To: Members of Center for Power Systems Studies
   Associate Members of Power Systems Studies
   Guests in attendance

The Center for Power Systems Studies is entering its 47th year of operation. Below is a summary of some of the past years' power-related activities and events, since the spring meeting.

I. Summer 2014: Faculty and Student Summer Projects/Research Update
   Hietpas
   a. Served on the IEEE PES Scholarship Plus Initiative Committee
   b. Worked with conference committee planning for 2014 CPSS South Dakota Regional Power Conference
   c. Worked with CPSS Awards Committee on selection of the 2014 WEK Excellence in Power Awardee
   Tonkoski
   a. Current Students
      • Students Graduated
      • Currently Supervising:
         • 2 PhD students
            1. Power Management in Rural PV-Diesel Hybrid Microgrids Considering Stochastic Behavior of PV Generation
            2. Voltage Control in LV Rural Feeders with High Penetration of Renewables
         • 8 MS EE graduate students
            2. Fuel Consumption Reduction in PV-Diesel Hybrid Microgrids
            3. Operation of Grid-connected Microgrids as Virtual Power Plants
            4. Ramp rate control of Microgrids using Virtual Inertia
            5. Integration Issues of PV Microhydro Hybrid Microgrids.
         • 2 Senior Design Groups
            1. Automated Batch Control System (Sponsor: Interstates Inc.)
            2. Flyback Transformer Test System (Sponsor: Wurth Electronics/Midcom Inc.)
   b. Main Proposals Submitted:
      • SDBoR CRGP 2014. Role: PI. Title: Development of Reliable and Sustainable Microgrids. Award amount: $86,777 (Awarded)
   c. Served on the EE Scholarship Program Committee
   d. Served on the EE UG Curriculum Committee
   e. Served on the CPSS 2014 Conference Planning Committee
Wei

a. Supervised 1 Senior EE student
   • Using PMU Data to Enhance Situational Awareness in Power System Restoration
b. Supervised 5 MS EE graduate students
   • Volt/VAR Coordination Strategy in a PV-Interconnected Distribution Network
   • Optimal Microgrid Reconfiguration subsequent to Fault-Triggered Islanding
   • Communication-assisted protection in Microgrid
   • Microgrid self-healing strategy
   • Microgrid-based data center
c. Supervised 1 PhD EE graduate students
   • Harnessing Renewables in Power System Restoration
d. Supervised 1 CPSS senior design group
   • Title: Wind Farm Protection
   • CPSS Member: POWER Engineers
e. Served on CPSS Senior Design Committee
f. Presented one paper at IEEE PES General Meeting 2014 – Title: On Battery Storage System for Load Pickup in Power System Restoration
g. Main Proposals Submitted:
   • NSF EPCN Program. Role: PI. Title: Collaborative Research: An Intelligent Restoration System for a Self-healing Smart Grid (IRS-SG). Award amount: $210,000 (awarded)
h. Lead the Task Force of “Restoration from Cascading Failures” in IEEE Working Group: Understanding, Prediction, Mitigation and Restoration of Cascading Failures

II. Power-Faculty Course Update

Hietpas

Spring 2015:
   • EE 315 Linear Control Systems

Tonkoski

Fall 2014:
   • EE792 (3+1 cr) Modeling and Control of Power Electronics Systems and Lab, 4 students
   • EE792 (1 cr) Seminar Power and Energy
   • Honors 303 (3 cr) Honors Colloquium: Energy--Present realities, future possibilities

Spring 2015:
   • EE792 (3+1 cr) Power Electronics and Lab
   • EE792 (1 cr) Seminar Power and Energy
Sun

Fall 2014:
- EE434/434L (3+1 cr) Power Systems and Lab, 22 students
- EE792 (3 cr) Advanced Power Systems, 14 students
- Spring 2015:
- EE492 (3 cr) Power Systems II (School of Mines Faculty)
- EE792 (3 cr) Power System Dynamics and Stability

III. Student Activities

Faculty Led Field Trips:
Dr. Tonkoski organized a tour of the Buffalo Ridge Wind Farms on September 25, 2014 for grad students and will organize a second tour on October 10, 2014 for undergraduate students participating in the Honors 303: Honors Colloquium: Energy—Present realities, future possibilities.

Scholarship Activity – Power Company Sponsored Scholarships
The department awarded approximately $35,000 in scholarships. Approximately 56% of these funds are a direct result of the power community.

Recipients for 2014-2015 Academic Year

The Center for Power Systems Studies Scholarship
Jungsok Hong

CPSS General Scholarships
Drake Jeno        Eric Rajchel
Jake Buckmiller   Jerome Charles

Bradley D. Schultz Power Engineering Scholarship
Travis Rennich    Alexander Noel
Logan Janssen     Brendan Metzger
Laura Froehlich

DGR Scholarships
Koby Jackson      Eric Rajchel

East River Electric Power Coop Scholarship in Honor of Virgil Hanlon
Joshua Behnken    Mitchell Young

Heartland Consumers Power District Scholarship
Evan Laursen

Interstates Electric & Engineering Scholarship
Koby Jackson

Jeffrey L. & Trudiann Nelson Scholarship
Collin Livingston

John G. Kappenman Scholarship
Kody Pataky

Otter Tail Power Scholarship
Brendan Metzger    Jake Buckmiller

Xcel Energy Scholarships
Tyler Fletcher     Jeremy Laird
IV. IEEE PES Scholarship Plus Fellows – Region 4
18 renewals awarded from returning applicants
89 total new applicants from Region 4
15 new awards
Applying from SDSU:
  Tyler Fletcher (2nd Year)
  Evan Laursen (Junior)
  Mitchell Young (Junior)
  Andrew Hora (sophomore)
  Stephan Tjaden (freshman)

IEEE PES Scholars Program -- Region 4 – Statistics

<table>
<thead>
<tr>
<th>School</th>
<th>2014 Scholars</th>
<th>2013 Scholars</th>
<th>2012 Scholars</th>
<th>2011 Scholars</th>
<th>Total Scholars</th>
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Region 4 Totals: 33, 38, 32, 18, 121
V. Status of Power Students

- Power Graduates Update – Spring 2014

<table>
<thead>
<tr>
<th>Student</th>
<th>Place of Employment</th>
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<tr>
<td>Ayush Shrestha</td>
<td>Black and Veatch, Overland Park, KS</td>
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<tr>
<td>Cole Sandness</td>
<td>Areva North America, Charlotte, NC</td>
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<tr>
<td>David Kroon</td>
<td>EPC Services Company, Billings, MT</td>
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<tr>
<td>Evan Leebens</td>
<td>MISO, St. Paul, MN</td>
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<tr>
<td>Joey Schrepel</td>
<td>Basin Electric, Bismarck, ND</td>
</tr>
<tr>
<td>Kelly Nelson</td>
<td>TKDA Engineering and Architecture, St. Paul, MN</td>
</tr>
<tr>
<td>James Turner</td>
<td>Substation Design Engineer at Electrical Consultants Inc.</td>
</tr>
</tbody>
</table>

Of the 27 students that graduated in 2013-2014, 7 obtained employment in the power sector (26% of this graduating class). From spring 2000 to present, 89 of 360 (approximately 25%) SDSU EE graduates have secured a career in the power industry.

- Power Engineering Student Internships, Expected Graduation, and Recent Internships

<table>
<thead>
<tr>
<th>Student</th>
<th>Expected Graduation</th>
<th>Past Summer Internship/Employment</th>
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<tbody>
<tr>
<td>McCord Stowater</td>
<td>Fall 2014</td>
<td>Xcel Energy, Sioux Falls, SD</td>
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<tr>
<td>Brendan Metzger</td>
<td>Spring 2015</td>
<td>DGR, Rock Rapids, IA</td>
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<tr>
<td>Connor Schuler</td>
<td>Spring 2015</td>
<td>Nutra Flo, North Sioux City, SD</td>
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<tr>
<td>Jake Buckmiller</td>
<td>Spring 2015</td>
<td>Sencore, Sioux Falls</td>
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<tr>
<td>Jungseok (Jason) Hong</td>
<td>Spring 2015</td>
<td>Bennett Fellowship, SDSU</td>
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<td>Chad Egeberg</td>
<td>Spring 2015</td>
<td>Raven, Brookings, SD</td>
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<td>Evan Laursen</td>
<td>Spring 2016</td>
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<tr>
<td>Mitchell Young</td>
<td>Spring 2016</td>
<td>Terex-Bidwell in Canton, SD</td>
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<td>Tyler Fletcher</td>
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<td>MRES, Sioux Falls, SD</td>
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<td>Jerome Charles</td>
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<td>Department of Transportation, Sioux Falls, SD</td>
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<td>Jeremy Laird</td>
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<td>Koby Jackson</td>
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<td>Andrew Hora</td>
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<td>Navid Imran</td>
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<td>Md Ashraf Nasreldin</td>
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</table>
VI. Review of CPSS Impact

1. CPSS and IEEE-PES Scholarships – immediate attraction and attention getter
2. Internship and/or Cooperative opportunities – have a positive impact – absolutely important to the sustainability of the SDSU Power Program
3. Field Trips and the Power Technology Tour – great exposure to a variety of power-related industries
4. CPSS-Sponsored Design Projects – hands on challenging designs
5. Power Systems Analysis and Lab (EE434/434L) -- First course dedicated just to power
6. Photovoltaics Applications and Lab (EE436/436L)
7. Fall Awards Banquet – A glimpse into the future for our students and shows importance of remaining connected to academia
8. Biannual Regional South Dakota Power Conference – An excellent professional setting that introduces power students to the big picture

Respectfully submitted,

Steven M. Hietpas, Ph.D., P.E.
Coordinator, Center for Power Systems Studies