Electricity Transmission in Deregulated Markets: Challenges, Opportunities, and Necessary R&D Agenda

December 15-16, 2004

CO-SPONSORED BY:

The Carnegie Mellon Electricity Industry Center
The Department of Electrical and Computer Engineering
The Department of Engineering and Public Policy
The Tepper School of Business
at CARNEGIE MELLON UNIVERSITY,
The Electric Power Research Institute,
and the U.S. National Science Foundation*

LOCATION:

Tepper School of Business
Carnegie Mellon University
Campus Map:
http://www.cmu.edu/home/visitors/map/index.html

CONFERENCE FEES:

University Participants - $50.00 per person
Government Participants - $50.00 per person
Corporate Participants - $200.00 per person
Download Mail-In Registration Form Here.

*NSF has provided limited funds to support student travel to the conference. Students are encouraged to apply for these funds and a no-cost registration. Please send a short biography that lists your current academic status and T&D interests. Please send your estimate of travel expenses. Send this information to the address on the mail-in registration form.

ACCOMMODATIONS:

A block of rooms has been reserved at the following hotel:
HOLIDAY INN SELECT – UNIVERSITY CENTER
100 Lytton Avenue, Pittsburgh, PA 15213
(412) 682-6200

Mention the Transmission Conference to receive a special rate of $85.00 (plus room tax) per night, including the nights of December 14th, 15th, and 16th. The deadline for reservation in this block of rooms is November 23, 2004. Reservations received after November 23 will be provided on a space available basis.
FINAL AGENDA

DAY 1:  WEDNESDAY, DECEMBER 15, 2004

7:30 a.m.  REGISTRATION AND COFFEE/TEA
8:30 a.m.  WELCOME AND INTRODUCTION
Lester Lave, Tepper School of Business, Carnegie Mellon University;
Marija Ilic, Depts. of Electrical & Computer Engineering and Engineering
& Public Policy, Carnegie Mellon University

Chair:  Bruce Edelstein

8:45 a.m.  T&D Challenges and Vision for the Future
Paul Joskow, Dept. of Economics, Massachusetts Institute of Technology

9:15 a.m.  Commentary
Ernie Moniz, Laboratory for Energy and the Environment, Massachusetts
Institute of Technology

9:30 a.m.  Commentary
Ed Holland, VP for Transmission, Southern Company (NYSE: SO)

9:45 a.m.  Discussion

10:15 a.m.  BREAK

Chair:  Michael Calviou

10:30 a.m.  A Bold Vision for T&D
Kurt Yeager, Retired CEO, EPRI

11 a.m.  Beyond Today’s Transmission Technologies
Lionel Barthold, Retired CEO, PTI

11:30 a.m.  T&D Operation and Control:  Time for a Paradigm Shift?
Felix Wu, Dept. of Electrical & Electronic Engineering, University of
Hong Kong, and University of California at Berkeley

12 noon  Discussion

12:30 p.m.  LUNCH

Chair:  Ernie Moniz

1:30 p.m.  Evolving Electricity Markets and Transmission Congestion
Bill Hogan, Center for Business and Government, Harvard University

2:15 p.m.  Paying for Transmission
Lester Lave, Tepper School of Business, Carnegie Mellon University

2:45 p.m.  Financing Transmission Investments
Gary Krellenstein, JPMorgan

3:15 p.m.  Discussion
FINAL AGENDA

DAY 1: (Continued)

3:30 p.m.  BREAK

Chair:  Paul Joskow

3:45 p.m.  The Transmission Business and Customer Value in the Age of RTOs
Michael Calviou, National Grid Company
Paul Kleindorfer, Wharton School, University of Pennsylvania
Mary Ellen Paravalos, National Grid Company

4:15 p.m.  Challenges to a Secure Electric Power Grid
Patrick Laird, VP, Exelon Corporation, Chicago

4:45 p.m.  Panel
Granger Morgan, Carnegie Mellon – Panel Chair
Michael Golay, Massachusetts Institute of Technology - Presenter
Thomas Lenard, Progress and Freedom Foundation - Presenter

7 p.m.  DINNER
(Location to be announced)

DAY 2 THURSDAY, DECEMBER 16, 2004

8:30 a.m.  Summary of Issues from Day 1
Lester Lave, Tepper School of Business, Carnegie Mellon University

Chair:  Bill Hogan

8:45 a.m.  Current Electricity Transmission Issues:  The National Market Monitoring Perspective
Bill Hederman, FERC, Washington DC

9:15 a.m.  Discussion

9:25 a.m.  Introduction to Technical Sessions
Marija Ilic, Depts. of Electrical & Computer Engineering and Engineering & Public Policy, Carnegie Mellon University

9:30 a.m.  PLENARY 1
Chair:  Sarosh Talukdar

A Criticality Approach to Monitoring Cascading Failure Risk and Failure Propagation in Transmission Systems
Ian Dobson, Electrical and Computer Engineering, Univ. of Wisconsin;
Benjamin A. Carreras, Oak Ridge National Laboratory;
David E. Newman, Physics Dept., University of Alaska

The Impact of Various Upgrade Strategies on the Long-Term Dynamics and Robustness of the Transmission Grid
D. E. Newman, Physics Dept., University of Alaska;
B. A. Carreras and V. E. Lynch, Oak Ridge National Laboratory;
Ian Dobson, Electrical and Computer Engineering, Univ. of Wisconsin
FINAL AGENDA

PLENARY 1 (continued)
Cascading Failures in Pseudo-Dynamic Models of Power Systems
Huaiwei Liao, Electrical and Computer Engineering, Carnegie Mellon;
Jay Apt, Tepper School of Business, Carnegie Mellon;
Sarosh Talukdar, Electrical and Computer Engineering, Carnegie Mellon

10:45 a.m.  BREAK

11 a.m.  PARALLEL SESSIONS 1
These sessions occur concurrently; choose A, B, or C.

11:00-12:30 p.m.  1.A. TECHNICAL ASPECTS OF T&D 1
Chair: Felix Wu
Finding Occam's Razor: Selecting Business Processes and Technology Investments for Grid and Market Operability
Brian Bowers, Raytheon
Distributed Intelligent Power Networks – A New Concept for Improving T&D System Utilization and Performance
Deepak Divan, Department of ECE, Georgia Institute of Technology
Demand Response as a Substitute for Electric Power System Infrastructure Investments
Jason Black, Engineering Systems Division, Massachusetts Institute of Technology
The Key to Resolving Transmission Gridlock: The Case for Implementing Power Electronics Control Technologies
Gregory Reed, Mitsubishi Electric Power Products, Inc., Warrendale, PA;
John Paserba, Mitsubishi Electric Power Products, Inc., Warrendale, PA;
Peter Salavantis, Mitsubishi Electric & Electronics USA, Washington, DC

11:00-12:30 p.m.  1.B. TRANSMISSION PRICING
Chair: Ed Holland
Pricing Transmission Congestions in Electric Power Networks
Chan S. Park, Industrial & Systems Engineering Dept., Auburn University
Jorge Valenzuela, Industrial & Systems Engineering, Auburn University
Mark Halpin, Electrical and Computer Engineering, Auburn University
A Third Way of Managing and Incenting a Growing Electric Power Supply and Delivery System
Steven T. Lee, Technical Executive, Power Delivery and Markets, EPRI
Coordination for Managing Economies of Scope in the Changing Electric Power Industry
Marija Ilic, Deps. of Electrical & Computer Engineering and Engineering & Public Policy, Carnegie Mellon University;
Zayra Romo, Engineering and Public Policy Dept., Carnegie Mellon
FINAL AGENDA

11:00-12:30 p.m.  **1.C. T&D POLICY ISSUES**  
**Chair:** Kurt Yeager  
**Competing Industry Visions**  
*Jay Morrison, NRECA*  
**Reliability @ Risk℠: A New Paradigm for Assessing Reliability**  
*Ralph Masiello, John Spare, Al Roark, Sam Brattini, KEMA*  
**Electric Network Reliability as a Public Good: Refining the Analysis**  
*L. Kiesling, Economics Dept., Northwestern University; M. Giberson, Interdisciplinary Center for Economic Science, George Mason University*

12:30 p.m.  **LUNCH**

1:30 p.m.  **PARALLEL SESSIONS 2**  
These sessions occur concurrently; choose A, B, or C.

1:30-3:00 p.m.  **2.A. Technical Aspects of T&D 2**  
**Chair:** Jeff Roark  
**Power Control Center Applications Using Highly Available Distributed RAM (HADRAM)**  
*Damian Cieslicki, Computer Engineering, Santa Clara University*  
*Thomas J. E. Schwarz, Computer Engineering, Santa Clara University*  
**Control Approach for Self-Healing Power Systems: A Conceptual Overview**  
*Khosrow Moslehi and A. B. Ranjit Kumar, ABB, Inc.*  
**Flexible Windowing Approach for Real-Time Simulation of Electricity Prices**  
*Edgar L. Moreno-Goytia, Dept. of Electrical Engineering, Instituto Tecnologico de Morelia, Mexico; Guillermo Gutierrez-Alcaraz, Dept. of Electrical Engineering, Instituto Tecnologico de Morelia, Mexico; Jose H. Tovar-Hernandez, Dept. of Electrical Engineering, Instituto Tecnologico de Morelia, Mexico*  
**Distributed Model Predictive Control for Electric Grids**  
*Paul Hines, Engineering and Public Policy Dept., Carnegie Mellon*  
*Dong Jia, Electrical and Computer Engineering Dept., Carnegie Mellon*  
*Sarosh Talukdar, Electrical and Computer Engineering, Carnegie Mellon*
2.B. **T&D Financial Alternatives**  
**Chair:** Jay Morrison  
Completing the Market Design  
*Howard Illian, President, Energy Mark, Inc., Chicago*  
Justifications for Transmission Investment in the Market  
*Haibin Sun, Georgia Tech. University and GE Energy Intern; Mark Sanford, GE Energy; Louie Powell, GE Energy*  
Operational Planning Constrained by Financial Requirements  
*Guillermo Gutierrez-Alcaraz, Gerald B. Sheble, Electrical and Computer Engineering Dept., Iowa State University*

2.C. **T&D International Experiences**  
**Chair:** Ingo Vogelsang  
Transmission Allocation Cost Methodologies: Experiences in Latin American Electricity Markets  
*Jose H. Tovar-Hernandez, Electrical Engineering Dept., Instituto Tecnologico de Morelia, Mexico*  
*Guillermo Gutierrez-Alcaraz, Electrical Engineering Dept., Instituto Tecnologico de Morelia, Mexico*  
*Edgar L. Moreno-Goytia, Electrical Engineering Dept., Instituto Tecnologico de Morelia, Mexico*  
Interconnections of Transmission Networks in Southeast Asia: A Preliminary Assessment for Thailand  
*Somboon Nuchprayoon, Electrical Engineering, Chiang Mai University, Thailand*  
Summary of the California ISO Transmission Economics Evaluation Methodology  
*Ben Hobbs, Depts. of Geography & Environmental Engineering and Mathematical Sciences, Johns Hopkins University*

3 p.m.  
**BREAK**

3:15 p.m.  
**PLENARY 2**  
**Chair:** Paul Kleindorfer  
Cluster Computing: A Tool for Looking before Leaping  
*Presenter 1: Jim Thorp, Electrical and Computer Engineering Dept. Head, Virginia Polytechnic Institute and State University*  
Learning about Power Markets in the Laboratory  
*Presenter 2: Tim Mount, Applied Economics & Management, Cornell Robert Thomas, Electrical and Computer Engineering Dept., Cornell*  
Transmission Pricing and Performance-Based Regulation  
*Presenter 3: Ingo Vogelsang, Economics Dept., Boston University*

4:45 p.m.  
**Closing Remarks**

5 p.m.  
**Adjourn**