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ABB Customer World

GEORGE R. BROWN CONVENTION CENTER
HOUSTON, TEXAS | MARCH 4-7, 2019

Ready or not, distributed energy and renewables are here.

The energy industry faces a challenge with the integration of distributed energy resources and renewables. Fortunately, there are tools and technologies that can help.

The curriculum and networking at ABB Customer World, will provide insights into what the industry's leading players are doing to ensure safe, secure and efficient operation of the electric distribution network. Whether you are a utility or you serve the industry, this event is for you.

Registration is free!

ABB Customer World, brings together professionals from utilities, industries and infrastructure for a premier educational and collaboration event in North America.

From past lessons learned to the future revealed, this event saves you time, money and manpower. Ask your questions, deliver your feedback to developers, take advantage of hands-on training by experts, and learn from ABB's customers and project managers how to maximize value from your current assets.

Event registration is now open — and there is no conference fee to attend. For information and to register, visit us at www.abb.com/acw.

Join your distributed energy and renewables peers as we explore cutting-edge technologies that address your most pressing challenges.

Distributed energy and renewables suggested program

MONDAY, MARCH 4

TIME	PROGRAM	ROOM
10:00AM	**Technology & Solution Center opens**	**TSC**
11:45AM-12:45PM	**Buffet Lunch**	**Hall E, Level 1**
1:00-2:00PM	**Microgrids in the Caribbean: Case studies**	**350D**
	Caribbean islands are working to address a number of new challenges in their power delivery. While they constantly aim to improve system resiliency, they are also working to integrate renewables, and reduce operating costs and carbon emissions. This session will cover how some island countries are working to address these issues. We will cover the Grand Bahamas Microgrid, Aruba Controls and Jamaica's 24.5 MW microgrid	
2:30-3:30PM	**Design of energy storage systems**	**350D**
	Explore the process of developing the preliminary design of an energy storage system. Topics to be covered include an overview of energy storage technology, selection of the power conversion system (PCS), storage medium selection and sizing of components. This session will focus on the importance of having an energy storage system appropriately designed to match the intended application.	
4:00-5:00PM	**Retail to wholesale power: How do we get there with solar+storage?**	**350D**
	Rooftop solar plays a critical role in grid transformation. However, as solar penetration levels approach the point where the system can no longer benefit from new daytime generation, storage is needed. To drive solar+storage growth, the industry started seeking new rate designs and incentives to benefit generation/distribution systems and retailers. The session covers how retail and wholesale are blending into a new business model with alternative revenue streams and what opportunities solar+storage can bring to this integrated world.	
5:00-6:30PM	**Reception**	**TSC**
6:30PM	**Technology & Solution Center closes**	**TSC**

TUESDAY, MARCH 5

TIME	PROGRAM	ROOM
8:30-10:00AM	**Keynote Presentation**	**Hall B3, Level 3**
	Ulrich Spiesshofer, CEO, ABB **Antonio Neri, CEO, HPE**	
10:00AM	**Technology & Solution Center opens**	**TSC**
10:30-11:30AM	**Leveraging distributed energy resources: Case studies**	**350D**
	Distributed energy resources (DERs) present an exciting opportunity to improve how electricity is produced and delivered to consumers. DER technologies are rapidly approaching widespread market viability and are establishing electrical distribution systems as fertile ground for innovation. ABB will share two case studies based on work performed by the U.S. Power Consulting team. The presentations will cover selecting the optimal DER portfolio and leveraging energy storage as a cost efficient alternative to traditional grid solutions.	
11:45AM-1:15PM	**The Future of Industry - Luncheon panel discussion**	**Grand Ballroom, Level 3**
	Peter Terwiesch, President Industrial Automation Division, ABB Michael Wiebe, COO, Krones Guido Jouret, Chief Digital Officer, ABB Moderator: Greg Scheu, President Americas, ABB	
	OR buffet lunch	**Hall E, Level 1**

1:30-2:30PM	**Advanced microgrids in the last frontier**	**350D**
	Of the over 150 communities in rural Alaska, about 70 include grid-scale renewables in microgrid applications. Backed by over two decades of renewable integration experience in the harsh conditions of the 49th state, Alaska microgrids continue to expand the boundaries of traditional power system operation – some pushing penetration levels of variable renewables on a regular basis of up to 100%. This overview will examine the motivating factors for pioneering these advanced microgrids and review the success of each by comparing the theoretical objectives with the real-world outcomes.	
3:00-4:00PM	**Autonomous resilient grids: Vision for a nested transactive grid**	**350D**
	We will provide an overview of grid transformation, followed by a vision for an autonomous power grid as a manifestation of the internet of things (IoT). The vision aspires to a transactive energy grid with intelligence distributed among all components to achieve improved reliability, resiliency and efficiency. It presents the concept of a nested transactive grid to model the distribution as a nested set of virtual microgrids that can each act as a market. The architecture facilitates transactive exchanges and enables the use of DERs for higher resiliency in normal and emergency conditions.	
4:30-5:30PM	**Renewable substation designs**	**350D**
	Wind and solar continue to be the primary growth in generation, and this trend is expected to only continue to increase. Designing and building cost effective substations to support these generation sites and interconnect to the grid are key to financial success. In this session, you will learn new ways of designing the substation to minimize material cost as well as onsite construction time and money. By designing these features in from the start, a developer can reduce their risk in the project, improve onsite safety and reduce labor costs on site while improving system reliability.	
6:30PM	**Technology & Solution Center closes**	**TSC**
6:30-9:30PM	**Customer Appreciation Event** **Convention Center** 	**Hall B3, Level 3**

WEDNESDAY, MARCH 6

TIME	PROGRAM	ROOM
9:00-10:15AM	**Future of Mobility - Keynote presentation**	**Hall B3, Level 3**
	Moderator: Guido Jouret, ABB Chief Digital Officer Panelists: Tarak Mehta, President, ABB Electrification Products division Tony Seba, Futurist and thought leader Transportation is undergoing a radical transformation not seen since the advent of the automobile—and it's not limited to cars. From hybrid ships and autonomous cars to electric buses that recharge during stops, there is hardly a segment of the transportation sector that's not being reinvented. As the leader in electric-vehicle (EV) fast charging, ABB is playing a decisive role in this e-mobility revolution. Our panel will assess the smart mobility solutions that are defining the new, sustainable transportation ecosystem. With 125 million electric cars expected on roads worldwide by 2030, we'll also discuss the requirements for building out the charging infrastructure that will power these clean electric, connected and increasingly autonomous vehicles.	
10:00AM	**Technology & Solution Center opens**	**TSC**
10:30-11:30AM	**Impact of renewables on substation transformers**	**350D**
	As DERs are added to the transmission and distribution grids, there is a need to analyze the impacts on the power system, starting with the substation transformer (ST). This session will analyze impacts of the reverse power on the ST for various	

	operating conditions and compares the finite element (FE) analysis results for various transformer designs under reverse power flow. We will also discuss how switching and fault conditions influence the voltage at the ST terminals leading to transient and steady state over voltages and show how the effect may worsen with DERs.	
11:45AM-1:15PM	**The Future of Energy - Luncheon panel discussion**	
	Moderator: Rob Massoudi, ABB GVP, Digital Transformation Panelists: Claudio Facchin, President, ABB Power Grids division Joe Kava, VP Data Centers, Google Gary Hayes, CIO & VP Information Technology, CenterPoint Charles McConnell, Former DOE Assistant Secretary of Energy The ways in which electricity is generated, distributed, and consumed are changing radically. Renewable energy sources, such as wind and solar, are ramping up, and the grid is becoming increasingly digital and decentralized. This lunchtime panel will provide insight into how these interwoven trends will play out and what the implications are for electricity utilities and their customers. We'll discuss the integration of conventional and renewable energy sources, the adoption of smarter energy management practices, the role of digital substations and microgrids and the emergence of self-reliant "prosumers" – individuals who produce and use their own energy.	**Grand Ballroom, Level 3**
	OR buffet lunch	**Hall E, Level 1**
1:30-2:30PM	**The role of DERs in renewable integration and resolving California's solar glut**	**350D**
	On March 6, 2018, the California Independent System Operator (CAISO) saw around 50 percent of its generation served by solar resources. Considering the limited amount of solar generation in California 10 years ago, this shows a massive change that is still continuing rapidly. Such a large presence of solar generation is causing market issues such as curtailment of solar generation and extended periods of negative market prices. This session will discuss how DERs, along with grid digitalization technologies, can be used to resolve solar glut issues in California.	
3:00-4:00PM	**Distributed generation challenges and solutions for electric distribution operations**	**350D**
	Today's regulatory renewable energy goals, more economical solar photovoltaics (PV), distributed energy resources (DER) and rising utility rates have resulted in rapid growth of solar PV distributed generation deployments. The higher penetration of PV is creating new electric utility distribution operations challenges. We will review the challenges and solutions to address these issues. We'll also look at a future vision for advanced distribution management systems (ADMS)/DER management systems (DERMS) and potential new utility business models regarding distribution transactive energy markets.	
4:30-5:30PM	**What is distributed energy resource management? Understanding VVO and VVP functions**	**350D**
	Distributed energy resources, such as solar PV, energy storage, demand response, EV charging and microgrids are changing the utility distribution landscape. Distributed energy resource management systems (DERMS) are being implemented to manage and optimize feeder voltages and to aggregate and dispatch DERs.	
6:30PM	**Technology & Solution Center closes**	**TSC**

THURSDAY, MARCH 7

TIME	PROGRAM	ROOM
8:30-9:30AM	**Future of Work: The Impact of Digital Manufacturing on the Factory of the Future with Sami Atiya and Lessons from the Dirt featuring Executive Producer & Show Host Mike Rowe**	**Hall B3, Level 3**
	Keynote speakers: Sami Atiya, President, ABB Robotics & Motion division	

	Mike Rowe, Executive Producer & Show Host Join us as we wrap up ABB Customer World with two very special keynote presentations. Sami Atiya, President, ABB Robotics & Motion division, will share his vision on how to succeed in the changing global manufacturing landscape and workforce readiness. Executive Producer & Show Host Mike Rowe will share the surprising lessons he learned working as a perpetual apprentice. 	
10:00AM	**Technology & Solution Center opens**	**TSC**
10:00-11:00AM	**Advanced solid state switching solutions for DERs and microgrids**	**350D**
	Cyberex Grid Tie Switch (GTS) and ABB's PCS100 platforms provide high power density and faster switching, and promote higher reliability and efficiency for the utility and microgrid markets. These systems are challenging existing equipment and infrastructure in applications requiring fast switching and robust power quality solutions.	
11:30AM-12:30PM	**Taking advantage of the growing renewables market**	**350D**
	Renewable energy is nothing new, but today's technologies for capturing that power and converting it to useable electricity have evolved dramatically. But this is not without challenges. Join this session to learn how ABB's products, solutions and services can be positioned to mitigate these challenges. Some of the topics we will cover include low voltage components, designing safety into your system, transformers for every renewable application, smart inverter technology and identifying service opportunities.	
12:30-1:30PM	**buffet lunch**	**Hall E, Level 1**
1:45-2:45PM	**Innovative volt/VAr optimization with DER forecasting and predictive feedback at Ameren Energy**	**350D**
	Typical volt/VAr optimization (VVO) applications optimize power delivery using control of available substation and feeder resources. Ameren will present implementation experience and preliminary results of an enhanced VVO application providing control for conservation voltage reduction, power factor, voltage and reactive power. The deployed VVO algorithm is based on a network model predictive feedback control. The algorithm is driven by voltage measurements, load forecasts and DER forecasts, along with voltage sensitives calculated on-line using the as switched unbalanced network model.	
3:00PM	**Technology & Solution Center closes**	**TSC**

General information

Event registration
Register for ABB Customer World and event hotels by visiting the event website at www.abb.com/acw

Event location
All educational training, the Technology & Solution Center and meals will be held at the George R. Brown Convention Center (GRBCC), levels 1 and 3.

The street address is 1001 Avenida De Las Americas, Houston, Texas 77010.

Hotel accommodations
Information about where to stay and how to book your hotel reservations is available at www.abb.com/acw. Special event rates will be offered for days of the event, subject to availability. You must be registered for ABB Customer World, in order to reserve rooms under the event rate; please do not contact the hotels directly.

Note: Hotel reservations are not automatically made when you register for the event. Your event reservation confirmation will include a link to reserve your hotel room, and you can then reserve your event housing or you can reserve at the same time you are registering to attend.

All event hotels offer easy access to the GRBCC and complimentary wireless internet access is provided in guest rooms as part of the event rate.

Need more information?
Event information is available on the event website or by calling our 24-hour help line: 800-435-7365
Press option zero (0) and ask for ABB Customer World 2019 support.

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