



IAB News

Industrial Advisory Board Newsletter, September 2001

Power Systems Engineering Research Center

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NSF Approves Five Year Renewal of PSERC's Grant

The National Science Foundation has renewed PSERC's grant from the Industry/University Cooperative Research Center Program for five more years. PSERC first joined the program in 1996.

"This is great news for our researchers and industrial members," reports Bob Thomas, PSERC's Director. "It shows the importance of our work to industry and the strong capabilities of our researchers."

Dr. Alex Schwarzkopf, Program Director of the I/UCRC program, states that "Industry-University collaboration is at the heart of the I/UCRC program. PSERC's commitment to collaboration using many universities as the research base is essential to meeting the wide-ranging challenges facing the electric power industry."

NSF's I/UCRC program promotes "win-win" partnerships that strengthen the ability of universities to conduct high quality and relevant research, and the ability of industry members to meet their business objectives effectively. Some fifty other Centers in

the I/UCRC program focus on a wide array of competitive industries. PSERC is the only Center in power systems. It is also the largest multi-university Center.

Summer Retreat Report

PSERC faculty and industry members gathered in 1000 Islands, New York for the 2001 PSERC summer retreat, August 9-14. Work at the retreat focused on identifying research priorities for new project proposals in the three research stems: Markets, T&D Technologies and Systems. The retreat also included:

- Executive Committee meetings
 - Presentations and initial work on a white paper on grand challenges in information technology for the power industry
 - New proposal-writing efforts to obtain funding outside of PSERC.
- Six industry members joined some twenty researchers from all eleven PSERC universities at the retreat:
- Mike Agee, Duke Energy
 - Dale Krummen, American Electric Power
 - Nick Miller and Mark Sanford, GE Power Systems
 - Mahendra Patel, Allegheny Power
 - Paul Walter, American Transmission Company

Bob Thomas comments that "Industry involvement at the retreat was fantastic. They provided ideas and feedback on issues of strategic importance to industry."

In conjunction with the retreat, researchers from PSERC met with researchers from the national laboratories to discuss their joint work in the Consortium for Electric Reliability Technology Solutions (CERTS). PSERC researchers are actively involved in three research areas in CERTS: reliability and

markets; real-time grid operations and reliability management; and distributed energy resources. PSERC is a founding member of CERTS.

please see www.certs.lbl.gov.

Peter Sauer to Serve as Interim Director in 2002

Bob Thomas, Director, has announced that he will be on sabbatical in 2002 and that Peter Sauer will serve as PSERC's Interim Director during that time. Pete is a professor in the Electrical and Computer Engineering Department at the University of Illinois at Urbana-Champaign. He has been the site director at Illinois since PSERC's formation in 1996.

"Pete is an accomplished researcher with a wealth of experience in industry and academia, including work at the National Science Foundation," Bob says. "I know that he will contribute to PSERC's continuing growth and increasing influence."

Calendar of Upcoming Events

IAB Meeting: December 5-7, Texas A&M Univ., College Station, Texas.

Internet Seminars: Oct. 2 (Carnegie Mellon): "Distributed Generation and Path Dependency" by Neil Strachan, Post-Doctoral Research Fellow, Electricity Industry Center; followed by "Electricity and Conflict: An Evaluation of Distributed Co-Generation as a Reliable Solution" by Hisham Zerriffi, doctoral student, Engineering and Public Policy

Nov. 6 (Colo. School of Mines): "Assessment of Remaining Life Expectancy for Liquid-Filled Power Transformers" by Prof. P.K. Sen

An expanded calendar is available at www.pserc.wisc.edu.

Comments from the Chair

PSERC's mission is to address the challenges facing the power industry in a period of tremendous change. To promote better understanding of those challenges, I was delighted to see the feedback our industry members provided on the key factors characterizing the industry today. Mike Agee, our Vice-Chair from Duke Energy, compiled a list of those factors in the T&D area for presentation at the summer retreat. The list included:

- Increasing reliability demands
- Aging infrastructure
- Increasing loading of components
- Increasing availability of operational data
- More dynamic power flows and increasing use of distributed generation
- Declining ability to remove components from service for maintenance

Among other strategies, industry is responding to these factors with technology innovations. The challenge I see is to understand the system-wide implications of using those new technologies.

For example, to respond to the need for more transmission line capacity, companies are reconducting transmission lines using high temperature, low sag conductors that can increase current-carrying capacity by 60 percent. The operational effect of this change is to make the risk of cascading effects of transients a more important concern relative to thermal limits.

Another technology change is the increasing use of distributed power electronics, such as with distributed superconducting magnetic energy storage (D-SMES) systems. In fact, TVA is in the process of installing a small, trailer-mounted SMES unit. More D-SMES units are being evaluated versus new STATCOMs and SVCs as the 500 kv transmission system gets loaded past the surge impedance load level. Installing these systems on the low-side of substation transformers can keep customer loads from dragging the system down during

momentaries and transients, thus providing more support for the transmission system.

Those two examples show that industry and researchers need to be paying close attention to system implications of new technologies because they affect the challenges our industry faces in maintaining cost effective reliability.

Stem Committees Take Lead in Developing New Projects

PSERC's stem committees are implementing the new project selection process approved at the last Industry Advisory Board (IAB) meeting. The Stem Committees are working with industry members and researchers to develop a portfolio of projects that will be brought to the entire IAB. The IAB will recommend a final set of projects to the Director.

The Stem Committees facilitate the partnership between university researchers and industry to insure that PSERC has a balanced portfolio of projects consistent with its research roadmap. The Stem Leaders are Shmuel Oren (Markets), Mladen Kezunovic (T&D Technologies) and Sakis Meliopoulos (Systems).

Proposals were due September 24. In early November, the final list of possible projects will be distributed to the entire IAB for review and prioritization. Final rankings will be determined during a joint session of the Executive Committee and the IAB at the business meeting on Dec. 6.

PSERC Involved in DOE Transmission Grid Study

At the summer retreat, Joe Eto, Manager, Consortium for Electric Reliability Technology Solutions (CERTS), announced that PSERC researchers Fernando Alvarado (Wisconsin), George Gross (Illinois), Tom Overbye (Illinois) and Shmuel Oren (Berkeley) have been invited to serve on a technical support team reviewing transmission elements of the Administration's National Energy Policy. DOE has asked CERTS to manage the technical support for the

DOE team leading the study. IAB member Phil Overholt is part of the DOE team responsible for the study.

The National Energy Policy calls for the Secretary of Energy to examine the benefits of establishing a national electrical grid, identifying major transmission bottlenecks and remedies. The study will develop issue papers and hold public workshops. The final report is due December 31, 2001.

Communicating Results

PSERC researchers are taking the results of their research to forums for the industry and regulatory communities. By doing so, PSERC is helping key decision-makers in industry and government develop more informed policies and strategies. Here are a few examples.

In August, Fernando Alvarado (Wisconsin) explained electric system reliability practices and policy issues to regulatory professionals from state and federal agencies attending "Camp NARUC" at Michigan State University.

In early September, Bob Thomas (Cornell) described experimental work related to market and auction design to NERC's Markets Interface Committee.

Finally, in October, Fernando Alvarado and Tim Mount (Cornell) will be speaking at the Institute of Public Utilities' Annual Regulatory Policy Conference. Alvarado will speak on "The Relationship Between Reliability, Reserves and Market Functionality." In "An Engineering Approach to Evaluating Market Power," Tim Mount will discuss results from experimental economics work on market design issues.

Note from the Editor

As I publish my first edition as editor, I wish to extend thanks to all who have helped by contributing. I also wish to recognize and thank Phillip McCrory, past editor, for his efforts.

Recognitions

Mike Ingram, TVA, has won the IEEE PES Walter Fee Outstanding Young Engineer Award. Congratulations!