

# AGENDA

## 5TH ANNUAL CARNEGIE MELLON CONFERENCE ON THE ELECTRICITY INDUSTRY:

### SMART GRIDS

*Posner Hall Room 151  
David A. Tepper School of Business  
Carnegie Mellon University*

#### Reception – Monday, March 9, 2009

*7:00-8:30 p.m., Posner Hall Grand Room*

#### Day 1 – Tuesday, March 10, 2009

##### **8 a.m. Welcome/Introduction**

*Marija Ilic (ECE) and Lester Lave (TSB), Carnegie Mellon University*

##### **8:15 a.m. Vision for Modern Electric Energy Systems at Carnegie Mellon**

*Ed Schlesinger, Electrical and Computer Engineering Department Head and Professor*

##### **Session One: 8:30 a.m. Industry Perspective on the Smart Grid**

*Coordinator: Lester Lave, Carnegie Mellon*

##### **Speakers:**

8:30 a.m. David Kemp, Eaton Corporation

8:45 a.m. Andres E. Carvallo, Austin Energy

9:00 a.m. Russell Campbell, Duke Energy

9:15 a.m. Hahn Tram, "Enterprise Information Management for Smart Meters and Smart Grid." Quanta Technology.

9:30 a.m. Richard Griessel, A123 Systems

9:45 a.m. Partha Pal, "Smart Grid Information Management: Applying Advanced Communication and Distributed Systems Technologies." BBN.

10:00 a.m. John Ahr, Allegheny Power.

##### ***Break: 10:15 a.m.***

10:30 a.m. Karl Pfirman, PJM

10:45 a.m. Warren L. Wang and Forrest Small, "The Convergence of the Smart Grid with Photovoltaics: Identifying Value and Opportunities." Navigant Consulting, Inc.

11:00 a.m. Stephen Lee, "Holistic Power Supply and Delivery Chain—Foundations for a Smart Grid." EPRI.

11:15 a.m. Howard Illian, "Variable Energy Resources and the Need for Storage to Aid with Integration." Energy Mark, Inc.

11:30 a.m. Ralph Masiello and Rick Fioravanti, "Using Advanced Storage Devices to Facilitate Integrating Renewables with System Regulation and Dispatch." KEMA Consulting.

##### ***Lunch: 12:00 p.m.***

(Grand Room) – Lunch Speaker: Michael Dworkin, former Chair of the Vermont PUC and long time member of various EPR advisory committees – “A Former Regulator’s View of the Smart Grid.”

**1:15 p.m. Group Photo**

**Session Two: 1:30 p.m. Academic Guidance and Critique of the Smart Grid**

*Coordinator: Tim Mount, Cornell University*

**Speakers:**

1:30 p.m. Felix Wu, Hong Kong University / University of California at Berkeley

1:45 p.m. Tim Mount, Alberto Lamadrid, Surin Maneevitjit, Bob Thomas, and Ray Zimmerman. “AC or DC Transmission for a Remote Wind Farm?” Cornell University.

2:00 p.m. Paul Hines, “A Scalable Approach to Smart-Grid Technology,” University of Vermont

2:15 p.m. Coalton Bennett, “A Review of the Communication Protocols for Smart Grid AMI Systems.” Cornell University.

2:30 p.m. Kevin F. Forbes, “‘Gaming’ by Power Producers, Solar Storms, and ‘Loop’ Electricity Flows: The Case of the PJM Power Grid.” The Catholic University of America.

3:15 p.m. Steve Masters, “An Overview of the Smart Grid Maturity Model” with Richard Caralli and David White, SEI, Carnegie Mellon University

**Break: 3:30 p.m.**

**Session Three: 4:00 p.m. – 5:30 p.m. Student Energy Clubs**

*Coordinator: Marija Ilic, Carnegie Mellon*

**Speakers:**

4:00 p.m. Le Xie, President, Carnegie Mellon Electric Energy Club

4:15 p.m. Daniel Livengood, MIT Energy Club

4:30 p.m. Suhail Barot, Chair, Student Sustainability Committee, “Student Activities in Energy and Sustainability at the University of Illinois,” University of Illinois at Urbana-Champaign.

4:45 p.m. Warren Katzenstein, Student Representative, United States Association for Energy Economics

5:00 p.m. Panel Discussion, Audience Q&A

***Reception and Student Poster Presentations***

5:30 p.m. (Posner Hall Third Floor Bridge near Grand Room)

***Group Dinner***

6:15 p.m. (Grand Room) – Dinner Speaker: Karl Pfirrmann, PJM Interconnection

## Day 2 – Wednesday, March 11, 2009

### Session Four: 8:30 a.m. Carnegie Mellon Work in Progress on Smart Grids

#### Speakers:

8:30 a.m. Marija Ilic, Overview of EESG Vision, <http://www.eesg.ece.cmu.edu>

#### *Session Four A: Wind Power, Demand-Side Response and Plug-in Vehicles – Coordinator Jay Apt*

9:00 a.m. Ethan Goldman, Mario Berges, H. Scott Matthews, and Lucio Soibelman, “A Real-World Evaluation of NILM: Tradeoffs Between Data Collection and Information Effectiveness.” Carnegie Mellon.

9:20 a.m. Jhi-Young Joo, “Adaptive Load Management: From the End User, through the Aggregator, to the Wholesale Market and Back.”

9:40 a.m. Niklas Rottering, ETH/CMU Optimal Plug-in Vehicle Charge Control in Deregulated Electricity Markets.

10:00 a.m. Noha Abdel-Karim “Short-term Wind Forecasting, Inter-dependence of Wind Power Penetration and Transmission Congestion: The Case of NPCC.”

#### *Session Four B: Embedding Intelligence in Future Electric Energy Systems, Part I – Coordinator Jose Moura*

9:00 a.m. Marija Prica “A New Framework for Evaluating Candidate Technologies for Future Energy Systems: Illustrations of Concepts.”

9:20 a.m. Masoud Nazari, “Policy and Technical Challenges in Distribution Networks with DGs.”

9:40 a.m. Usman Khan, Soumya Kar, Nermeen Tallat and Zhijian Liu, Marija Ilic and Jose Moura, “How Many PMUs Does One Need to Ensure System Observability: New Concept and Illustration on the IEEE 30 Bus System.”

10:00 a.m. Ellery Blood, “From Static to Dynamic System Estimation: The Role of Load Dynamics.”

10:20 a.m. Le Xie, “Model Predictive Dispatch of Power Systems with Intermittent Resources.”

#### *Session Four C: Embedding Intelligence in Future Electric Energy Systems, Part II – Coordinator Aleksandar Kavcic*

9:00 a.m. Marija Ilic, Le Xie and Andrew Hsu, “Toward Unified Modeling for Future Energy Systems and Efficiency Measures.”

9:20 a.m. Le Xie, Masoud Nazari, Anupam Thatte, Michael Kowalski, Marija Ilic “Demystifying Electric Power Systems.”

9:40 a.m. Yi Zhang, Ozan Tonguz and Marija Ilic, “Revisiting the Role of Protection in Future Electric Energy Systems: Embedding Intelligence to Facilitate Just-in-Time (JIT) and Just-in-Place (JIP) Actions.”

10:00 a.m. Juhua Liu, Bruce Krogh and Marija Ilic, “Frequency Specifications in Future Electric Energy Systems and Potential of Robust Control for Ensuring They Are Met.”

10:20 a.m. Nermeen Tallat and Jovan Ilic, “Propagation of Harmonics in Future Electric Energy Systems: Finding the Cause Using Wavelets, Predicting The Most Affected Customers by Understanding Grid Characteristics, and Choosing Locations for Filters to Cancel the Most Sensitive Customers.”

**Break: 10:45 a.m.**

**Session Five: 11:00 a.m.—12:45 p.m. The Impact of Economic Crisis on the Future of the Electricity Industry** (lunch served during the session)

*Coordinator: Leonard Hyman*

**Speakers:**

11:00 a.m. Leonard Hyman, "Restructuring Electricity Policy and Financial Models."

11:45 a.m. Richard Schuler, "Electricity, Airlines & Banking: 'Smartening-up' Collective Stupidity." Cornell.

12:30 p.m. Lester Lave and Jay Apt, Carnegie Mellon.

**Session Six: 1:00 p.m. – 2:45 p.m. Contributed Papers**

1:00 p.m. Ramteen Sioshansi, "Evaluating the Impact of Real-Time Pricing on the Cost and Value of Wind Generation,"

1:15 p.m. Meir Shargal for Doug Houseman, "Demand Response – the Green Ancillary Service for Variable Generation." Capgemini.

1:30 p.m. Colleen Horin and Roger Lueken, "The Effects of Vehicle-to-Grid Technology on the Electricity Grid," University of Maryland.

**Closing Remarks: 2:00 p.m. – 3:00 p.m.**

Lester Lave and Marija Ilic:

2:00 p.m. Conference Highlights

2:30 p.m. Plans for the 6th Carnegie Mellon Electricity Conference