

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**

3:45 p.m. **Chair: Paul Joskow**
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

8:45 a.m. **Chair: Bill Hogan**
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, Depts. 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 @ RiskSM: 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 Tecnológico de Morelia, Mexico;

Guillermo Gutierrez-Alcaraz, Dept. of Electrical Engineering, Instituto Tecnológico de Morelia, Mexico;

Jose H. Tovar-Hernandez, Dept. of Electrical Engineering, Instituto Tecnológico 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

FINAL AGENDA

1:30-3:00 p.m.

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

1:30-3:00 p.m.

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