Center for Power Systems Studies -- Annual Meeting

COORDINATOR'S REPORT

September 18, 2002

To: Members of Center for Power System Studies
Associate Members of Power System Studies
All those in attendance at this meeting

The Center for Power System Studies is entering into its 35th year of operation. Below is a summary of some of the events.

I. CPSS Related Activities for Summer and Fall 2002 Terms

a. Due to the need to finish the new energy laboratory in the Crother's Engineering Addition, the Spring Technology Field Trip was not offered.

b. Justin Morrill, Joshua Olson, and Stephen Bostrom worked the entire summer on the new energy laboratory. These three outstanding individuals accomplished a considerable amount in three months. Vijay Kambhammettu (graduate student) returned part time for the months of July and August to finish various software modules for the touch screen display and the PLC control system.

c. Helped coordinate the Regional Power Conference for CPSS, held Sept. 17th, 2002.

II. Students and the Power Community

a. There remains considerable competition within our department for attracting and keeping students in the power program. We have seen a steady increase in student interest in the power area, much of it due to the internship experiences our sophomore and juniors have been experiencing. Other opportunities also contribute to increased student interest in the power area:

i. CPSS scholarships and financial assistance.
ii. The Minnesota Power Systems Conference and Regional Power Conference.
iii. Design projects relating to electric power area.
iv. Field Trips and Tours.

b. Field trips continue to have a significant and positive impact on student's perception of the power community. A recent alumni survey had one respondent indicate that the power technology tour helped redirect his/her career path towards the power area.

c. The number of power related companies inquiring about prospective new hires continue to increase. This year we had the following individuals participating in an internship position:
Nathan Jones (Brookings Municipal) – Junior
Cody Kinsley (WAPA-Huron) – Junior
Paul Konechne (MidAmerican Energy) – Senior
John Weber (Missouri River Energy Services) – Senior

d. Other Power Students:
Jesse Moser -- Senior
Adam Graff – Senior
Jeff Renken – Senior
Adam Fenski – Sophomore
Jesse Walter – Sophomore
Justin Dewald – Sophomore
Wes Wingen -- Sophomore

e. Recent graduates have accepted positions with power companies. These are:
Travis Everson (Interstates Electric, Sioux Center, IA)
Andy Koob (Burns & McDonnell, Kansas City, MO)
Troy Metzger (DGR, Rock Rapids, IA)
James Ziebarth (Highline Electric Association and Y-W Electric Association, Akron, CO)
Justin Johnson (not certain)
Jason Voelts (not certain)

III. Faculty in the power program and some highlights of their activities

- Steve Hietpas
  - Presented "An efficient pedagogical approach for integrating power electronics, drives and the PMDC motor into the traditional energy conversion course," ASEE Conference, June 16-19, 2002, Montreal, Quebec, Canada.
  - Supervised Sudeep Pyakuryal in the EMTP modeling of the Otter Tail power distribution system to consider the effects of introducing wind turbines into their system.
  - Supervised Ankur Singhal on the design of a 3-phase 3-hp induction motor drive.
  - Supervised Bhargav Kandula on the design of PV Sourced DC Submersible Pump Motor Drive.
  - Supervised Joshua Olson, Stephen Bostrom, Justin Morrill, Adam Fenski, and Vijay Kambhammettu on the final design of the new energy lab.
  - Served on the Paper Review Committee for the IEEE Rural Electric Power Conference.
  - Attended the 2002 Rural Electric Power Conference, Colorado Springs, CO, in May of 2002.
  - Promoted to Program Coordinator for the Department of Electrical Engineering.
- Michael Ropp
  - Continued to operate the Wind Resource Assessment Network.
  - Participated in photovoltaic projects in Badlands NP and Yellowstone NP.
  - Taught and supervised a Special Problems class regarding determining the impacts of distributed generation on power systems through computer modeling.
  - Conducted a study to assess the effects of single-phase induction machines in islanded loads driven by self-excited distributed generators. Sponsor: Sandia National Laboratories.
  - Conducted a study to assess the viability of using power line carrier communications for prevention of islanding of distributed generators. Sponsor: Sandia National Laboratories.
  - Continued to supervise power-related graduate student projects:
    - Fuzzy Logic Control of Wind Turbine Systems
    - Modifications of Photovoltaic System Design Procedure for Special Cases
    - Study of Initial Degradation of Photovoltaic Modules

    - Design and Construction of a Programmable Inverter for Photovoltaic Systems
- Continued to work with graduate student Sudeep Pyakuryal and Dr. Steven Hietpas on a project related to impacts of wind turbines on distribution networks.
- Delivered an invited presentation in Arnhem, The Netherlands, to the International Energy Agency's Task V working group studying the effects of high connection densities of photovoltaic systems in utility grids.
- Delivered an invited presentation on windpower technology to the Regional LAMPAC held by the IBEW, June 10-11, Rapid City, SD.
- Submitted power-related research and educational proposals to the Department of Energy, Sandia National Laboratories, and the National Science Foundation. (Results not yet known.)

Respectfully submitted,

Steven M. Hietpas, Ph.D.
Coordinator, Center for Power System Studies