The Seventh Annual
IEEE PES Conference on

INNOVATIVE SMART GRID TECHNOLOGY

September 6-9, 2016 | Minneapolis, Minnesota

2016 ISGT Tutorials – Tuesday, September 6, 2016

Half-Day Tutorials

TUT01- Synchrophasor Technology Applications in Distribution Systems, Room: Scandinavian ballroom 1-2
Date: *Tuesday September 6, 1:00 pm-5:00 pm*
Price: *Early Bird $195, Regular $240*
Instructors: *Yi Hu, Quanta Technology LLC, Julio Romero Aguero, Quanta Technology LLC, Eric Udren, Quanta Technology LLC, Farid Katiraei, Quanta Technology LLC,*

Major trends occurring in the electric power industry have fundamentally changed the main characteristics of distribution systems. Proliferation of Distributed Energy Resources (DER) and the emergence of active and dynamic medium and low voltage grids are expected to change the way distribution systems will be monitored, operated, managed, controlled and protected.
Synchrophasor technology has been widely adopted in transmission systems and is starting to be applied in distribution systems to ensure reliable and secure power delivery, and increase real-time awareness and visibility at grid edge.
This tutorial will review synchrophasor technologies, and discuss potential applications to address existing operations and engineering challenges faced by distribution systems nowadays, as well as potential problems that are likely to emerge as a consequence of DER proliferation. Practical case studies and discussions regarding existing products are included to demonstrate the feasibility and benefits of applying the technology to resolve real industry problems.

TUT 02- SG 204: Introduction to Smart Grid Data and Analytics, Room: Norway 1-2
Date: *Tuesday September 6, 1:00 pm-5:00 pm*
Price: *Early Bird $195, Regular $240*
Instructors: *Anant Venkateswaran, M.S, CEM, GE's Grid Solutions, Dr. Ali Ipakchi, OATI*

This is an introductory level course to look at smart grid data and analytics, the focus is on the distribution and customer domains of the NIST model. The course covers the following key topics:

- What data is available from which devices, from the in home controller to meters to relays and substation automation.
- What applications can be done with the data, with a heavy focus on AMI and line devices.
- What is the value of each of the applications to the various stakeholders that are associated with the grid, using the Illinois Collaborative definitions of stakeholders.

The course will look at the process of collecting and verifying data, including all of the pitfalls that may occur and provide a 20 step process to go from no data to running analytics. The course is suitable for non-technical, as well as technical audiences, including regulatory, legislative, and utility staff members. The course will also compare and contrast the two major privacy contenders and the impact each would have on the ability to perform the analytic applications based on the principles of each contender. Included in the course will be a summary of the ARRA analytics that have been highlighted by the EPRI and DOE reports.

TUT 03- DER Integration Course - Impacts on T&D, Room: Norway 3
Date: *Tuesday September 6, 1:00 pm-5:00 pm*
Price: *Early Bird $195, Regular $240*
Instructors: *David Lovelady, Siemens PTI, Hugo Bashualdo, Siemens PTI*

DER Integration Course - Impacts on T&D (4hrs): DER is not only impacting the distribution system but with increasing levels of penetration the transmission planners are now concerned. This course will discuss the planning studies and considerations required to capture the impacts of DER on the T&D system. Firsthand experience from Siemens PTI project experience will be shared with the students. The course will cover the following major subjects:

- Distribution Planning Process with DG
- Impact of distributed generation and the new challenges they represent
- The shortcoming of traditional planning process in this new era and the need for new enhanced planning methodologies.
- How enhanced planning methodologies can provide a better understanding of how, where, or to what intent to increase or limit distributed generation integration.

Wednesday Morning – September 7th, 2016

Opening Session, Scandinavian Ballroom
Wednesday, 7 September, 2016 8:00 AM-8:15 AM

Jacob Bernhagen, Chair, 2016 ISGT Conference
Jay Giri, IEEE PES Governing Board Member
Joseph Paladino, Conference Technical Chair

Plenary: Smart Grid Technology Vision, Room: Scandinavian Ballroom
Wednesday, 7 September, 2016 8:15 AM-10:00 AM
Session Chair: Ebrahim Vaahedi, IEEE Smart Grid Publication Committee Chair

Speakers:
Sasan Mokhtari, CEO and President, Open Access Technology International
David Whitehead, R&D Vice President, Schweitzer Engineering Laboratories
Damir Novosel, CEO, Quanta Technology
Bryon Flynn, Sr. Director - Smart Grid, GE
Wanda Reder, Chief Strategy Officer S&C Electric

To respond to their business requirements and chart the future technology deployment strategy, utilities need to know the state of the art in available technology solutions and the future technology trends. In this plenary session, the executives of four major technology providers share their insight on the smart grid strategic roadmaps, technology maturity and their business value.

Integration of Distributed Resources with Distribution Grid Operation (panel session), Room: Fjords 4
Wednesday, 7 September, 2016 10:30 AM-12:00 PM
Chair**:** Farrokh Rahimi, Senior Vice President, OATI

The panel will address the operational and technical requirements for management of a distribution grid with high penetrations of demand response and distributed energy resources, and will present opportunities for expanding utility business models and revenue streams.

* 2016ISGT0266, Overview of Demand-side Integration
  A. IPAKCHI, OATI
* 2016ISGT0267, Analytical Models for DER Integration
  M. SHAHIDEHPOUR, IIT
* 2016ISGT0268, Utility Perspective of DER Integration
  R. SHERICK, SCE
* 2016ISGT0269, ISO/RTO Perspective of DER Integration
  L. KRISTOV, CAISO

Large, Realistic, Open-Access Power System Benchmark Models for Community Testing of Grid Optimization Algorithms (panel session), Room: Bergen 1
Wednesday, 7 September, 2016 10:30 AM-12:00 PM
Session Chair: Tim Heidel, Program Director, Advanced Research Projects Agency – Energy (ARPA-E), U.S. Department of Energy

The expected growth in system complexity due to high penetrations of renewable generation, changing electricity demand patterns, and distributed energy resources will require the development of substantially improved and control tools to assist grid operators, including those solving optimal power flow problems. The

panel will highlight emerging efforts funded by ARPA-E in the development of such novel power systems models.

Speakers**:**
Thomas Overbye, University of Illinois Urbana-Champaign
Patrick Panciatici, Réseau de Transport d'Électricité (RTE France)
Christopher DeMarco, University of Wisconsin–Madison
Mark Rice, Pacific Northwest National Laboratory (PNNL)
Terry Nielsen, GridBright, Inc.

A New Cybersecurity Architecture from Bulk Power to Distribution Grid Endpoints (panel session), Room: Fjords 2
Wednesday, 7 September, 2016 10:30 AM-12:00 PM
Session Chair: Jerrod Montoya, President, Infraguard Minnesota Members Alliance, OATI

The panel will consider the possibility of applying bulk power security at the distribution level and whether distribution providers are in the best position to secure consumer endpoints.

Speakers:
Massoud Amin, University of Minnesota
Paul Skare, Pacific Northwest Labs
Erik Amundson, OATI
David Halla, ES-ISAC

Microgrids and New Trends I (paper session), Room: Fjords 3
Wednesday, 7 September, 2016 10:30 AM-12:00 PM
Session Chair: Hongbo Sun, Mitsubishi Electric Research Laboratories

* 2016ISGT0025, CPS Compliant Adaptive Immune Based Load Frequency Control With Varying Wind Penetrations
  A. RIMAL, Tennessee Technological University
  R. BELKACEMI, Tennessee Technological University
* 2016ISGT0068, PSST : An Open Source Power System Simulation Toolkit in Python
  D. KRISHNAMURTHY, NREL
* 2016ISGT0173, Energy Scheduling and Allocation in Electric Vehicles Energy Internet
  S. LI, shanghai Jiao Tong University
  P. YI, shanghai Jiao Tong University
  Z. HUANG, University of Maryland
  T. XIE, University of Maryland
  T. ZHU, University of Maryland
* 2016ISGT0249, Application of Microgrids in Addressing Distribution Network Net-Load Ramping
  A. MAJZOOBI, University of Denver
  A. KHODAEI, University of Denver

Planning and Evaluation I (paper session), Room: Scandinavian Ballroom 1
Wednesday, 7 September, 2016 10:30 AM-12:00 PM
Session Chair: Tarek Masaud, Texas A&M University - Kingsville

* 2016ISGT0015, A Novel Algorithm to Integrate Battery Cyclic and Calendar Agings Within a Single Framework
  S. POURMOUSAVI KANI, NEC Laboratories America Inc

B. ASGHARI, NEC Laboratories America Inc
R. SHARMA, NEC Laboratories America Inc
* 2016ISGT0049, Supervisory Control for Coordinating Volt/Var Control Devices on a Distribution System
G. OZDEMIR, North Carolina State University
M. BARAN, North Carolina State University
S. EMIROGLU, North Carolina State University
* 2016ISGT0063, Consideration of Smart-Meter Measurements in a Multi-Agent Simulation Environment for Improving Distribution Grid Planning
J. KAYS, TU Dortmund University
A. SEACK, TU Dortmund University
C. REHTANZ, TU Dortmund University
* 2016ISGT0077, Design and Test of Unified Power Flow Controller Protection Circuits
Y. GUO, Zhejiang University

Wednesday Afternoon – September 7th, 2016

Community Power and the DER Platform for the 21st Century (panel session), Room: Fjords 4
Wednesday, 7 September, 2016 1:00 PM-2:30 PM
Session Chair: Greg Thomson, Chief Operating Officer, Olidata Smart Cities, LLC

The panel will describe the crucial role of cities and local agencies in developing a sustainable electricity system, the architecture of a community-level DER platform, the aggregation of DER services, communication and control systems, and regulatory changes and financing strategies to facilitate such a system.

Practical Applications of Grid Architecture (panel session), Room: Bergen 1
Wednesday, 7 September, 2016 1:00 PM-2:30 PM
Session Chair: Jeffrey Taft, Chief Architect for Electrical Grid Transformation, Pacific Northwest National Laboratory

The panel will focus on applications of the discipline of Grid Architecture to practical issues in grid modernization and cover such topics as the merging of distribution markets and control systems, electricity-natural gas network convergence, the formation of platforms to enable new value streams, the structure of communications networks, and the impact of architecture on interoperability standards and their deployment.

Communications and Cyber Security in the IEEE Power and Energy Society (panel session), Room: Fjords 2
Wednesday, 7 September, 2016 1:00 PM-2:30 PM
Session Chair: Michael Dood, Principal Engineer, Schweitzer Engineering Laboratories, Inc.

The recent alignment of the IEEE Power and Energy Society combines the Power Systems Communications Committee with portions of the Substations Committee and Power System Relaying Committee. This panel will provide a survey of the width and breath of communications and cyber security technologies in the utility industry and an overview of opportunities associated with the new Power Systems Communications and Cybersecurity Committee.

Speakers**:**
Dan Nordell, Xcel Energy
Ken Fodero, Schweitzer Engineering Labs
Craig Preuss, Black & Veatch

Microgrids and New Trends II (paper session), Room: Fjords 3
Wednesday, 7 September, 2016 1:00 PM-2:30 PM
Session Chair: Zhaoyu Wang, Iowa State University

* 2016ISGT0080, Volt/VAR Control and Conservation Voltage Reduction as a Function of Advanced DMS
I. ROYTELMAN, OATI
J. MEDINA, OATI
* 2016ISGT0226, Predictive Set Point Modulation to Mitigate Transients in Power Systems with a Multiple-Input-Multiple-Output Control System
H. GHAFFARZADEH, Washington State University
A. MEHRIZI-SANI, Washington State University
* 2016ISGT0251, Self-healing of Active Distribution Network With Inverter-Based Distributed Generators Based on Big Data
Z. ZHU, Xiangtan University
B. DUAN, Xiangtan University
* 2016ISGT0188, Impact of Incentive Based Demand Response on Large Scale Renewable Integration
A. ASADINEJAD, university of Tennessee
K. TOMSOVIC, university of Tennessee

Electric End-Use Technology I (paper session), Room: Scandinavian Ballroom 1
Wednesday, 7 September, 2016 1:00 PM-2:30 PM
Session Chair: Xian Guo, Iowa State University

* 2016ISGT0030, Voltage Distributed Control for Power Networks with DERs
C. CARO-RUIZ, Universidad Nacional de Colombia
A. PÁVAS, Universidad Nacional de Colombia
E. MOJICA-NAVA, Universidad Nacional de Colombia
* 2016ISGT0044, Power Hardware-in-the-Loop Testing of Multiple Photovoltaic Inverters' Volt-var Control with Real-time Grid Model
S. CHAKRABORTY, National Renewable Energy Laboratory
A. NELSON, National Renewable Energy Laboratory
A. HOKE, National Renewable Energy Laboratory
* 2016ISGT0067, IMC-PID Controller Design for Power Control Loop Based on Closed-loop Identification in the Frequency Domain
X. LI, Electric Power Research Institute of Guangdong Power Group Co.
* 2016ISGT0071, Improving Network Parameter Error Detection via Multiple Measurement Scans
A. ABUR, Northeastern University
Y. LIN, Northeastern University

Integration of Distributed Energy Resources: Challenges and Opportunities (panel session), Room: Fjords 4
Wednesday, 7 September, 2016 3:00 PM-5:00 PM
Session Chair: Hao Zhu, Assistant Professor, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign

The panel will explore challenges to the traditional operational paradigms of distribution systems and discuss the technologies and solutions needed to manage them.

Speakers**:**
Aleksi Paaso, Senior Smart Grid Specialist at Comed
Alex Portilla, Principal Product Manager at the Pacific Gas and Electric Company

Dongbo Zhao, Lead Engineer at Eaton Corporation
Calvin Zhang, Senior Power Distribution Systems Engineer at Nexant
Sairaj Dhople, Assistant Professor of ECE, University of Minnesota

Communication-Physical System Simulation (panel session), Room: Bergen 1
Wednesday, 7 September, 2016 3:00 PM-5:00 PM
Session Chair: Ming Ni, Chief Expert of Power System Planning and Analysis, NARI Group Corporation (China)

Achieving closer integration and collaboration of the communication system and physical power system in the key to success of the smart grid. This panel will present various approaches for hybrid simulation platforms with discussions of technical issues needing to be addressed.

Distribution Communications Systems for Pervasive DER (panel session), Room: Fjords 2
Wednesday, 7 September, 2016 3:00 PM-5:00 PM
Session Chair: Chris Knudsen, President, CDKnudsen and Associates

The panel will cover the increasing demands, criticality and design of communications systems for the distributed grid, including best methods for their design and evaluation.

Distribution System Design (paper session), Room: Fjords 3
Wednesday, 7 September, 2016 3:00 PM-5:00 PM
Session Chair: Hirohisa Aki, National Institute of Advanced Industrial Science and Technology (AIST)

* 2016ISGT0073, A Decentralized Volt/Var Optimization Scheme for Smart Distribution Systems
  Y. SHI, North Carolina State University
  Z. SHEN, Electric Power Research Institute of CSG
  M. BARAN, North Carolina State University
* 2016ISGT0092, An Anonymized Authentication Framework for Smart Metering Data Privacy
  S. AFRIN, Rochester Institute of Technology
  S. MISHRA, Rochester Institute of Technology
* 2016ISGT0093, A Novel Design for an Expandable, Modular Microgrid Unit
  B. FALAHATI, Schweitzer Engineering Laboratories, Inc.
  E. CHUA, Schweitzer Engineering Laboratories, Inc.
  A. KAZEMI, Schweitzer Engineering Laboratories, Inc.
* 2016ISGT0149, Real-Time Estimation of Areal Output Power of Photovoltaics under Japanese Smart Grid System
  K. KAMONO, Tokyo University of Science
  Y. UEDA, Tokyo University of Science
* 2016ISGT0211, A Dynamic Simulation Study of Networked Microgrids in Active Distribution System
  F. ZHANG, Case Western Reserve University
  R. JAMALZADEH, Case Western Reserve University
  M. HONG, Case Western Reserve University

Electric End-Use Technology II (paper session), Room: Scandinavian Ballroom 1
Wednesday, 7 September, 2016 3:00 PM-5:00 PM
Session Chair: Gerald FitzPatrick, NIST

* 2016ISGT0056, Cascading Failures and Transient Stability Experiment Analysis in Power Grid Security
  S. POUDEL, South Dakota State University
  Z. NI, South Dakota State University

T. HANSEN, South Dakota State University
R. TONKOSKI, South Dakota State University
* 2016ISGT0072, A Computationally Efficient Method for Identifying Network Parameter Errors
A. ABUR, Northeastern University
Y. LIN, Northeastern University
* 2016ISGT0076, Fault Location Based on State Estimation in PMU Observable Systems
A. ONER, middle east technical university
M. GOL, middle east technical university
* 2016ISGT0099, Dynamic Synchophasor Estimation with Modified Hybrid Method
C. QIAN, Texas A&M University
M. KEZUNOVIC, Texas A&M University
* 2016ISGT0104, Impacts of Inverter-based Advanced Grid Support Functions on Islanding Detection
A. NELSON, National Renewable Energy Laboratory
A. HOKE, National Renewable Energy Laboratory
B. MILLER, National Renewable Energy Laboratory
S. CHAKRABORTY, National Renewable Energy Laboratory
F. BELL, SolarCity
M. MCCARTY, SolarCity
* 2016ISGT0137, CPS Based Electric Vehicle Charging Directing System Design in Smart Grid
C. WANG, Virginia Polytechnic Institute and State University
D. WU, McGill University
H. ZENG, Virginia Polytechnic Institute and State University
V. CENTENO, Virginia Polytechnic Institute and State University

Wednesday Evening – September 7th, 2016

ISGT Poster Session (poster session), Room: Scandinavian Ballroom 1
Wednesday, 7 September, 2016 6:00 PM-8:00 PM

* 2016ISGT0009, Microgrid Interoperability: First Steps from Policy To Implementation
M. NIKKHAH MOJDEHI, O' Brien & Gere
N. WEBB, O' Brien & Gere
* 2016ISGT0010, Practical Issues of Implementation of Linear State Estimator in WECC
L. ZHANG, Electric Power Group
H. CHEN, Electric Power Group
K. MARTIN, Electric Power Group
A. FARRIS, Bonneville Power Administration
* 2016ISGT0013, Power System Dynamic Model Reduction by Means of an Iterative SVD-Krylov Model Reduction Method
M. KHATIBI, KNTU
H. ZARGARZADEH, Lamar university
M. BARZEGARAN , barzegaran@lamar.edu
* 2016ISGT0019, Extracting Expedient Short Term Services from Homogeneous Group of Thermostatically Controlled Loads
A. RADAIDEH, Iowa State University
V. AJJARAPU, Iowa State University
* 2016ISGT0020, Power System Inertia Estimation using a Neural Network Approach with Modal Information
A. SCHMITT, Virginia Tech
B. LEE, Korea University

* 2016ISGT0028, Upgrading the Power Supply to the Al-Zawea Refinery in Libya
A. GAWEDAR, Oklahoma State University
R. RAMAKUMAR, Oklahoma State University
* 2016ISGT0033, A Study on Power-Flow and Short-Circuit Algorithms Capable of Analyzing the Effect of Load Current on Fault Current Using the Bus Impedance Matrix
I. KIM, Alabama A&M University
R. HARLEY, Georgia Institute of Technology
* 2016ISGT0034, Identification of Network Parameter and Measurement Errors based on a Mixed Integer Quadratic Programming Model
F. HOU, ZheJiang University
R. GUO, ZheJiang University
X. YU, State Grid's Fujian Electric Power Co.
L. WANG, State Grid's Fujian Electric Power Co.
* 2016ISGT0035, Optimal Management of Fuel Cells in a Residential area by Integrated-Distributed Energy Management System (IDEMS)
H. AKI, National Institute of Advanced Industrial Science and Technology (AIST)
T. WAKUI, Osaka Prefecture University
R. YOKOYAMA, Osaka Prefecture University
* 2016ISGT0042, Distributed Transmission Expansion Planning in Multi-Area Electric Power Systems
A. KARGARIAN, Louisiana State University
M. RAHMANI, Carnegie Mellon University
B. FALAHATI, Schweitzer Engineering Laboratories, Inc.
* 2016ISGT0043, Large-Scale Detection of Non-Technical Losses in Imbalanced Data Sets
P. GLAUNER, University of Luxembourg
A. BOECHAT, University of Luxembourg
L. DOLBERG, University of Luxembourg
R. STATE, University of Luxembourg
F. BETTINGER, Choice Technologies Holding Sarl
Y. RANGONI, Choice Technologies Holding Sarl
D. DUARTE, Choice Technologies Holding Sarl
* 2016ISGT0048, Electricity Market Price-spike Classification in the Smart Grid
A. DATTA, Arizona State University
S. DATTA, Arizona State University
* 2016ISGT0050, Cloud-Based Visual Analytics for Smart Grids Big Data
A. MUNSHI, University of Alberta
Y. MOHAMED, University of Alberta
* 2016ISGT0057, Balancing Islanded Residential Microgrids using Demand Side Management
G. HOOGSTEEN, University of Twente
T. VAN DER KLAUW, University of Twente
A. MOLDERINK, University of Twente
J. HURINK, University of Twente
G. SMIT, University of Twente
X. FENG, University of Texas at Austin
R. HEBNER, University of Texas at Austin
* 2016ISGT0066, The Effect of Load Current on a Three-Phase Fault
I. KIM, Alabama A&M University
* 2016ISGT0069, A Proactive Operation Strategy of Electric Vehicle Charging-Discharging in Photovoltaic Micro-grid
Z. YANG, Xiangtan university
B. DUAN, Xiangtan university
M. CHEN, Xiangtan university
Z. ZHU, Xiangtan University

* 2016ISGT0070, Harmonic Mitigation of Hybrid AC/DC Micro-grids with DFIG
F. WEI, Nanyang Technological University
K. TSENG, Nanyang Technological University
K. LI, Nanyang Technological University
H. YAP, Nanyang Technological University
S. CHEW, Nanyang Technological University
* 2016ISGT0081, Evaluation of System-Integrated Smart Grid Devices using Software- and Hardware-in-the-Loop
B. LUNDSTROM, National Renewable Energy Laboratory
S. CHAKRABORTY, National Renewable Energy Laboratory
G. LAUSS, Austrian Institute of Technology
R. BRÜNDLINGER, Austrian Institute of Technology
R. CONKLIN, U.S. Department of Energy
* 2016ISGT0082, Unified Power System Analyses and Models using Equivalent Circuit Formulation
A. PANDEY, Carnegie Mellon University
M. JEREMINOV, Carnegie Mellon University
L. PILEGGI, Carnegie Mellon University
G. HUG, Carnegie Mellon University
X. LI, Carnegie Mellon University
* 2016ISGT0094, Peak Load Carying Capability of a Resilient Microgrid in Islanded Mode
A. ENAYATI, Clarkson University
T. ORTMEYER, Clarkson University
* 2016ISGT0102, Mitigating Substation Demand Fluctuations Using Decoupled Price Schemes for Demand Response
H. SUN, Mitsubishi Electric Research Laboratories
A. MINOT, Harvard University
D. NIKOVSKI, Mitsubishi Electric Research Laboratories
H. HASHIMOTO, Mitsubishi Electric Corporation
T. TAKANO, Mitsubishi Electric Corporation
Y. TAKAGUCHI, Mitsubishi Electric Corporation
* 2016ISGT0107, Assessing the Potential of Residential HVAC Systems for Demand-Side Management
T. VAN DER KLAUW, University of Twente
G. HOOGSTEEN, University of Twente
M. GERARDS, University of Twente
J. HURINK, University of Twente
X. FENG, University of Texas
R. HEBNER, University of Texas
* 2016ISGT0109, Effects of Balanced and Unbalanced Distribution System Modeling on Power Flow Analysis
F. YANG, University of Wisconsin Platteville
Z. LI, LY Grid Innovation
* 2016ISGT0110, Design Flexibility for Uncertain Distributed Generation from Photovoltaics
B. PALMINTIER, NREL
D. KRISHNAMURTHY, NREL
H. WU, NREL
* 2016ISGT0111, Optimal Day-ahead Scheduling for Microgrid Participation in Frequency Regulation Markets
C. BAONE, GE Global Research
N. ACHARYA, GE Global Research
H. WIEGMAN, GE Global Research
* 2016ISGT0116, LED Lighting Loads Actively Participating in Power System Frequency Regulation
K. XIAO, Shandong University

X. CHU, Shandong University
Y. LIU, Shandong University

* 2016ISGT0117, Application of Intentional Islanding Algorithm for Distributed Energy Resources in Disaster Management
A. MUDHOLKER, Jawaharlal Nehru Technological University Hyderabad
J. ASKANI, Jawaharlal Nehru Technological University Hyderabad

* 2016ISGT0119, Ordinal Optimization Approach for Complex Distribution Network Reconfiguration
H. XING, shanghai jiao tong university
H. CHENG, shanghai jiao tong university
S. HONG, shanghai jiao tong university

* 2016ISGT0124, Assessment of Linear Distribution Feeder Models Used in Optimization Methods
S. EMIROGLU, North Carolina State University
G. OZDEMIR, North Carolina State University
M. BARAN, North Carolina State University

* 2016ISGT0125, An Approach for Wide-Area Damping Control using Multiple DFIG-based Wind Farm to Deal with Communication Dropouts
A. YOGARATHINAM, North Dakota State University
N. CHAUDHURI, North Dakota State University

* 2016ISGT0128, Design, Sizing and Operation of a Hybrid Renewable Energy System for Farming
A. LE, California State Polytechnic University, Pomona
A. GIOURDJIAN, California State Polytechnic University, Pomona
A. FRANKYAN, California State Polytechnic University, Pomona
V. MANDANY, California State Polytechnic University, Pomona
H. LE, California State Polytechnic University, Pomona

* 2016ISGT0130, Optimal Siting and Sizing of Distributed Generators in Active Distribution Network
H. XING, shanghai jiao tong university
J. YUAN, Shanghai Municipal Electric Power Company
H. CHENG, shanghai jiao tong university
S. HONG, shanghai jiao tong university

* 2016ISGT0133, Novel hybrid Cloud based SCADA approach for Interoperability of micro-grid platforms
V. NGUYEN, Grenoble INP
Q. TRAN, CEA
Y. BESANGER, Grenoble INP

* 2016ISGT0134, Measurement of Sub- and Supersynchronous Phasors in Power Systems with High Penetration of Renewables
X. XIE, Tsinghua University
Y. WANG, North China Electric Power University
H. LIU, Tsinghua University
J. HE, State Grid Corporation of China
Z. XU, North China Electric Power University

* 2016ISGT0138, Automated Transmission Expansion and Routing Incorporating Electric and Geographic Criteria
F. THIAM, University of Wisconsin-Madison
C. DEMARCO, University of Wisconsin - Madison

* 2016ISGT0144, DSR Performance Analysis: Assessment of Demand Reduction Effect on LV network
H. SHI, University of Bath
C. ZHAO, University of Bath
Z. ZHANG, University of Bath
F. LI, University of Bath

* 2016ISGT0148, The Characteristics of SSTI Between Practical MMC-based VSC-HVDC and an Adjacent Turbogenerator
D. SUN, Tsinghua University

X. XIE, Tsinghua University
M. YE, China Southern Power Grid
K. WANG, China Southern Power Grid

* 2016ISGT0150, Integrating Distributed Intelligence in Active Distribution Systems A Voltage Control Case Study Considering Real-Time Pricing
X. WANG, Tianjin University
T. XU, Tianjin university

* 2016ISGT0158, Optimization of Residential PV and Water Heating System's Configuration and Operation Using Multi-Objective Particle Swarm Optimization
Y. YOSHIDA, Tokyo University of Science
Y. UEDA, Tokyo University of Science

* 2016ISGT0163, Statistical Analysis of Electric Vehicles Charging, Station Usage and Impact on the Grid
Z. JIANG, University of Southern California
H. TIAN, University of Southern California
M. BESHIR, University of Southern California
R. SIBAGATULLIN, Los Angeles Department of Water and Power
A. MAZLOOMZADEH, Smart Utility Systems

* 2016ISGT0164, Dynamic VAR Planning Methodology for Failure Recovery after faults
D. YANG, Shanghai Jiao Tong University
H. CHENG, Shanghai Jiao Tong University
L. YAO, China Electric Power Research Institute
Z. MA, East China Grid Company Limited
Z. ZHU, East China Grid Company Limited

* 2016ISGT0171, Power quality experiences from Sweden's first MW photovoltaics park and impact on LV planning
B. STRIDH, ABB
J. ROSENLIND, Mälarenergi
P. BAGGE, Mälarenergi
S. SAHOO, Mälarenergi
P. ZETTERSTRÖM, Mälarenergi

* 2016ISGT0172, Cost-Optimal Operation for a Flexible Building with Local PV in a Singaporean Environment
S. HANIF, TUM CREATE

* 2016ISGT0175, Forced Low Frequency Oscillation of Wind-Integrated Power Systems
C. LI, Harbin Institute of Technology
W. ZHANG, Harbin Institute of Technology
R. LIU, Harbin Institute of Technology

* 2016ISGT0185, Energy Management in Microgrids with Flexible and Interruptible Loads
S. BESSLER, Austrian Institute of Technology (AIT)
O. JUNG, Austrian Institute of Technology (AIT)

* 2016ISGT0197, Energy Management System with a price-based approach in a Smart Grid scenario
S. MAGNANI, Yanmar R&D Europe
M. ANDREINI, Yanmar R&D Europe
A. BELLISSIMA, Yanmar R&D Europe

* 2016ISGT0198, Distribution of Load Change in Industrial Demand: A DOE Approach
M. GHAFOORIVARZANEH, University of Tennessee-Knoxville
R. SAWHNEY, University of Tennessee-Knoxville
H. SHAMS, University of Tennessee-Knoxville
A. ASADINEJAD, University of Tennessee-Knoxville

* 2016ISGT0200, Estimating Feasible Nodal Power Injections in Distribution Networks
A. AL-DIGS, The University of British Columbia
S. DHOPLE, University of Minnesota

C. CHEN, The University of British Columbia
* 2016ISGT0207, Planning and Design Goals for Resilient Microgrids
T. ORTMEYER, Clarkson University
L. WU, Clarkson University
J. LI, Clarkson University
* 2016ISGT0208, An Intelligent Battery Management System for Home Microgrids
C. LEBRON, University of Puerto Rico at Mayagüez
F. ANDRADE, University of Puerto Rico at Mayagüez
A. IRIZARRY, University of Puerto Rico at Mayagüez
E. O'NEILL, University of Puerto Rico at Mayagüez
* 2016ISGT0209, Optimized Advanced Metering Infrastructure Architecture of Smart Grid based on Total Cost, Energy, and Delay
A. GHASEMPOUR, Utah State University
* 2016ISGT0213, Predictive economic dispatch on Microgrid with high penetration of renewable energy sources
D. MEJIA BONILLA, Pontificia Universidad Javeriana
D. PATIÑO GUEVARA, Pontificia Universidad Javeriana
* 2016ISGT0218, Investment timing study for residential distributed energy resource projects: A real-option approach
X. GUO, Iowa State University
J. MIN, Iowa State University
H. GUO, Shanghai Power Equipment Research Institute
* 2016ISGT0221, Analytical Approach to Estimate Distribution Circuit's Energy Storage Accommodation Capacity
A. DUBEY, Washington State University
H. PADULLAPARTI, The University of Texas at Austin
S. SANTOSO, The University of Texas at Austin
* 2016ISGT0225, Software-defined Intelligent Grid Research Integration and Development Platform
T. OLLIS, Oak Ridge National Laboratory
P. IRMINGER, Oak Ridge National Laboratory
M. BUCKNER, Oak Ridge National Laboratory
I. RAY, Oak Ridge National Laboratory
D. KING, Oak Ridge National Laboratory
A. HERRON, Oak Ridge National Laboratory
B. XIAO, Oak Ridge National Laboratory
R. BORGES, Oak Ridge National Laboratory
M. STARKE, Oak Ridge National Laboratory
Y. XUE, Oak Ridge National Laboratory
B. MACCLEERY, National Instruments
* 2016ISGT0227, Data-driven Risk Analysis for Poles in the Electric Grid
A. GOYAL, IBM
Y. KIM, IBM
M. LAVIN, IBM
C. BASU, IBM
T. KUMAR, IBM
* 2016ISGT0239, Multi Intelligent Agent based Cyber Attack Resilient System Protection and Emergency Control
P. WANG, Iowa State University
M. GOVINDARASU, Iowa State University
* 2016ISGT0246, Event-Driven Security-Constrained Unit Commitment
R. ESKANDARPOUR, University of Denver
A. KHODAEI, University of Denver

J. LIN, PJM
* 2016ISGT0252, Cyber-Physical Modeling and Control of Smart Grids - A New Paradigm
A. SHAHID, University of Illinois at Chicago
* 2016ISGT0260, Optimal Allocation of SCIG and DFIG based Distributed Generation Considering Load Uncertainty and Line Outage: A comparative Study
T. MASAUD, Texas A&M University - Kingsville
G. NANNAPANENI, Texas A&M University - Kingsville
A. AMANIAMPONG, Texas A&M University - Kingsville
R. CHALLOO, Texas A&M University - Kingsville
* 2016ISGT0244, SecondaryVoltage and Reactive Power Support via Smart Inverters on a High-Penetration Distributed Photovoltaic Circuit
F. BELL, SolarCity
A. NGUYEN, SolarCity
M. MCCARTY, SolarCity
K. ATEF, San Diego Gas & Electric
T. BIALEK, San Diego Gas & Electric
* 2016ISGT0017, Outage Management of Distribution Systems Incorporating Information from Smart Meters
Transaction Number: TPWRS-01102- 2015
Y. JIANG, Washington State University
C. LIU, Washington State University
M. DIEDESCH, Avista Utilities
E. LEE, Avista Utilities
A. SRIVASTAVA, Washington State University
* 2016ISGT0074, Distributed Frequency Regulation in the Presence of Communication Failure
M. H. NAZARI, California State University, Long Beach
S. GRIJALVA, Georgia Institute of Technology
M. EGERSTEDT, Georgia Institute of Technology
* 2016ISGT0118, Economic and efficient voltage management using customer-owned energy storage systems in a distribution network with high penetration of photovoltaic systems
Transaction Number: TPWRS-00318-2011
H. SUGIHARA, Osaka University
K. YOKOYAMA, Osaka University
O. SAEKI, Osaka University
K. TSUJI, Osaka University
T. FUNAKI, Osaka University
* 2016ISGT0157, MILP Method Based Network Reconfiguration Considering Customer Sensitivity to The Service Interruption
Z. SONG, ACCENTURE
J. ZHANG, Accenture
Q. ZHOU, Accenture
* 2016ISGT0240, A Hierarchical Scheme for Balancing User Comfort and Electricity Consumption of Tank Water Heaters
A. BELOV, University of Twente
V. KARTAK, State Pedagogical University, Russia
A. VASENEV, University of Twente
N. MERATNIA, University of Twente
P. HAVINGA, University of Twente
* 2016ISGT0241, Assessing Power System State Estimation Accuracy with GPS-Spoofed PMU Measurements
P. RISBUD, Univ. of Texas at San Antonio
N. GATSIS, Univ. of Texas at San Antonio
A. TAHA, Univ. of Texas at San Antonio

Thursday Morning - September 8th, 2016

Plenary: A Regulatory Perspective of Grid Transformation, Room: Scandinavian Ballroom
Thursday, 8 September, 2016 8:30 AM-10:00 AM
Chair: Chris Villarreal, Director of Policy, Minnesota Public Utility Commission

A discussion by commission staff on regulatory objectives and challenges associated with the transformation to a more distributed grid

Looking Ahead – Where is Electric Distribution System Planning and Operations Headed? (panel session), Room: Bergen 1
Thursday, 8 September, 2016 10:30 AM-12:00 PM
Session Chair: Paul De Martini, Managing Director, Newport Consulting Group

The session will provide a vision for the future of distribution system planning and operations in a high-DER future given the advent of new technologies, consumer choice and policies encouraging decarbonization, resilience and innovation.

Speakers**:**
Mark Esguerra, Senior Manager, Distribution Resources Planning, PG&E
Damian Sciano, Director, Electric T&D Planning, ConEdison
Brian Admundson, Director, Electric T&D Planning, Xcel Energy
Chris Villarreal, Director, Policy, Minnesota PUC

Development and Applications of Advanced Distribution Management Systems (ADMS) (panel session), Room: Bergen 2
Thursday, 8 September, 2016 10:30 AM-12:00 PM
Session Chair: Eric Lightner, Director, Federal Smart Grid Task Force, U.S. Department of Energy

The DOE ADMS program is working towards the development of an integrated software platform to enable the integration of vendor applications while leveraging real-time, spatial data of all connected devices. The panel session will feature presentations on recently awarded ADMS projects.

Power Grid Resilience: Fast Recovery from Extreme Events (panel session), Room: Fjords 2
Thursday, 8 September, 2016 10:30 AM-12:00 PM
Session Chair: Wei Sun, Assistant Professor, University of Central Florida

Critical infrastructure has to operate against extreme events; fast recovery and successful adaptation are critical to building a resilient power grid. This panel will present recent developments in advanced computational models and analytical methods in power system restoration, as well as current industry practices and challenges.

Electric End-Use Technology III (paper session), Room: Fjords 4
Thursday, 8 September, 2016 10:30 AM-12:00 PM
Session Chair: Chen Wang, Virginia Polytechnic Institute and State University

* 2016ISGT0122, Static Characterized Hybrid Wireless Mesh Protocol for Smart Grid Neighborhood Area Networks
H. HU, University of Bristol
A. DOUFEXI, University of Bristol
S. ARMOUR, University of Bristol

D. KALESHI, University of Bristol
* 2016ISGT0123, Robust Linear State Estimation For Large Multi-area Power Grids
A. ABUR, Northeastern University
C. XU, Northeastern University
* 2016ISGT0127, Smart Lighting Solutions: Energy Saving Designs for an Animal Protection Shelter
D. MELVIN, California State Polytechnic University, Pomona
J. LE, California State Polytechnic University, Pomona
O. VAZQUEZ, California State Polytechnic University, Pomona
R. MARTINEZ, California State Polytechnic University, Pomona
H. LE, California State Polytechnic University, Pomona
* 2016ISGT0216, Hybrid Simulation Platform for VSC-HVDC-Assisted Large-Scale System Restoration Studies
P. MORADI FARSANI, NDSU
N. RAY CHAUDHURI, NDSU
R. MAJUMDER, SIEMENS PTI

Big Data Analytics and its Application (paper session), Room: Fjords 3
Thursday, 8 September, 2016 10:30 AM-12:00 PM
Session Chair: Aanchal Aggarwal, IBM

* 2016ISGT0054, OpenPowerQuality: An Open Source Framework for Power Quality Collection, Analysis, Visualization, and Privacy
A. CHRISTE, University of Hawaii at Manoa
S. NEGRASHOV, University of Hawaii at Manoa
P. JOHNDON, University of Hawaii at Manoa
* 2016ISGT0103, An Efficient Method for Extracting Network Information from the CIM Asset Model
S. SHUKLA, Virginia Tech
M. YAO, IBM TJ Watson Research Center
* 2016ISGT0176, CIM and OPC UA for interoperability of micro-grid platforms
V. NGUYEN, Grenoble INP
Q. TRAN, CEA
Y. BESANGER, Grenoble INP
* 2016ISGT0234, Data Analytics Method Based on Feature Extraction for Voltage Sag Source Location
F. BORGES, Universidade São Paulo
* 2016ISGT0259, Software-only Occupancy Inference in a Workplace
M. JAIN, IBM Research
V. CHANDAN, IBM Research
A. PRAKASH, IBM Research
V. ARYA, IBM Research
S. R, IBM RESO
B. RAMESH, IBM RESO

Thursday Afternoon – September 8th, 2016

How Existing Distribution Modeling Tools Are Adapting to a High-DER Future (panel session), Room: Bergen 1
Thursday, 8 September, 2016 1:00 PM-2:30 PM
Session Chair: Michael Coddington, Principal Engineer, National Renewable Energy Laboratory

The panel will offer presentations from leading vendors and model developers on new capabilities being integrated into existing products based on emerging demands.

Distribution System Volt/VAR Control, including CVR and Distributed Generation (panel session), Room: Bergen 2
Thursday, 8 September, 2016 1:00 PM-2:30 PM
Session Chair: Jose Medina Palomo, Vice President for Smart Grid, OATI

The deployment of advanced metering infrastructure and distributed energy resources are changing the approach for volt/VAR control at the distribution system level. This session will present how recent progress in inverter capability can address challenges seen within traditional methods of voltage control.

Advances in Grid Visibility and Control (panel session), Room: Fjords 2
Thursday, 8 September, 2016 1:00 PM-2:30 PM
Session Chair: Jay Giri, GE Grid Solutions

With the growth of synchrophasor technology across the world, the grid can be visualized at a much faster rate. This panel will describe the latest advances and provide practical solutions that have been deployed in power grids in the US and India.

Speakers:
Kash Nodehi, OATI
Vahid Madani, PG&E
Tom Overbye, University of Illinois
Manu Parashar, GE Grid solutions

Market Implementation (paper session), Room: Fjords 3
Thursday, 8 September, 2016 1:00 PM-2:30 PM
Session Chair: Srivats Shukla, Virginia Tech

* 2016ISGT0142, Fast Demand Response with Datacenter Loads
  J. MCCLURG, University of Iowa
  R. MUDUMBAI, University of Iowa
  J. HALL, University of Iowa
* 2016ISGT0146, A Study of Economic Feasibility of Smart Community. - Calculation of Profit of Community Operator Considering Introduction of Battery and Co-Generation Systems -
  E. OMINE, Central Research Institute of Electric Power Industry
  H. HATTA, Central Research Institute of Electric Power Industry
  T. UENO, Central Research Institute of Electric Power Industry
* 2016ISGT0179, Applying Lessons Learned from Transmission Open Access to Distribution and Grid-Edge Transactive Energy Systems
  F. RAHIMI, Open Access Technology International, Inc.
  F. ALBUYEH, Open Access Technology International, Inc.
* 2016ISGT0232, BSS Sizing and Economic Benefit Analysis in Grid-Scale Application
  S. MOHAN, University of Michigan
  A. HOOSHMAND, NEC Laboratories America Inc
  S. POURMOUSAVI KANI, NEC Laboratories America Inc
  R. SHARMA, NEC Laboratories America Inc

Economics and Investments Models for the Smart Grid I (paper session), Room: Fjords 4
Thursday, 8 September, 2016 1:00 PM-2:30 PM
Session Chair: Hongcai Zhang, Tsinghua University

* 2016ISGT0036, Load Frequency Control Participation of Wind Farms in Power Systems
K. FANG, Harbin Institute of Technology
W. ZHANG, Harbin Institute of Technology
X. BAI, Harbin Institute of Technology
Y. XU, North China Branch of State Grid Power Dispatch and Control Center
* 2016ISGT0085, Decentralized Voltage/VAR Control based on PV Inverters
Z. WANG, Iowa State University
* 2016ISGT0168, Shared Energy Storage Management for Renewable Energy Integration in Smart Grid
K. RAHBAR, National University of Singapore
M. VEDADY MOGHADAM, National University of Singapore
S. PANDA, National University of Singapore
T. REINDL, National University of Singapore
* 2016ISGT0184, Optimal Sizing of a Solar-Plus-Storage System For Utility Bill Savings and Resiliency Benefits
T. SIMPKINS, National Renewable Energy Laboratory
K. ANDERSON, National Renewable Energy Laboratory
D. CUTLER, National Renewable Energy Laboratory
D. OLIS, National Renewable Energy Laboratory
* 2016ISGT0202, Coordination of V2G and Distributed Wind Power Using the Storage-like Aggregate PEV Model
H. ZHANG, Tsinghua University
Z. HU, Tsinghua University
S. MOURA, University of California, Berkeley
Y. SONG, Tsinghua University

Solar PV on Distribution Circuits – Simulation and Analysis Methods for Hosting and Mitigation (panel session), Room: Bergen 1
Thursday, 8 September, 2016 3:00 PM-5:00 PM
Session Chair: Kevin Schneider, Pacific Northwest National Laboratory

The panel will present various methods being advanced by the industry for determining distribution system hosting capacity with a particular focus on specific utility outcomes, mitigation strategies to increase capacity, and vendor engagement.

Speakers**:**
Benjamin Lee, SCE
Kevin Schneider, PNNL
Brian Fitzsimons, QADO
Jeff Smith, EPRI
Barry Mather, NREL

Microgrid Controllers: Vision, Research, Design, Development and Field Testing Experiences (panel session), Room: Bergen 2
Thursday, 8 September, 2016 3:00 PM-5:00 PM
Session Chair**:** S.S. (Mani) Venkata, GE Grid Solutions

Practical microgrid systems have evolved exponentially in recent years all around the world. The panel will

focus on the applications of practical microgrid controllers of various types and sizes, including future directions as envisioned by the federal government, a municipal government, a university, utilities, and IEEE standards development organizations.

Grid 3.0 – The Emerging Distribution Grid of the Future (panel session), Room: Fjords 2
Thursday, 8 September, 2016 3:00 PM-5:00 PM
Session Chair: Ali Ipakchi, Senior Vice President, Smart Grid and Green Power, OATI

The panel session will focus on the technical and practical aspects of the ongoing distribution grid transformation and discuss the current and future state. The session will leverage industry, regulatory, standards, technology/vendor and utility experiences.

Microgrids and New Trends III (paper session), Room: Fjords 3
Thursday, 8 September, 2016 3:00 PM-5:00 PM
Session Chair: Ha Thu Le

* 2016ISGT0113, Extremum Seeking-based Adaptive Voltage Control of Distribution Systems with High PV Penetration
  C. WEI, University of Nebraska-Lincoln
  M. BENOSMAN, MERL
* 2016ISGT0129, Investigating the Impact of Wind Turbines on Distribution System Stability
  R. JAIN, National Renewable Energy Laboratory
  Y. ZHANG, National Renewable Energy Laboratory
  B. HODGE, National Renewable Energy Laboratory
* 2016ISGT0199, Architecture and Implementation of Microgrid Controller
  M. STARKE, Oak Ridge National Laboratory
  B. XIAO, Oak Ridge National Laboratory
  L. GUODONG, Oak Ridge National Laboratory
  T. OLLIS, Oak Ridge National Laboratory
  P. IRMINGER, Oak Ridge National Laboratory
  D. KING, Oak Ridge National Laboratory
  A. HERRON, Oak Ridge National Laboratory
  Y. XUE, Oak Ridge National Laboratory
* 2016ISGT0201, Implementation of System Level Control and Communications in a Hardware-in-the-Loop Microgrid Testbed
  B. XIAO, Oak Ridge National Laboratory
  M. STARKE, Oak Ridge National Laboratory
  L. GUODONG, Oak Ridge National Laboratory
  T. OLLIS, Oak Ridge National Laboratory
  P. IRMINGER, Oak Ridge National Laboratory
  D. KING, Oak Ridge National Laboratory
  A. HERRON, Oak Ridge National Laboratory
* 2016ISGT0229, Energy Storage System Operation: Case Studies in Deterministic and Stochastic Environments
  A. DAS, South Dakota State University
  Z. NI, South Dakota State University
  T. HANSEN, South Dakota State University
  X. ZHONG, University of Rhode Island

Planning and Evaluation II (paper session), Room: Fjords 4
Thursday, 8 September, 2016 3:00 PM-5:00 PM
Session Chair: Omid Ziaee, University of Nebraska-Lincoln

* 2016ISGT0108, Solar PV Integration Considering Grid Stability- A Case Study for the Temburong District in Brunei
J. HAZRA, IBM
K. DASGUPTA, IBM
M. PADMANABAN, IBM
A. VERMA, IBM
S. MATTHEW, Universiti Brunei Darussalam
I. PETRA, Universiti Brunei Darussalam
* 2016ISGT0112, Prospect Theory for Prosumer-Centric Energy Trading in the Smart Grid
G. EL RAHI, Virginia Tech
W. SAAD, Virginia Tech
A. GLASS, Rutgers University
N. MANDAYAM, Rutgers University
H. POOR, Princeton University
* 2016ISGT0131, Search Space Reduction Strategies for Unit Commitment Problem
M. RAHMANI, Ascend Analytics
A. KARGARIAN, Louisiana State University
G. HUG, ETH
* 2016ISGT0223, Microgrid Expansion through a Compressed Air Assisted Wind Energy System
J. CHENG, University of Nebraska-Lincoln
F. CHOOBINEH, University of Nebraska-Lincoln
* 2016ISGT0237, Modeling the Uncertainties in Renewable Generation and Smart Grid Loads for the Study of the Grid Vulnerability
M. ATHARI, Virginia Commonwealth University
Z. WANG, Virginia Commonwealth University
* 2016ISGT0254, The impact of training period for forecasting clearness index and insolation using support vector regression
T. OGAWA, Tokyo University of Science
Y. UEDA, Tokyo University of Science

Thursday Evening – September 8th, 2016

Evening Gala Dinner, Scandinavian Ballroom, 3rd flr
Thursday, 8 September, 2016 6:00 PM-8:00 PM,

After Dinner Talk by: Dr. Masoud Amin; Embrace Change, Power Progress

Friday Morning – September 9th, 2016

Plenary: Utility Executive Perspective, Room: Scandinavian Ballroom
Chair: Jay Giri, IEEE PES Board Member
Friday, 9 September, 2016 8:30 AM-10:00 AM

Speakers:
Teresa Mogensen, Sr. VP Transmission, XcelEnergy
Terry Donnelley, COO ComEd

Chantal Hendrzak, Executive Director, PJM
Ryan Keel, VP, Technical Operations, EPB

Executives will present Smart Grid challenges, practical solutions and success stories – followed by a moderated Q&A session with the audience.

Rate Design: Its Role in DER Adoption and Integration (panel session), Room: Bergen 1
Friday, 9 September, 2016 10:30 AM-12:00 PM
Session Chair: Christopher Villarreal, Director of Policy, Minnesota Public Utilities Commission

The session will explore how rate design impacts the adoption and integration of DERs and the pros and cons of various rate designs for compensating DERs and recovering utility's prudent costs.

DOE Grid Modernization Laboratory Consortium (panel session), Room: Bergen 2
Friday, 9 September, 2016 10:30 AM-12:00 PM
Session Chair: Benjamin Kroposki, Director, Power Systems Engineering Center, National Renewable Energy Laboratory

The U.S. Department of Energy has prepared a Grid Modernization Multi-Year Program Plan that provides a blueprint for the Department's research, development and demonstration agenda. This panel session provides an overview of the efforts of the Grid Modernization Laboratory Consortium (GMLC), which has been provided $220 million over the next three years to implement the program plan.

Distribution Grid Operations (panel session), Room: Fjords 2
Friday, 9 September, 2016 10:30 AM-12:00 PM
Session Chair: Doug Houseman, Enernex

The panel will focus on recent efforts by utilities and others to examine and implement needed changes in the distribution grid to accommodate distributed assets, including recent experiences in California, Hawai'i and Germany.

Microgrids and New Trends IV (paper session), Room: Fjords 3
Friday, 9 September, 2016 10:30 AM-12:00 PM
Session Chair: Xie Xiaorong

* 2016ISGT0233, Statistical Transmission Line Capacity Analysis in Random Topology Power Grid Modeling
  S. ELYAS, Virginia Commonwealth University
  Z. WANG, Virginia Commonwealth University
* 2016ISGT0243, Reliability Analysis of 380V DC Distribution in Data Centers
  B. SHRESTHA, South Dakota State University
  T. HANSEN, South Dakota State University
  R. TONKOSKI, South Dakota State University
* 2016ISGT0247, Static Hybrid AC/DC Microgrid Planning
  H. LOTFI, University of Denver
  A. KHODAEI, University of Denver
* 2016ISGT0248, Interdependency of Transmission and Distribution Pricing
  S. PARHIZI, University of Denver
  A. KHODAEI, University of Denver

Economics and Investments Models for the Smart Grid II (paper session), Room: Fjords 4
Friday, 9 September, 2016 10:30 AM-12:00 PM
Session Chair: Kamalasadan Sukumar

* 2016ISGT0205, Voltage Security Cost Assessment of Integrated AC-DC Systems Using Semidefinite Programming
  S. MOGHADASI, University of North Carolina at Charlotte
  S. KAMALASADAN, University of North Carolina at Charlotte
* 2016ISGT0238, Measurement-Based Models for Wide-Area Control Design in the Future Power Grid
  M. MAHMOUDI, University of Tennessee-Knoxville
  K. TOMSOVIC, University of Tennessee-Knoxville
* 2016ISGT0242, Decentralized Control of Inverter Networks for PV Generation Plants using Real-time Pricing Strategy
  H. AKUTSU, Nagaoka University of Technology
  K. HIRATA, Nagaoka University of Technology
  A. OHORI, DAIHEN Corporation
  N. HATTORI, DAIHEN Corporation
  Y. OHTA, Kyoto University
* 2016ISGT0250, PowerCyber: A Remotely Accessible Testbed for Cyber Physical Security of the Smart Grid
  A. ASHOK, Iowa State University
  S. KRISHNASWAMY, Iowa State University
  M. GOVINDARASU, Iowa State University
* 2016ISGT0256, Location-Allocation of TCSC Devices on a power system considering N-1 contingency
  O. ZIAEE, University of Nebraska-Lincoln
  F. CHOOBINEH, University of Nebraska-Lincoln

Friday Afternoon – September 9th, 2016

Advancements in Transactive Energy Systems (panel session), Room: Bergen 1
Friday, 9 September, 2016 1:00 PM-2:30 PM
Session Chair: Ron Melton, Administrator of the GridWise Architecture Council, Pacific Northwest National Laboratory

This panel will present advancements in the understanding of transactive energy systems, their role in the integration and valuation of distributed energy resources, and associated the business and policy considerations.

Distributed Energy Resource Strategy and Implementation Across Unique Markets (panel session), Room: Bergen 2
Friday, 9 September, 2016 1:00 PM-2:30 PM
Session Chair: Taggart Jefferson, Founder and CEO, GridCure, Inc.

The panel session will explore the successes and challenges that different energy markets have experienced when implementing a distributed energy resources strategy, as illustrated in projects occurring throughout the world.

Towards a Distribution System Operator (panel session), Room: Fjords 2
Friday, 9 September, 2016 1:00 PM-2:30 PM
Session Chair: Dimitra Apostolopoulou, Engineer of Smart Grid and Technology, Commonwealth Edison

The deployment of a distribution system operator (DSO) is becoming a necessity as a result of the increasing

role of the distribution grid in ensuring efficient and reliable delivery of energy to emerging proactive customers. The challenge for the grid of the future will be to define the framework that supports a DSO model and enables sustainable growth in distributed generation and new technologies. This panel will discuss the practicality of implementing such a model, including its challenges and benefits.

Planning and Evaluation III (paper session), Room: Fjords 4
Friday, 9 September, 2016 1:00 PM-2:30 PM
Session Chair: Katayoun Rahbar, Solar Energy Research Institute of Singapore

* 2016ISGT0055, Economic and Battery Health Conscious Vehicle-to-Grid Electric Vehicle Operation
M. CROW, Missouri University of Science & Technology
M. MAIGHA, Missouri University of Science & Technology
* 2016ISGT0091, A Critical Switching Flow Index for Transient Stability Assessment in Smart Grid Topology Control
T. LAN, Texas A&M University
W. WANG, Texas A&M University
G. HUANG, Texas A&M University
* 2016ISGT0106, Forecasting of ACEL and TNCS of Radial Distribution Systems with the Optimal Allocation of DSTATCOM
J. SANAM, National Institute of Technology, Rourkela
S. GANGULY, Indian Institute of Technology, Guwahati
A. PANDA, National Institute of Technology, Rourkela
* 2016ISGT0132, Handling Bad or Missing Smart Meter Data through Advanced Data Imputation
J. PEPPANEN, Georgia Institute of Technology
M. RENO, Sandia National Laboratories
X. ZHANG, Georgia Institute of Technology
S. GRIJALVA, Georgia Institute of Technology

Electric End-Use Technology IV (paper session), Room: Fjords 3
Friday, 9 September, 2016 1:00 PM-2:30 PM
Session Chair: Murat Gol, Middle East Technical University

* 2016ISGT0139, A New PMU Placement Algorithm to Meet a Specified Synchrophasor Availability
M. SARAILOO, Binghamton University
N. WU, Binghamton University
* 2016ISGT0143, Improving AGC Performance of a Coal-fueled Generators with MW-level BESS
Y. GUO, Shijingshan Thermal Power Plant
X. XIE, Tsinghua University
B. WANG, Shijingshan Thermal Power Plant
W. SHI, Harvard University
Y. DONG, Tsinghua University
L. MOU, Ray Power Systems Co. Ltd.
F. XUE, Ray Power Systems Co. Ltd.
* 2016ISGT0192, Interoperability Test for IEEE C37.118 Standard-based Phasor Measurement Units (PMUs)
E. SONG, NIST
G. FITZPATRICK, NIST
* 2016ISGT0215, Improving Home Appliance Energy Use Scheduling: Insights from a Remodeled, Energy Efficient Home
A. BATEK, Purdue University
D. ALIPRANTIS, Purdue University

PLATINUM SUPPORTERS:

S&C

OATI

GOLD SUPPORTERS:

The Weather Company
An IBM Business

OSI