

ADVANCED STRAY VOLTAGE MEASUREMENT WORKSHOP

February 21, 2007

and

45TH ANNUAL RURAL ENERGY CONFERENCE

February 22-23, 2007

Holiday Inn St. Paul East
St. Paul, MN



Sponsored by

Midwest Rural Energy Council
University of WI, MN and Iowa State Extension
University of WI Biological Systems Engineering Dept.
University of MN Biosystems and Agricultural
Engineering Dept.
Iowa State University Agricultural and Biosystems
Engineering Dept.

Workshop Agenda

Advanced Stray Voltage Measurement Workshop

This year's pre-conference workshop will provide you with an update on the latest measurement tools and techniques for stray voltage investigation. We will give you an in-depth understanding of how to program and use the PMI, SVM-10 Stray Voltage Monitor. Our second session will give you an overview of 'non-standard' stray voltage measurements that you might run across in the field. Chuck Forster will give us an overview of DC voltage measurements and Doug Reinemann will give an overview of the influence of DC voltage on animal sensitivity. Chuck will also discuss issues relating to proper and improper measurement and interpretation of high frequency transient events. The last session will be a panel discussion with the speakers and other MREC members to answer your specific questions on both rural and urban stray voltage.

Wednesday, February 21

- 12:00 PM Registration, buffet lunch and tabletop displays
- 1:00 **Using the PMI for Stray Voltage Investigation**
Ricky Evans, Power Monitors, Inc. (PMI)
Pete Enstrom, WE Energies
- 2:45 Break
- 3:00 **DC Voltage and Transient Measurement and Animal Sensitivity**
Chuck Forster, Phasor Labs
Doug Reinemann, University of Wisconsin-Madison
- 4:30 **Panel Discussion and Q&A**
All speakers and other MREC members
- 5:30 **Buffet Dinner**
- 7:30 **Adjourn**

Please note: The conference and workshop are two different events. You can register for either one or both. Please see the registration panel.

MREC Officers Executive Committee and Board of Directors

Officers

President - Jim Biesterveld, Dunn Electric Cooperative (WI)**
President Elect - William Johnson, Alliant Energy (IA, IL, MN, WI)
Treasurer - Susan Crane, We Energies (WI)
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Executive Committee

Alan Fazio, Lake Region Electric Cooperative (MN)*
Jerry Lush, Sioux Valley - Southwestern Electric Coop (SD)
Dan Tonder, Minnesota Power (MN)

Board of Directors

Paul Gillis, Gen~Sys Energy (WI)**
Jay Harmon, Iowa State University (IA, ex-officio)
Steve Healy, Pierce Pepin Cooperative, (WI)

Board of Directors (continued)

Kendall Kahl, Madison Gas & Electric Company (WI)
Mike Kawleski, Wisconsin Public Service Corporation (WI)
Van Kelly, South Dakota State University (SD, ex-officio)
Wes Lane, Otter Tail Power Company (MN)
Vance Morey, University of Minnesota (MN, ex-officio)
Roger O'Neil, Xcel Energy (MN, WI)
Troy Schiltz, Tri-County Electric Cooperative (MN)*
Ken Schlimgen, Central Electric Cooperative, Inc. (SD)
Mark Weber, Whetstone Valley Electric Coop, Inc. (SD)
Tim Weir, Stearns Electric Association (MN)*

* Member of MN Rural Electric Association (MREA)

** Member of WI Electric Co-op Association (WECA)

Conference Agenda

Thursday, February 22

- 7:00 AM Registration & Full Breakfast
8:00 Welcome and Annual Review of the MREC
Jim Biesterveld, Dunn Electric Coop, MREC President
8:30 **IEEE Development of Terminology and Measurement Methods for Voltages at Publicly and Privately Accessible Locations (Urban Stray Voltage)**
Chuck DeNardo, We Energies
9:15 **Introduce Breakouts**
Track 1: farm wiring, electric code, stray voltage
Track 2: energy efficiency, assessing renewables, distributed generation
9:30 Break
9:45 **Breakout 1**
10:30 **Breakout 2**
11:15 **Breakout 3**
12:00 PM Lunch
1:00 **The Changing Demographics of the Rural Midwest**
Gary Green, University of Wisconsin-Madison, Department of Rural Sociology
2:30 **Breakout 4**
3:15 **Breakout 5**
4:00 **Breakout 6**
4:45 Adjourn
5:30 Dinner and Evening Program
Working With Your Customers - *Susan Crane*, We Energies

Friday, February 23

- 7:00 AM Full Breakfast
8:00 **MREC Business Meeting**
8:30 **The Ethanol Boom: Development of a Farmer Owned Ethanol Cooperative**
Putting It All Together - *Paul Harrison*, Western Wisconsin Energy LLC and Western Wisconsin Renewable Energy Cooperative
Organizing Farmer Ownership - *Jim Faust*, UW-Extension
Electric and Gas Loads for Ethanol - *John Kayser*, Alliant Energy, Distribution Planning

Friday, February 23 (continued)

- 10:30 Break
11:00 **Minnesota Wind Integration Study**
Ken Wolf, Minnesota Public Utilities Commission
12:00 PM **Adjourn**

Break-out Sessions

Breakout Track 1: farm wiring, electric code, stray voltage

- 1. Transmission Under-Build and Stray Voltage Issues**, *Mark Cook*, Public Service Commission of Wisconsin
- 2. Anatomy of A Stray Voltage Trial**, *Rod Lewis*, Warner Norcross & Judd
- 3. Measuring Animal Resistance and the Components of the Cow Contact Circuit**, *Doug Reinemann*, University of Wisconsin-Madison
- 4. Agricultural Electric Code Issues: Review of Farm Inspections**, *Monte Ewing*, Wisconsin State Electrical Inspector
- 5. Review of Measurement Methods for Urban Stray Voltage Investigation**, *Chuck DeNardo*, We Energies

Breakout Track 2: energy efficiency, assessing renewables, distributed generation

- 1. Farm Energy Audits, Case Studies and Benchmarking**, *Jenny Hermans*, GDS/Focus on Energy
- 2. Introduction to RETScreen Energy and Economic Analysis of Wind Power Systems (Large and Small) and Biomass Combustion for Heat and Power**, *Doug Reinemann*, University of Wisconsin-Madison
- 3. Introduction to RETScreen Energy and Economic Analysis for Solar Space and Water Heating and Photovoltaic Applications**, *Jeannette LeBoyer*, Univeristy of Wisconsin, MREC Scholar
- 4. Review of Public and Private Organizations and Programs Working on Rural Energy Issues and Renewable Energy Development**, *Jeannette LeBoyer*, Univeristy of Wisconsin, MREC Scholar
- 5. Review of Web Based Energy Efficiency Tools**, *Scott Sanford*, Univeristy of Wisconsin-Madison



Registration

Please refer to the registration panel for workshop and conference fees. The **Advanced Stray Voltage Measurement Workshop fee includes** materials, break, lunch and dinner. Hotel accommodations are not included.

The **Conference registration fee includes** materials, breakfast, breaks, lunch, reception, and dinner Thursday. Breakfast and break is included on Friday. Hotel accommodations are not included in the fee.

Make check payable to: UW-Madison

Mail or fax to:

CALS Conference Services, 620 Babcock Drive
Madison, WI 53706; Fax: (608) 262-5088

Or register on-line at: <http://www.peopleware.net/2723>

Cancellations: In order to receive a full refund, you must cancel by contacting CALS Conference Services at (608) 263-1672 prior to February 15. If you fail to cancel by February 15, the full fee will apply. Substitutions are welcome at any time.

Questions: Call CALS Conference Services at (608) 263-1672.

Location & Lodging

A confirmation notice and map will be mailed upon receipt of registration. The conference will be held at:

Holiday Inn St. Paul East

2201 Burns Avenue, St. Paul, MN 55119
Phone: (651) 731-2220

A block of rooms has been reserved until January 19, 2007 for conference participants at the nightly rate of \$89/single plus taxes. Be sure to mention that you are attending the *MREC Rural Energy Conference* to receive the special rate.

Registration Form

45th Annual Rural Energy Conference & Workshop February 21-23, 2007

Complete a separate registration form (or copy) for each registrant or register on-line at <http://www.peopleware.net/2723>

Early registration deadline is February 8, 2007

Name _____

Company _____

Address _____

Circle one: Home or Business

City/State/Zip _____

Daytime Phone _____

E-mail _____

The workshop and conference are separate events. You can register for one or both.

Advanced Stray Voltage Measurement Workshop

\$ 105 (\$125 received after Feb. 8)

Rural Energy Conference

\$ 210 members* (\$250 received after Feb. 8)

\$ 250 non-members** (\$275 after Feb. 8)

_____ **Total Enclosed**

* Members include employees of: IOUs and Co-ops that are Full members; and Corporate Affiliate and Affiliate members.

** Includes an Affiliate membership to MREC.

Enclose fee. Checks payable to **UW-Madison**

Check enclosed

Purchase order number # _____

Please charge on the following account

_____ VISA _____ Master Card

Card Number _____

Exp. Date _____ Name on Card _____

Signature _____

Register on-line at: <http://www.peopleware.net/2723>