



Advanced Substation Design Workshop

October 5-6, 2010

DATE, TIME, LOCATION

October 5 - 6, 2010

Workshop: 8:30 a.m. - 4:30 p.m.

Denver Marriott South at Park Meadows

10345 Park Meadows Drive

Littleton, CO 80124

Phone: (303) 925-0004

Fax: (303) 925-0005

Web Site: <http://cwp.marriott.com/denms/rmel/>

Reservations:

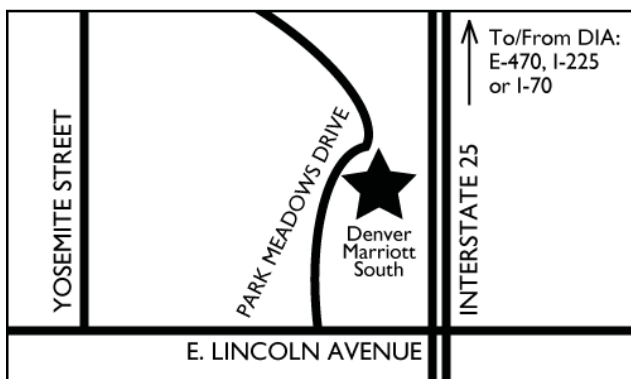
Call (800) 686-2767 or (303) 925-0004 for room reservations at the Denver Marriott South at Park Meadows. A special room rate of \$124 single or double is available when you mention RMEL. The reservation deadline to receive this rate is **September 20, 2010**.

Directions to Denver Marriott South:

From I-25 South: Exit at Lincoln Avenue, exit #193. Turn right on to Lincoln. Turn right at next light, which is Park Meadows Drive. Hotel is on the right. Parking is complimentary. For customized driving directions go to www.mapquest.com.

Shuttle service from the airport: Super Shuttle, (800) 258-3826.

Complimentary hotel shuttle service within a 5 mile radius.



WORKSHOP DESCRIPTION

The Advanced Substation Design Workshop is prepared for engineers and designers familiar with substation design as well as more experienced engineers. This two-day workshop will cover fundamental building blocks of substation design with the focus on more advanced concepts. Topics will include grounding and raceway systems, control buildings and associated systems, EHV design considerations, oil containment and Gas Insulated Substations. Substation integration topics will include the selection of protocol(s) and architecture, Ethernet networks, and security requirements. The course is designed to provide instruction on best design practices and processes for those already familiar with substation design. Comparisons of design practices will be presented.

WHO SHOULD ATTEND

All distribution, transmission or management personnel involved with substations and substation design are encouraged to attend. This class is intended for those already familiar with substation design.

RMEL CONTINUING EDUCATION CERTIFICATE

All attendees will receive a continuing education certificate worth **16.0 Professional Development Hours (PDHs)** by RMEL, upon completion of the course. RMEL serves a large territory in which attendees participate in a number of accrediting organizations, each with their own requirements. Depending on the certifying body you are affiliated with, RMEL PDHs may be applied towards your recertification credit. It is the responsibility of the attendee to determine if the credits are applicable to their certifying body and how they may be applied. Use the event brochure, and agenda to determine how the content applies to your certification. The attendee is also responsible for verifying how the quantity of RMEL PDHs convert to your certifying body credits. Typically 1.0 PDH is equal to .1 CEU, but you should always verify the conversion scale.

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WORKSHOP AGENDA

Day 1

8:30 a.m. - 8:35 a.m.

RMEL Introductions

8:35 a.m. - 9:45 a.m.

SECTION 1 - Drawing QC: Electrical/Civil Interface

9:45 a.m. - 10:15 a.m.

Break

10:15 a.m. - 12:00 p.m.

SECTION 2 - Clearances, Spacings and Bus Design

12:00 p.m. - 1:00 p.m.

Lunch

1:00 p.m. - 2:30 p.m.

SECTION 3 - EHV Substations

SECTION 4 - Grounding Design

SECTION 5 - Shielding Protection

2:30 p.m. - 3:00 p.m.

Break

3:00 p.m. - 4:00 p.m.

SECTION 6 - Cable and Raceway Design

4:00 p.m. - 4:30 p.m.

Questions & Answers

Day 2

8:30 a.m. - 10:00 a.m.

SECTION 7 - Substation Integration and Automation System Design

- What, Why and How of Substation Integration
- Defining Functional Requirements
- Available Data Sources and Destinations
- Performance and Availability Requirements

10:00 a.m. - 10:30 a.m.

Break

10:30 a.m. - 12:00 p.m.

SECTION 7 Continued

- Selection of Protocol(s) and Architecture
- Ethernet Networks
- Security
- Practical Integration Issues
- Substation Automation

12:00 p.m. - 1:00 p.m.

Lunch

1:00 p.m. - 2:00 p.m.

SECTION 8 - AC/DC Systems

2:00 p.m. - 2:30 p.m.

Break

2:30 p.m. - 3:15 p.m.

SECTION 9 - Control Buildings

SECTION 10 - Control and Relay Panels

3:15 p.m. - 4:30 p.m.

CLASS CHOSEN TOPICS

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WORKSHOP INSTRUCTORS

Richard Childress, P.E., Power Delivery Engineering Manager, Black & Veatch Corp.

Richard Childress, P.E., is an Engineering Manager in the Energy Division of Black & Veatch Corporation and has over 20 years of experience in HV and EHV substation design. Richard earned a BSEE and a Master's degree in engineering from The University of Colorado. He is responsible for the technical supervision of multi-discipline project teams for Engineering, Procurement and Construction (EPC) substation projects and has technical responsibilities in the areas of outdoor electrical design, control and protection design, specification development and review, quality supervision and construction inspection. Richard is currently assigned to Black & Veatch's Bangkok, Thailand office.

Craig Preuss, P.E., Engineering Manager, Utility Automation, Black & Veatch Corp.

Craig Preuss, P.E., is the Engineering Manager for Utility Automation at Black & Veatch Corporation and performs many tasks in the broad field of substation integration and automation. He earned his BSEE from Valparaiso University and holds a Master's degree in power systems from the Illinois Institute of Technology. Craig has over twenty years of utility experience and has authored several papers, presentations and articles dealing with substation integration and automation. He is active in IEEE standards development as the chair of the PES Substations C0 Data Acquisition, Processing, and Control Systems Subcommittee. He is presently the working group chair for IEEE Std. C37.1 "Standard for SCADA and Automation Systems" and has contributed to the development of many IEEE Standards. He is a member of the ISA, the International Society of Automation.

ISSUE BACKGROUND

This workshop is intended for those already familiar with substation design, but who want to learn about more advanced concepts. The fundamental principles of substation design will be presented along with the more advanced concepts.

QUESTIONS

Have additional questions about the workshop? Please ask us. Call RMEL at (303) 865-5544. Fax your registrations to (303) 865-5548. RMEL is also on the web at www.RMEL.org.

See what **RMEL.org** has to offer!

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- And much more!



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How to Register:
Online - Register online at www.RMEL.org
Phone - Call RMEL at (303) 865-5544
Fax - Fax your form to (303) 865-5548
Mail - Send your form and payment to RMEL

REGISTRATION FORM

YOU DO NOT NEED YOUR MEMBER ID TO REGISTER. However, to save time when filling out this form, you may simply list your member ID number rather than fill out all the contact information. If you do not have an ID or do not remember it, complete the entire form and you will be assigned an ID number. Each individual of a member company is assigned their own personal member ID.

Name: _____ Your Personal Member ID#: _____

No Member ID? No Problem. Please provide the following instead:

First Name: _____ Last Name: _____

Title: _____

Company Name: _____

Company Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____

Email: _____

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Includes: Continental breakfast, breaks, lunch, training, course materials, attendee roster, and upon course completion, a continuing education certificate.

- Member full-day meeting \$695
- Non-RMEL member full-day meeting \$795

Total. _____

PAYMENT INFORMATION

- Check (RMEL; 6855 S. Havana St, Ste 430; Centennial, CO 80112)
- Visa Master Card or American Express

Card#: _____ Exp. Date: _____

Signature: _____

Cancellation Policy: Fees are refundable if cancellation is received on or before 5 p.m., **September 25, 2010**. If cancellation is received after that date, half the registration fees will be refunded. Payments will be processed for those who do not attend or do not cancel by 5 p.m. the day before the event. To have someone take your place, please notify RMEL anytime before the event.