twin can be created with data from IoT
devices and the Building Management System.

A building's digital twin provides valuable information into its current and future performance from an energy consumption perspective. Through the addition of machine learning and cloud computing, intelligent energy management platforms can create a system whose output provides insight into the predicted behavior of a building that simply cannot be obtained from merely observing models by themselves. The digital twin can be used to test how a building would respond to numerous variable changes in real-time and can help create a responsive building design. This strategy can not only be used to predict performance, but also to identify anomalies that indicate mechanical inefficiencies and energy drains.

This session will explore the benefits of building digital twins as the foundation of advanced demand response and the impact they will have on the future of energy management. It will outline how a digital twin be used for enhanced building performance, cost-savings and comfort, as well as leveraged to meet the changing needs of the power grid.

- Ken Hejmanowski, Director of Product Management, BuildingIQ

2:30-3:00 pm  Removing Auto-DR Barriers for Small to Mid-Size Commercial Buildings

In the U.S., only 15 percent of commercial buildings employ energy management systems (EMS) to automate and monitor energy usage. A number of barriers have historically prevented EMS adoption within the small to mid-size commercial building market, including installation issues, high upfront costs and lack of technical knowledge for using a new system.

This session will explore the features of an effective EMS for this particular commercial building market (one that is easy to install, simple to use and cost-effective) and how the right systems support participation in Auto-DR programs. Zen Ecosystems CEO James McPhail will also share a customer case study to help illustrate the real-world results of implementing a simple intelligent energy management system.

- James McPhail, Chief Executive Officer, Zen Ecosystems

3:00-3:30 pm  Networking Coffee Break

3:30-4:00 pm  Water/Energy Bank "Proof-of-Concept"

The Edmonston Pumping Plant is the largest water pumping plant in the world. Its 12 pumping units totaling 720 MW constitute the largest single electric load in the state. Along with the other three pumping plants that import water into Southern California, it creates over 1,000 MW of electric load.

If the imported water deliveries can be shifted seasonally, it enables a reduction in the state's peak hour electric load. It also can increase renewables penetration by soaking up surplus energy during periods of potential curtailment. While it is not practical to store energy on a seasonal basis, seasonal water storage over a number of months is quite common. The Water/Energy Bank "Proof-of-Concept" (EPC-16-029) will shift electric load by shifting when imported water is delivered. Pumping will be shifted out of the peak hours in the summer and into the periods of potential surpluses of renewable energy in the fall, winter, and spring months of the year.
Water will be stored in a 500,000 to 1,000,000 acre-foot groundwater bank, the Willow Springs Water Bank (WSWB). It will be pumped out of wells in the summer to supplement imported water deliveries. The extracted water will be replaced in the subsequent non-summer months when there is a potential surplus of renewable energy.

The project began in the spring of 2017. Significant results are already available. They include how to combine operations of a water/energy bank with a traditional water bank, the best way to store water seasonally, and probabilistic results for how much storage is needed for various levels of load shift. The project was the recipient of a $1.00 M grant from the California Energy Commission (CEC) Electric Program Investment Charge (EPIC) Program. WSWB is managing the project. Sub-contractors include E3, GEI, HDR, and Water and Energy Consulting. WSWB will be looking for partners among the Investor Owned Utilities once the concept has been proven to assist with and benefit from concept implementation.

- Mark Beuhler, P.E., MSEE, General Manager, Willow Springs Water Bank

Pre-Conference Workshop - Monday, October 15, 2018
Understanding and Implementing Auto-DR and Distributed Energy Resources Initiatives
1:00-5:00 pm

This workshop provides background on standard communication protocols used for Distributed Energy Resource (DER) management applications to meet grid requirements. DER applications include management of distributed rooftop solar, behind-the-meter battery storage and vehicle to grid EV ancillary services. The workshop will discuss the on-going debate about whether advanced demand management is a DER. The emerging protocols IEEE 2030.5 and OpenADR will be discussed in depth along with CA Rule 21 and IEC 61968-5 models for DER management.

The workshop also examines the state of demand response in the United States and internationally. Strategies for successful program design and implementation will be discussed, as well as case studies and lessons learned to date. Additionally, we will examine the current regulatory and market frameworks for DR, and how best to move forward successfully. The workshop is ideal for industry professionals, regulators and utilities who are at the early stages of auto-DR design, pilot programs and implementation.

- James Mater, Co-Founder and General Manager, Smart Grid, QualityLogic
- Rao Konidena, President, Rakon Energy LLC
- Craig Boice, President, Boice Dunham Group
- Jay Bilet, Strategic Account Manager, Energy Business, Schneider Electric
- Additional workshop speakers TBA
Sample Attendee Feedback

"Good, well-organized event. Gave a good picture of today and tomorrow, and the issues and challenges. Good, relevant presentations with little or no advertorial presentation."  -- Terry Casey, CEO Europe, Intellastar

"It was very interesting and I learned a lot. This is absolutely the best in the US so far."
-- Magnus Lindén, Senior Consultant, Energy Markets Group, Sweco Energuide

"Very good selection of topics and speakers from different backgrounds and stakeholders. Excellent organization. Thank you!"  -- Dr. Toni Goeller, General Manager, MI Ncom Smart Solutions GmbH, Germany

"Great contacts, presentations and information. Very useful!"  -- Charles (Ted) Witham, West Region Sales Director, Endpoint Automation, Cooper Power Systems by Eaton

Conference Venue

Crowne Plaza Costa Mesa - Orange County
3131 Bristol Street, Costa Mesa, CA 92626
714-557-3000
Past Participants Include

- A.G. Global Capital
- Accenture Strategy
- Adaptive Microgrids
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- Exponent
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- FreeStyle NRG
- Galvin Electricity Initiative / Perfect Power Institute
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- KS-SOLUTIONS
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- Lawrence Berkeley National Lab
- Lockheed Martin Energy
- MelRok
- Midcontinent ISO (MISO)
- MINcom Smart Solutions GmbH
- Mitsui USA
- National Grid
- Navigant
- NEDO
- Network Thermostat
- Nexant
- Northwestern University
- NRG
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- International
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- OpenADR Alliance
- PA Consulting Group
- Pacific Gas & Electric Company
- Pacific Northwest National Laboratory
- PECO
- Pelican Wireless Systems
- PJM Interconnection
- PlugShare
- Powerit Solutions
- Puget Sound Energy
- QualityLogic
- REGEN Energy
- Reliant (NRG)
- SAIL Capital Partners
- San Diego Gas & Electric
- Santa Clara University
- Schneider Electric
- SDG&E
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- Zonoff
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Sponsorship of the Forum ensures that your technology solutions and expertise are positioned prominently to a range of international energy professionals interested in demand response and distributed energy resources management. This is a unique opportunity to target a key group of decision-makers, network managers, utility executives, investors, and energy providers who will be in attendance.

Sponsors receive a range of valuable exposure opportunities for highlighting their involvement in the Forum and maximizing their interaction with attendees. Prominent logo positioning on event website, Tabletop Exhibit space, and an opportunity to distribute corporate information to attendees are just a few benefits of sponsorship. To receive full details, please contact Daniel Coran, Program Manager, at +1-815-310-3343 or info@drworldforum.com

About the Organizer

The Smart Grid Observer is an online information portal and weekly e-newsletter serving the global smart grid 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 driving the smart energy industry worldwide. The publication serves a global readership of executives and practitioners in the electric power generation, transmission, and distribution industry. For a free subscription, visit www.smartgridobserver.com

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Pre-Conference Workshop only (October 15) $425.00
Conference plus workshop (October 15-17) $1,548.00

Government, Academic, Non-profit Organizations

Main conference only (Oct 16-17) $995.00
Pre-Conference Workshop only (Oct 15) $325.00
Conference plus workshop (Oct 15-17) $1,188.00

For questions or additional information, contact Daniel Coran, Program Manager +1-815-310-3343 or info@drworldforum.com