



## Power Systems Engineering Research Center

# The Electric Power Industry and Climate Change: Power Systems Research Possibilities

**Judy Cardell**  
Smith College

**Tom Overbye**  
University of Illinois  
at Urbana-Champaign

**Research Tele-seminar**  
**June 5, 2007**  
**2:00-3:00 p.m. Eastern Time (11:00-12:00 Pacific)**

This tele-seminar is provided by the research team on the PSERC project “The Electric Power Industry and Climate Change – Discussion Paper.” Participating on the call will be Tom Overbye, project leader, Judy Cardell, Smith College; Ian Dobson, University of Wisconsin – Madison; Ward Jewell, Wichita State University; Mladen Kezunovic, Texas A&M University; P. K. Sen, Colorado School of Mines; and Daniel Tylavsky, Arizona State University.

### **Seminar Description**

The interaction of the electric power industry with climate is manifested in both the effect that severe weather has on the power system and the contribution of electric power to the production of greenhouse gases (GHG) and other pollutants. It is estimated that the United States is the source of one-fourth of the world’s GHG emissions and that the electric power industry accounts for one-third of these. Within the total GHG emissions, CO<sub>2</sub> emissions account for more than 80 percent of the overall U.S. contribution, and 38 percent of this amount is derived from the electric power sector.

In response to increasing concerns over global climate change, this tele-seminar continues a PSERC discussion on possible research areas that PSERC can pursue related to interactions between the power industry and global climate change. The discussion will include possible research areas in the following categories:

- Interaction between the production of greenhouse gases and the production, consumption, and delivery of electricity.
- Extreme weather statistics and events, and the potential impact on power system blackouts and component failures.
- Electricity market issues that relate to climate change.
- Federal and state policies on climate change that affect the electric power industry.
- Long-range planning of the electric power and other industries with respect to climate change.
- Themes from previous PSERC research, including developing analysis tools, understanding risk and uncertainty, promoting interregional coordination, analyzing market design and behavior and integrating new technologies into the power system.

## Biography

**Judy Cardell** is the Clare Boothe Luce assistant professor at Smith College in Northampton MA. She received B.S.E.E. and A.B. degrees from Cornell University in electrical engineering and government. She received M.S. and Ph.D. degrees in technology and policy and E.E.C.S. from MIT. Previously she worked at FERC and as a consultant to the electric power industry. Her research interests include electricity market design and the integration of distributed resources into power system and market operations.

**Tom Overbye** is the Fox Family Professor of Electrical and Computer Engineering at the University of Illinois at Urbana-Champaign (UIUC). He received his B.S., M.S., and Ph.D. degrees in Electrical Engineering from the University of Wisconsin-Madison in 1983, 1988 and 1991 respectively. Prior to joining UIUC in 1991 he was employed with Madison Gas and Electric Company from 1983 to 1991.

**Participation:** Participation is open to PSERC members and others in industry, government and education. Audio will be provided via a phone bridge. The presentation slides can be downloaded from the PSERC website on June 5. An audio-slide production will be available for viewing by web-streaming a day after the tele-seminar.

**Registration:** To indicate that your organization would like to have an access line, send an email to [pserc@asu.edu](mailto:pserc@asu.edu) with the subject "Climate Seminar". Within our capabilities, we will try to accommodate everyone who has requested a line. There is no charge for participating, but space on the phone bridge is on a first-come, first-served basis even if you have requested a line. To use our limited phone bridge capacity efficiently, we ask that people in the same organization meet together to participate rather than calling in separately. Connection information will be sent before the seminar.

**Professional Development Hour Certification:** PDH certification is available for PSERC members. Send an email requesting PDH certification to [pserc@asu.edu](mailto:pserc@asu.edu) with the subject "PDH" after the seminar. *Include the name and title of each participant.*

### Seminar Logistics and Assistance

Connection information will be emailed to you after you submit your request. If you have any questions, please call the PSERC office at 480-965-1643 or [pserc@asu.edu](mailto:pserc@asu.edu). You can also contact Dennis Ray, PSERC Executive Director, at 608-265-3808 or [djray@engr.wisc.edu](mailto:djray@engr.wisc.edu).

### PSERC's Seminar Coordinator

Shmuel Oren, University of California at Berkeley  
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Shmuel welcomes feedback on the tele-seminars and suggestions for future ones.