

# i-PCGRID Workshop 2016

Innovations in Protection & Control for Greater Reliability Infrastructure Development

## Strategies for Energy Trends & Industry Sustainability

2.4 Continuing Education Units (CEU) available this year

To register, please contact Kendra Posovich, Mississippi State Univ. - Phone: (662) 325-2314

## Program

March 30 – April 1, 2016

245 Market Street, Auditorium, San Francisco, California, USA

You are cordially invited to attend the Annual Workshop in Innovations in Protection and Control for Greater Reliability Infrastructure Development (i-PCGRID) hosted by Pacific Gas and Electric Co. (PG&E) and organized by PG&E, Mississippi State University and Quanta Technology.

The importance of a modern electricity grid for sustainable delivery of reliable, communicative, and high-quality electricity has energized the organizing committee to continue with its tradition of fostering knowledge, sharing of best practices, and information exchange through workshops. As the electrical power and energy industry is in a crucial transition phase as initiatives we take today will affect how the grid is operated for years to come, this gathering of the minds initiative works to develop a shared vision for a modern, efficient grid. The i-PCGRID 2016 Workshop will emphasize both practical lessons learned from managing grid system and equipment assets and innovative and future looking technologies and solutions to continue building a more resilient and efficient grid.

**Core Program** discussions focus on **Past, Present and Future Power Systems** around the world addressing the evolving energy sector. **IN-DEPTH** featured topics dive into how changes in energy mix and ever-developing technologies could be best utilized and managed to assure global grid resiliency and required levels of performance. Worldwide sustainability roadmaps will be presented to address the energy needs of society and key success factors. Our expert navigators will offer many **lessons learned and winning strategies** to others embarking on new projects or seeking expertise at different stages of modernization undertakings.

**Supplemental** Power System discussions include Grid Reliability, Security, and Communication; Microgrids; Storage; Electric Vehicles; Advanced Monitoring, Protection and Control Technologies; and optimized Asset Management. It will showcase endeavors and findings by utilities, vendors, consultants, regulators and academics, navigating the Frontiers of the Grid, Balancing Operational Readiness, Energy Mix Strategies, and Implementing Advances in Technology.

The PG&E hosted workshops are one way for fostering a vision and to set the foundation for a transition to a Modern Grid. These workshops are a forum to discuss industry trends and challenges, exchange ideas, and to help prioritize directions in order to develop strategies. Participation in this process will enable stakeholders to shape the direction of this critical program and maximize benefits from the program achievements. The ultimate goal of this effort is to foster best practices and provide a collaborative approach.

**On-line Registration:** <https://ipcgrid.ece.msstate.edu>

To register by phone, please contact Kendra Posovich: [kendra@ece.msstate.edu](mailto:kendra@ece.msstate.edu)

### Electrical and Computer Engineering

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On-site registration is available during the Event. Partial registration is not available.

For questions, please contact us:

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Day 1 - Wednesday, March 30, 2016		
Time	Item	Presenter / Session Coordinator
7:15 AM	<b>Registration &amp; Refreshments</b> <i>Executive Greeter:</i> Safety and Emergency Response - Vahid Madani <i>Session Coordinator:</i>	Terry Morford - Energy Consulting Jonathan Sykes – PG&E <i>Steve Auradou, Vladimir Frenkel - PG&amp;E</i>
8:00 AM	Introduction and Welcome	Ken Wells – PG&E
*8:05 AM	The Grid of Things	<b>Pat Hogan – PG&amp;E</b>
*8:30 AM	Driving Grid Transformation. Grid Modernization Initiative	<b>Michael Pesin – Department of Energy</b>
*8:55 AM	Essential Reliability Services – Engineering the Changing Grid	<b>Robert Cummings - NERC</b>
*9:20AM	DER Integration Challenges and Potential Impacts on System Reliability	<b>Gary Rackliffe - ABB</b>
9:45 AM	The Role of Advanced DMS/SCADA Systems	Chuck Newton - Newton-Evans
10:05 AM	<b>Break</b> <i>Session Coordinators:</i>	<i>Chase Sun &amp; Monica Montgomery -PG&amp;E</i>
10:20 AM	Vision in Support of Energy & Smart Grid National Institute of Standards and Technology	Thomas Nelson – NIST
10:40 AM	PTP Standards: 1588v3, 61850-9-3, C37.238 Precision Time Protocol	Bill Dickerson - Arbiter
11:00 AM	Earthquake Forecasting Technology and Application to Geo-Magnetic Disturbances	Tom Bleier - Quakefinder
11:20 AM	Advanced Grid Modeling for 21st Century Challenges	Alireza Ghassemian – DOE
11:40 AM	Grid Operations and the Growing Importance of Accurate Solar Irradiance Forecasting	Kevin Clifford – PG&E
12:00 PM *12:55 PM	<b>Lunch</b> <i>Session Coordinators:</i> <b>Energy Trends &amp; Strategies for Industry Sustainability</b>	<i>Leo Hisugan –PG&amp;E, Ali Daneshpooy–QT</i> <b>Gregg Lemler – PG&amp;E</b>
1:20 PM	<b>Energy Storage, Microgrids and Emerging DER</b> Harmonizing and Optimizing Grid Operations  <b>Moderator: Mohammad Shahidehpour</b> – Illinois Institute of Technology (Chicago)	Steve Yang & Gordon Kawaley - BPA Xing Wang – GE / ALSTOM Scott Higgins - Schneider Electric Julio Romero Aguero - QT Russ Griffith - (PG&E)
2:55 PM	<b>Break</b> <i>Session Coordinator:</i>	<i>Reza Nasri – QT, Lise Phan – PG&amp;E</i>
3:10 PM	Lessons in Model Validation Using Phasor Measurements with Liner State Estimation	Joe Betro –PG&E, Anil Jampala GE/ALSTOM
3:35 PM	Initiatives at PNNL in Support of DOE	Jeff Dagle - PNNL
3:55 PM	Frequency Response Analysis	Ryan Quint –NERC, Rian Sackett - BPA
4:20 PM	Development and Demo of CURENT Testbed Systems NSF/DOE Center for Ultra-Wide-Area Resilient Electric Energy Transmission Networks	Kai Sun – Univ. of Knoxville, TN
4:40 PM	Cyber Security R&D for Defending Computers and Networks	John Grosh - Lawrence Livermore National Lab
5:05 PM	<b>Day 1 Closeout – Adjourn</b>	<i>Vahid Madani, Yong Fu</i>

\* Keynote Speaker

## i-PCGRID Workshop 2016

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### Strategies for Energy Trends & Industry Sustainability

Day 2 - Thursday, March 31, 2016

Time	Item	Presenter
7:30 AM	<b>Registration &amp; Refreshments</b> <i>Session Coordinators:</i>	<i>Executive Greeter:</i> Terry Morford –Energy Conslt’g <i>Cheryl Gessner, Jay Mearns, Greg Langan -PG&amp;E</i>
8:00 AM	Introduction & Greetings	Paul Nielsen – PG&E
*8:00AM	Building and Securing the Digital Utility	<b>Karen Austin – PG&amp;E</b>
*8:25AM	An Industrial Perspective Supporting The Development of Distributed Energy Resources	<b>Juan de Bedout - GE</b>
*8:50AM	Cybersecurity of the Electric Distribution System	<b>Murty Yalla - Beckwith Electric Co.</b>
*9:15AM	IEEE PES Initiatives and Industry Role in Standards	<b>Damir Novosel – QT, Vahid Madani - PG&amp;E</b>
9:40 AM	Predictive Analytic to Supervise Zone 1 of Distance Relay using Synchrophasors	S. A. Soman, IIT – India
10:05 AM	<b>Break</b> <i>Session Coordinators:</i>	<i>Alex Chua-PG&amp;E, Lisa Beard–Univ. of Tennessee</i>
*10:20AM	Managing T&D Grid Reliability for DER Growth and to meet California 2030 Climate Commitments	<b>Doug Macdonald – GE / ALSTOM</b>
10:45AM	IEEE 1588 PTP Experiment for wide area	Marc Weiss - NIST
11:05 AM	Precision Time, Supercomputing and the Nation’s Power Grid	Terry Jones – Oak Ridge National Laboratory
11:25AM	Transitioning Synchrophasor Information into Operational Guidance	Peter Fung –PG&E, Manu Parashar - GE/ALSTOM
11:55 PM	<b>Lunch</b> <i>Session Coordinators:</i>	<i>Michael Zhang &amp; John Randolph - PG&amp;E</i>
12:50 PM	<b>Panel Session</b> <b>Big Data, Distributed Processing Applications, and Supercomputing</b> <b>Moderator: Roger King – Mississippi State Univ.</b>	Big Data Analytics – Gordon Matthews & Tony Faris – BPA Data Fusion & Analytics - Vaibhav Donde and Sabrin Mohamed – PG&E A High-Performance Platform for Real-Time Data Processing & Extreme-Scale Heterogeneous Data Management - Norifumi Nishikawa - Hitachi
2:00 PM	Advanced Protection and Control Technologies for T&D Grid Modernization	Jeff Shiles – SCE, Farid Katiraei - QT
2:25 PM	Global Reliability Initiative Projects	Jay Giri – Alstom Grid, Alexander Apostolov – Omicron / PACWorld
2:50 PM	<b>Break</b> <i>Session Coordinators:</i>	<i>Carmen Contreras &amp; Frankie Au-Yeung -PG&amp;E</i>
3:05 PM	Experiences with Automated Relay Settings Process to Improve Productivity and Reduce Misoperations	Thomas Field- Entergy, Michael Mazzola- MSU
3:30 PM	System reliability and flexibility requirements under high penetration of renewables	Antonio Alvarez - PG&E
3:50 PM	Grid Supporting Inverters: Riding Through Low Voltage Faults	Masoud Karimi - MSU
4:10 PM	Reactive Margin Analysis with Improved Dtection Algorhythm	Vahid Madani– PG&E, Rahul Anilkumar - QT
4:35 PM	Smart Inverter Testing for Autonomous Grid	John Mead – PG&E
5:00 PM	<b>Day 2 Closeout – Adjourn</b>	<i>Damir Novosel, Roger King</i>

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### **Strategies for Energy Trends & Industry Sustainability**

245 Market Street, San Francisco, Auditorium

<b>Day 3 - Friday, April 1, 2016</b>		
<b>Time</b>	<b>Item</b>	<b>Presenter</b>
<b>7:30 AM</b>	<b>Registration and Refreshments</b> <i>Session Coordinators:</i>	Terry Morford – Energy Consulting <i>James Barich &amp; Sandra Ellis – PG&amp;E</i>
7:45 AM	Initiatives & Compliance - System Protection Reliability, Life Cycle, and Technology	Jonathan Sykes - PG&E
8:05 AM	Automated Security Assessment and Management of Electric Power Grid	Sherif Abdelwahed - MSU
8:30 AM	PDCI Active Power Modulation Using Synchronphasors	Gordon Matthews - BPA
8:50 AM	Design and Experience with Travelling Waves based protection in the Chinese Electric System	Xinzhou Dong - Tsinghua University, Beijing China
9:10 AM	Interactive Remote Access	Jeff Foley - Siemens RuggedCom
9:35 AM	Looking Into the Future Protection, Automation and Control Systems	Ratan Das – icaPower, Sakis Meliopoulos – GT
10:00 AM	Cultivating Tomorrows Leaders - Solving Skilled Labor Recruiting, Training, and Retention	Jerry Timiraos, Mike Lewis, Shirin Tabatabai – PG&E
<b>10:25 AM</b>	<b>Break</b> <i>Session Coordinator:</i>	<i>Gene Henneberg -NV Energy, Paula Avery -PG&amp;E</i>
10:40 AM	<b>Panel Session</b> <b>IEC 61850 Solutions</b> <b>Moderator: Alexander Apostolov - Omicron</b>	Alternative Solution to Implement Digital Substation Technology - Greg Rzepka - SEL Business Case and Standards for Routable GOOSE - Mark Adamiak – GE Process Bus Experiences Internationally - Peter Rietmann - ABB
11:45 AM	Streamlining Protection Requirements for Generator Interconnection	Chase Sun & Mike Jensen – PG&E
<b>12:10 PM</b>	<b>Lunch</b> <i>Session Coordinator:</i>	<i>Anthony Boardingham –CDWR, Vipin George Mathew-PG&amp;E</i>
1:00 PM	Combining Subsynchronous Oscillations Detection and Synchronphasor Measurements to Increase Power System Stability	Galina Antonova - ABB
1:25 PM	NERC PRC-012-2 RAS Standard	Davis Erwin-PG&E, Gene Henneberg–NV Energy
1:45 PM	Field Experience with Volt Var Optimization on Feeder Circuits with High Distributed Generation	Rustom Dessai – PG&E
2:05 PM	Alternative Solution to Support Rebuilding of Transmission Infrastructure	Chifong Thomas – Smart Wires
<b>2:30 PM</b>	<b>Break</b> <i>Session Coordinator:</i>	<i>Sheena Mital &amp; Carmen Contreras -PG&amp;E</i>
2:45 PM	“Wires Down” Improvement Program	Shawn Holder – PG&E
3:05 PM	HPC Dynamic Simulation Platform to Support Integrated T &D & Communication Systems	Liang Min – LLNL
3:35 PM		- PG&E
4:40 PM	<b>Wrap-up / Topics for 2015 - Adjourn</b>	<i>Vahid Madani, Damir Novosel, Yong Fu</i>