

Center for Power Systems Studies
Semiannual Meeting -- Madison, SD
COORDINATOR'S REPORT
April 25, 2002

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

We are now at the close the Center for Power Systems Studies' 34th year of operation. I am sure that the founding members of the CPSS could not fully imagine where the CPSS would at it 35th year, but I believe we have reached some significant milestones. Without question the CPSS has played an important role in the regional power institutions and we look forward to another 35 years.

I. Projects/research/academic activities during fall 2001 and spring 2002 terms
a. Design of the New Energy Laboratory – Phase III.

Phase III of the Energy Laboratory, during the Fall semester of 2001 and Spring semester 2002, consisted of modifications to the system level design, Automated Load Banks (ALBs) and power processing station (PPS). We moved completely out of the old laboratory, CEH 103 in early January of 2002. The new lab was made functional enough to use it for Circuits II. Should be entirely functional by next fall.

Below is a list of students who have been contributing to the overall design of components within the energy laboratory.

Md. Abdus Sattar (graduate student) designed and constructed a 3-hp Volts/Hz AC Induction Motor Drive. Defended Design Paper fall of 2001, graduates this spring. Md. Sattar has accepted a position with Bitrode, Inc., Saint Louis, MS.

Kandula M. Bhargav (graduate student) is designing a ½ –hp DC/DC motor drive for a PV submersible pump. Should finish this summer.

Vijay Kambhammettu (graduate student) has primarily worked on the design of the power processing station (PPS), making necessary improvements and upgrades. Will finish in the fall semester.

Kala Meah (graduate student) follow-up on design of 3-hp Volts/Hz AC Induction Motor Drive – considering DSP based feedback control

Ankur Singhal (graduate student) follow-up on design of 3-hp Volts/Hz AC Induction Motor Drive – considering microcontroller based feedback control.

James Ziebarth has redesigned the switching matrix for the PPS.

Troy Metzger has redesigned the ALB DC power measurement and control circuitry.

Andy Koob has redesigned the ALB DC power measurement and control circuitry.

Justin Morrill (Junior EE) has been fabricating and designing PCBs for the ALB and PPS. Will be working in laboratory this summer.

Josh Olson (Senior EE) has been designing PCBs for the ALB and PPS. Will be working in laboratory this summer.

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b. Otter Tail's Distribution Project

Sudeep Pyakuryal (graduate student) is modeling a portion of Otter Tail's Distribution system with the intent to model the effects of placing small Wind Turbine Generators at various locations. This work is supported by a special donation from Otter Tail.

c. Courses taught

Steve Hietpas

1. Taught EE615 (3 cr) *Advanced Linear Systems*, 8 graduate students
2. Taught EE221 (3 cr) *Circuits II*, 23 students, ~ 3 students look interested in power systems.
3. Coordinated EE435 (1 cr) *Seminar in Power Systems*, 9 students, 8 are power students.

Michael Ropp

1. Taught EE492 (3 cr) – Special Topics in Power Systems
2. Taught EE593 (3 cr) – Special Topics in Photovoltaics

II. Other scholarly/research activities

Steve Hietpas

1. Serve on the paper review committee for IEEE Rural Electric Power Conference. Reviewed paper for the upcoming conference in Colorado Spring, CO, May 5-May 7, 2002. Will attend conference.
2. Serve on the review committee of IEEE Transactions on Industrial Applications associated with the Rural Electric Power Conference.
3. Present "An efficient pedagogical approach for integrating power electronics, drives and the PMDC motor into the traditional energy conversion course" to be presented at session number 26 -- Experimentation and Laboratory-Oriented Studies (DELOS) Division for the 2002 ASEE Annual Conference in Montreal, Canada, June, 2002.

Michael Ropp

1. Consult on windpower-utility system interaction issues
2. Consults on HVDC transmission issues
3. Reviewer for Progress in Photovoltaics, IEEE Transactions on Education and Transactions on Energy Conversion

III. Scholarship Activity

Continued the offering of *scholarships* to:

- Freshmen level (less than approximately 50 credits completed)
- Sophomore level (less than approximately 80 credits completed)
- Junior level (less than approximately 110 credits completed)

Seniors	Juniors	Sophomore	Freshmen
Paul Konechne	Stephen Bostrom	Justin Dewald	Wes Wingen
James Ziebarth	Wade Kempf	Adam Fenski	Jack Winter
Troy Metzger	Nate Jones		
Andy Koob	Adam Graff		
Jason Voeltz	Cody Kinsley		
Jesse Moser	John Weber		
	Jeffrey Renken		

IV. Graduating Power Students and Summer 2002 Intern Positions

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a. Fall 2001 Power Graduates:

Student	Place of Employment
Chad Orris	MidAmerican Energy Company
Nate Wriedt	DLR, Arizona

b. Spring Power Graduates:

Student	Place of Employment
Md. Abdus Sattar	Bitrode, Inc., Saint Louis, MS.
James Ziebarth	Highline Electric Association, Holyoke, CO
Troy Metzger	DeWild Grant and Reckert and Associates
Andy Koob	Burns and McDonnell
Justin Johnson	Seeking Employment
Jason Voeltz	Seeking Employment
Jesse Moser	Seeking Employment

c. Summer 2002 Interns.

Student	Place of Employment
Paul Konechne	MidAmerican Energy
Stephen Bostrom	?
Wade Kempf	EPSCOR Research Fellowship
Nate Jones	Daktronics
Adam Graff	Summer Student (MidAmerican summer 01)
Cody Kinsley	WAPA
John Weber	Missouri River Energy Services
Jeffrey Renken	Interstates Electric?
Justin Dewald	Fischer Electric
Adam Fenski	Summer Student
Wes Wingen	Energy Maintenance Service, Gary, SD
Jack Winter	?

V. Summer Activity

Steve Hietpas

1. Supervise Kandula M. Bhargav on design of ½ -hp DC/DC motor drive for a PV submersible pump.
2. Supervise Kala Meah and Ankur Singhal on design of 3-hp Volts/Hz AC Induction Motor Drive – controller approaches.
3. Supervise Sudeep Kumar Pyakuryal on the Otter Tail Windpower Project
4. Supervise Vijay Kambhammettu, Justin Morrill, and Josh Olson and devote entire summer to completing the New Energy Lab.

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Michael Ropp

1. Establishing research in distributed generation
2. Wind Resource Assessment Network is now operational
3. Supervising eight graduate students on numerous projects

Respectfully submitted,

Dr. Steven M. Hietpas
Coordinator, Center for Power System Studies
Associate Professor of Electrical Engineering