



SEVENTH ANNUAL CARNEGIE MELLON CONFERENCE ON THE ELECTRICITY INDUSTRY 2011

CONFERENCE THEME: EMERGING PHENOMENA IN THE CHANGING ELECTRIC ENERGY INDUSTRY

Last updated March 7, 2011

KEYNOTES:

EUGENE LITVINOV, ISO-NE
ERIC ROLLISON, NERC
JAY APT, CARNEGIE MELLON UNIVERSITY
TIM HEIDEL, MIT

PROGRAM:

LOCATION: Posner Hall, Room 152
David A. Tepper School of Business
Carnegie Mellon University
Pittsburgh, PA 15213

RECEPTION: A reception will be held on Monday night, March 7, 2011, which is the night before the meetings begin.
Time: 7:00 P.M. - 8:30 P.M.
Location: The Grand Room on the 3rd floor of Posner Hall.

PROGRAM – March 8

7:30a Continental Breakfast Room 150E, Posner Hall, Tepper School of Business

8:30a Plenary Session 1.1 (Posner Hall Room 152) – Hidden Technical, Economic & Environmental Problems in the Changing Electric Industry
Jay Apt, Chair

8:30a Conference Welcome – Marija Ilic & Jay Apt

8:45a ECE Department Head Ed Schlesinger – Energy Systems Track in the Crowded Landscape at Carnegie Mellon University

9:00a Emergence or Emergency? Things that May Shape the Power System in our Lifetime, Jay Apt, Carnegie Mellon University.

9:15a Bulk Power System Integration of Smart Grid Reliability Considerations, Eric Rollison, NERC

9:45a Overcoming challenges and seizing opportunities: Perspectives from the MIT Future of the Electric Grid Study, Tim Heidel, MIT

10:15a – 10:30a Break

[10:30a Plenary Session 1.2](#) – Events Which Would Have Been Hard to Predict, Eugene Litvinov, Chair

10:30a Survival Strategies for Unanticipated Cyber-Physical Incidents
Howard F. Lipson, CERT, Software Engineering Institute

10:50a What May Emerge as Renewables Become Large Scale? Jay Apt, Carnegie Mellon University

11:10a Examples of Emerging Problems Related to the Fundamental Limits of Hierarchical Control in the Changing Industry and During the Abnormal Operating Conditions, Marija Ilic, Carnegie Mellon University

11:45a -12:15p Pick up box lunch Room 150E, and informal discussion

[12:15p -12:45p Working Lunch Panel, Part I](#) – Carnegie Mellon University Vision for The Newly Formed SRC Smart Grid Research Center, Gabriela Hug, Chair

Thrust Area 1–Smart Grid Simulator, Marija Ilic

Thrust Area 2–Demand Management - Dan Siewiorek

Thrust Area 3– Transmission and Distribution Management - Gabriela Hug

Thrust Area 4– Secure Data Management and Mining - Franz Franchetti

Thrust Area 5– New Policy Paradigms and International Collaborations - Marvin Sirbu

Synergies with the NSF Project – Rohit Negi

[12:45p -1:15p Working Lunch Panel, Part II](#) – Conference Sponsors Views on The Newly Formed SRC Smart Grid Research Center: Challenges and Opportunities, Bob Havemann, SRC, Chair

SRC Energy Research Initiative (ERI) – Bob Havemann, SRC

Industry and government panelists:

Mahbaiv Donde, ABB

Charlie Vartanian, A123Systems

Felix Maus, Bosch

Sandy Aivaliotis, Nexans

Helen Gill, NSF (written comments)

1:15p – 1:30p Break

[1:30p Session 1.3: Hidden Failures](#) –Topology and Protection, Sarosh Talukdar, Chair

1:30p A new way to analyze and monitor cascading failure, Ian Dobson, University of Wisconsin-Madison

1:50p On Reliability Standards, Criticality and Cascading Failures in Constrained Power Grids, Huaiwei Liao, Sarosh Talukdar, Marija Ilic

2:10p Identification of complex deterministic behavior in power systems, R. Wilson, M. Sattler, T. El-Mezyani, S. Srivastava, D. Cartes, Florida State University – The Center for Advanced Power Systems

2:30p Unintended Consequences of New Reliability Rules, Howard F. Illian, Energy Mark

2:50p A Survey of Techniques for Protecting Power Grid SCADA Systems, Joseph A. Giampapa and Gabriela Hug-Glanzmann

3:10p – 3:30p Break

[3:30p Session 1.4](#) –Emerging Phenomena in Markets with New Technologies, Jay Apt, Chair

3:30p Integrating Random Energy into the Smart Grid, Eilyan Bitar, Kameshwar Poolla, and Pravin Varaiya (UC Berkeley), Pramod Khargonekar (Florida), and Felix Wu (University of Hong Kong)

3:50p Cournot Gaming in Joint Energy and Reserve Markets. Mohammad Salman Nazir, Francisco D. Galiana, McGill University, Canada

4:10p Stability, Volatility, and Efficiency of Electricity Markets under Real-Time Pricing, Mardavij Roozbehani, Laboratory for Information and Decision Systems, Massachusetts Institute of Technology

4:30p Power System Performance with 30% Wind Penetration , Judith Cardell ,Picker Engineering Program, Smith College and Lindsay Anderson, Biological and Environmental Engineering ,Cornell

4:50p Learning from the Past to Prepare for the Future, Tom Overbye, University of Illinois Champaign

5:10p Risk-based Mechanisms for Managing Volatile Supply in Power Markets, Uday V. Shanbhag, UIUC

5:30p Interdependences Between Technical, Economic and Environmental Changes: Frequency Case, J. Ilic and M. Prica, BAH

6:00p Reception and Student Posters, Posner Hall Room 109

7:00p Dinner Speaker Where to Next? Grand Room, 3rd Floor, Posner Hall – Leonard Hyman

PROGRAM – March 9

7:30a Continental Breakfast Room 150E

[8:00a Industry Plenary Session 2.1 Room 152](#) – Things One Wishes Could Be Done in Operations Which Really Matter. Thomas Overbye, Chair

8:00a Architecting the Future Power System, Eugene Litvinov, ISO New England

8:20a Integrating PV on Distribution, Forrest Small, Navigant – Energy Practice

8:40a Dynamic Line Ratings for a Reliable and Optimized Smart Transmission Sandy Aivaliotis Nexans

9:00a Performance Characteristics of State of the Art Wind Plants, Jovan Bebic, GE Energy Energy Consulting

9:20a Security Threats in Smart Grids, Verizon Business

9:40a Evolving Toward a High Assurance Smart Grid through a Distributed Control System Architecture, Thomas M. Overman

10:00a – 10:20a Break

[10:20a Industry Plenary Session 2.2](#) – Things One Wishes Could Be Done in Operations Which Really Matter, Sandy Aivaliotis, Chair

10:20a Operation Challenges in Power Systems with Large-scale Renewable Energy Sources Vaibhav Donde, Xiaoming Feng, Jiuping Pan, US Corporate Research Center, ABB Inc.

10:40a Electrical Models to Support Grid Deployment of Smart Grid Advanced Batteries, Charles Vartanian, A123 Systems

11:00a Jim Calore, PSE&G.

11:20a Farrokh A. Rahimi, Ph.D. Vice President, Market Design and Consulting Open Access Technology International, Inc. (OATI)

11:40a-12:20p Lunch (box lunch will be provided to pick up in Room 150E)

[12:20p Session 2.3](#) – Things One Wishes Could Be Done in Operations Which Really Matter-Academic Perspective, Lamine Mili, Chair

12:20p Cognitive Energy Systems, Simon Haykin, McMaster University

12:40p Trends in High-Performance Computing for Power Grid Applications, Franz Franchetti, CMU

1:00p Making the Concepts of Robustness, Resilience and Sustainability Useful Tools for Power System Planning, Operation and Control, Lamine Mili, Bradley Department of Electrical and Computer Engineering ,Northern Virginia Center, Virginia Tech

1:20p A Study of Smart Grids Benefit for China's Wind Development, Yunhe Hou, Felix Wu, University of Hong Kong

1:40p Are Policies to Encourage Wind Energy Predicated on a Misleading Statistic? Kevin F. Forbes, Marco Stampini, Ernest M. Zampell – Kevin F. Forbes and Ernest M. Zampelli are with the Center for the Study of Energy and Environmental Stewardship and the Department of Business and Economics at The Catholic University of America

2:00p Distributed capacity resources for emerging problems in distribution systems, Luis AFM Ferreira, Pedro MS Carvalho, IST, Portugal

2:20p Modeling and Estimation of Microgrid Parameters Using Message Passing Algorithms, Ying Hu, Anthony Kuh, Aleksander Kavcic, University of Hawaii; Dora Nakafuji, Hawaiian Electric Company

2:40p Redefining the Notion of Observability for Networked Estimation, Usman Khan, Tufts University

3:00p – 3:20p Break

[3:20p Session 2.4](#) – Things One Wishes Could Be Done in Operations Which Really Matter–Academic Perspective, Anthony Kuh, Chair

3:20p Optimum Reduced-Order Dynamic State Estimator (DSE) for power systems with PMU measurements, Jing Huang, Stefan Werner, and Yih-Fang Huan, Dept. of Electrical Engineering, University of Notre Dame

3:40p Integrating Wind Power: A Potential Role for Controllable Demand, Alberto J. Lamadrid and Tim Mount, Dyson School of Applied Economics and Management, Cornell University

4:00p The potential of hydro power for the integration of wind generation, Gabriela Hug, CMU

4:20p Conference Summary Marija Ilic, CMU

5:00p Adjourn