

FINAL AGENDA

Fourth Annual Carnegie Mellon Conference on the Electricity Industry FUTURE ENERGY SYSTEMS: EFFICIENCY, SECURITY, CONTROL

Posner Hall Room 152
David A. Tepper School of Business
Carnegie Mellon University

Reception – Sunday, March 9, 2008

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

Day 1 – Monday, March 10, 2008

8 a.m. Welcome/Introduction

Ilic-Lave

8:15 a.m. Vision for Our Modern Electric Energy Systems Curriculum

Ed Schlesinger

Session One: 8:30 a.m. Cyber-Physical Systems

Chair: Lester Lave, Carnegie Mellon

8:30 a.m. Helen Gill, "Continuing Vision – Cyber-Physical Systems," NSF

8:50 a.m. Marija Ilic, "Cyber-Physical Systems and Future Energy Systems: One and the Same?" Carnegie Mellon

9:10 a.m. Bobby Jeffers and Rita Wells, Advanced Modeling Framework for Grid Reliability, Security and Training
Idaho National Lab

9:30 a.m. Kurt Rohloff, "Directions for Cost-Effective Certification of High-Assurance Cyber Physical Systems," BBN.

9:50 a.m. Eric Hsieh, "Advanced Grid Technology and the 2007 Energy Independence and Security Act," NEMA.

10:10 a.m. R. Ambrosio, "Cyber-Physical Systems: A Possible Framework," IBM.

10:30 a.m. Howard Lipson, "Cyber Security and Survivability of Current and Future Energy Systems: Technical and Policy Challenges," CERT, SEI, Carnegie Mellon

10:50 Coffee Break

Session Two: 11:00 a.m. Invited Industry and Government Talks

Chair: Helen Gill, NSF

11:00 a.m. Ellen Stechel, "Moving Beyond a Fossil Fuel Dominated Electrical Grid: Open and Transparent Policy Modeling Framework, A Critical Enabler," SNL.

11:20 a.m. Edward Cazalet, MegaWatt Storage Farms, Inc., Charles Vartanian, Stephanie Hamilton, and Benjamin Coalson, "Energy Storage for Wind Integration: A Conceptual Roadmap for California," Southern California Edison.

11:40 a.m. Kamiar Karimi, "Future Aircraft Power Systems - System Integration Challenges," Boeing Co.

12:00 p.m. Ernst Scholtz, "Towards Realization of a Highly Controllable Transmission System – HVDC Light," ABB.

Working Lunch: 12:20 p.m.

"Restoring Industry, University, Government Collaboration: Needs and Possible Ways Forward – An Open Discussion," led by Dr. Timothy McCoy, Convertteam, Inc.

1:20 p.m. Group Photo

Session Three: 1:30 p.m. Invited Academic and Government Talks

Chair: Tim Mount, Cornell University

- 1:30 p.m. Jamshidi, Mo, "A SYSTEM OF SYSTEMS – An Overview of Energy for Transportation and Micro-grid Generation," University of Texas, San Antonio.
- 1:50 p.m. Ed Rubin and Granger Morgan, "Developing a Regulatory Framework for CO2 Capture and Deep Geological Sequestration," Carnegie Mellon
- 2:10 p.m. Daniel Tauritz, Bruce McMillin, and Mariesa Crow, "A Co-Evolutionary Armsrace Methodology for Improving Cyber-Physical System Robustness - Distributed Power Electronics Devices," Missouri University of Science and Technology
- 2:30 p.m. James Nutaro, Phani Teja Kuruganti, Vladimir Protopopescu, and Mallikarjun Shankar, "Modeling Power Systems of the Future: Information Technology and Power System Dynamics," ORNL.
- 2:50 p.m. Tim Mount, Alberto Lamadrid, Surin Maneevitjit, Bob Thomas and Ray Zimmerman, "The Economics of Reliability and the Importance of Events that Didn't Happen," Cornell University
- 3:10 a.m. John Hudak, "Modeling Software-Hardware Systems with an Architecture Description Language," Software Engineering Institute, Carnegie Mellon.

3:30 p.m. Coffee Break

Session Four: 3:40 p.m. Work in Progress at Carnegie Mellon (Part 1)

Chair: Krogh, Bruce, ECE, Carnegie Mellon

- 3:40 p.m. Marija Ilic, "Why Details Matter and How to Deal with Them." ECE and EPP, Carnegie Mellon.
- 4:00 p.m. Raj Rajkumar, "Sensor Andrew and CenSCIR," Carnegie Mellon
- 4:20 p.m. Jay Apt, "Overview of Research in the Carnegie Mellon Electricity Industry Center," Carnegie Mellon
- 4:40 p.m. Jose' Moura, ICTI Vision and On-Going Education and Research, Carnegie Mellon
- 5:00 p.m. Bruno Sinopoli, "Synergies with CyLab and NETL/DoE in the Energy Systems Area," Carnegie Mellon

Reception and Student Poster Presentations

5:20 p.m.

Group Dinner

6:15 p.m. (Grand Room) – Dinner Speaker Mariann Jelinek, William & Mary College
"A Vision for the Future of Power: Who Should Worry About the Long Term?"

Day 2 – Tuesday, March 11, 2008

8:15 a.m. Summary of Day 1

Granger Morgan, Carnegie Mellon

Session Five: 8:30 a.m. Future Electric Energy Systems –Defining the Vision

Chair: Jay Apt, Carnegie Mellon

- 8:30 a.m. Jeffrey S. Katz, "Future Intelligent Utility Network," IBM
- 9:00 a.m. Florian Kienzle and Goran Andersson, "Efficient Multi-Energy Portfolios for the Future," ETH, Switzerland.
- 9:20 a.m. Jin Zhong and Felix F. Wu, "Future Power Systems," The University of Hong Kong and University of California at Berkeley.
- 9:40 a.m. Michael Moore, Geoffrey Lewis, and Daniel Cepela, "Clean Energy, Dirty Air? A Policy Coordination Problem Between Renewable-Based Electricity Programs and Cap-and-Trade Pollution Programs," University of Michigan.

- 10:00 a.m. Aleck Leedy, "Simplified Models for Use in the Analysis of Future Power Systems," Tuskegee University.
- 10:20 a.m. Coalton Bennett, Steven B. Wicker, Judith Cardell, "Residential Demand Response Wireless Sensor Network," Cornell University, Smith College.
- 10:40 a.m. Miroslav Begovic, "Asset Management Using Failure Forecasting and Statistical Assessment of Diagnostic Testing," Georgia Tech.
- 11:00 a.m. Ralph Masiello and Gregory Reed, "Identifying the Utility of the Future in the Present Day Marketplace," KEMA.
- 11:20 a.m. Deepak Divan and Harjeet Johal, "Impact of Distributed Series Reactances on Power Networks," Georgia Tech.

Lunch: 11:45 p.m.

Session Six: 1:00 p.m. Contributed Papers

Chair: Masiello, Ralph, KEMA

- 1:00 p.m. Terry Surles, "Hawaii Energy Roadmap: Evaluating New Energy Technologies and Their Impact on Electricity Grids," University of Hawaii
- 1:20 p.m. Warren Katzenstein and Jay Apt, "Incorporating Wind into a Natural-gas Turbine Baseload Power System Increases NOx and CO2 Emissions from the Gas Turbine," Carnegie Mellon
- 1:40 p.m. H. Zhang, J. Moura, and B. Krogh, "Sensing Distributed Fields," Carnegie Mellon.
- 2:00 p.m. Darren Reece Highfill, "Field Asset Security in a Smart Grid World," EnerNex Corporation
- 2:20 p.m. Howard Illian, "Frequency Deviation Reliability Risk Evaluation and Mitigation," Energy Mark, Inc.
- 2:40 p.m. Joung, Manho and Ross Baldick. "Moral Hazard in Electricity Capacity Markets." University of Texas.
- 3:00 p.m. Richard Benjamin, "Potential Competition and the Analysis of Wholesale Electricity Markets," FERC.

3:20-4:00 p.m. Closing Discussion—Thinking Ahead