



EUCI presents a course on:

# AN INTRODUCTION TO ELECTRIC UTILITY SYSTEMS FOR NON-ENGINEERS

February 27-28, 2012 • Gaylord Opryland Resort & Convention Center • Nashville, TN

## TESTIMONIALS FROM PAST ATTENDEES

**"Mr. Welch is a very knowledgeable speaker. His course was very informative, interesting, and enlightening. He gave an excellent overview of the industry as well as detailed information regarding topics that were of interest to the attendees. I would definitely recommend this course to my colleagues."**  
*Engineering analyst, ITC Holdings Corp.*

**"Mr. Welch is clearly an expert on this subject matter – he clearly and concisely presented the materials and addressed attendees' questions and comments."**  
*Attorney, Bowditch & Dewey, LLP*

**"Greg's impressive background and his expertise provided a very worthwhile and informative class."**  
*IS service manager, National Grid*

**"An excellent seminar to introduce you to the electric utility industry."**  
*Manager, Strategic Initiatives, Duke Energy*

**"This course provides an excellent foundation to understanding the electric utility industry, without overwhelming the attendee with industry jargon. When complete, the attendee can participate in conversations rather than just listening."**  
*Senior project director, SRBI*



This course has been approved by the Colorado State Supreme Court Board of Continuing Legal and Judicial Education for 13.0 CLE credits.



This course has been approved for 13.5 CPEs.



EUCI is authorized by IACET to offer 1.1 CEUs for this program.

# AN INTRODUCTION TO ELECTRIC UTILITY SYSTEMS FOR NON-ENGINEERS

February 27-28, 2012

## OVERVIEW

This course has been developed for non-engineers working for electric utilities or involved in business relationships with electric utilities. The course provides a non-technical introduction to the fundamental concepts that form the basis for the design and operation of the integrated electric utility system. The fundamental concepts underlying legacy electric power systems and how the attributes of these systems affect their operation in today's evolving market structure are addressed without reference to engineering techniques or mathematical analysis. Challenges facing companies in today's changing regulatory and operational environment are also discussed. The course is structured for active participation by attendees, who will have ample opportunity to ask questions and discuss issues of particular interest to them. Extensive course notes are provided to everyone attending the course.

## WHAT ATTENDEES WILL LEARN

This class provides non-engineers a strong, layman's understanding of the fundamental concepts underlying the design, economics and operation of electric power systems, as well as issues facing design, operating and management personnel of a modern electric utility system. The methodological basis for comparing the delivered cost of electricity across technologies and systems will be discussed. Due to time constraints and the variability of the cost basis for many elements of the system, we will not attempt to develop standard or average system costs. (They don't exist.)

Individuals who attend this course develop a "gut feel" for why electric utility systems are built and operated the way that they are. After completing the course, they should feel comfortable speaking with engineers from their company or the utility that they are dealing with, and they should know enough to ask follow-up questions to clarify their understanding of the issues that are being discussed. Topics to be covered include:

- The components, design, and operation of electric utility systems
- The drivers of system design and operation
- Operation of the integrated system
- The effects of industry and corporate changes on the planning process, including:
  - Alternative energy resources, especially wind and solar
  - New concepts in system architecture such as the smart grid
  - Impediments to transmission system expansion
  - Regulatory emphasis on reliability
  - Performance standards
- Recent and ongoing standards-related issues
- Challenges created by the evolving regulatory/market environment

## WHO SHOULD ATTEND

- Directors, officers, and senior managers without previous electric utility experience
- Non-engineers new to the industry or with limited industry experience with, for example, legal, financial, regulatory, customer care, or community relations responsibilities (individuals in other responsibility areas can benefit as well)
- Investors and financial analysts seeking a better understanding of the industry
- Managers and supervisors of commercial and industrial facilities
- Regulatory, municipal, and legislative personnel dealing with issues related to the industry

## CPE



**EUCI** is registered with the National

Association of State Boards of Accountancy (NASBA) as a sponsor of continuing professional education on the National Registry of CPE Sponsors. State boards of accountancy have final authority on the acceptance of individual courses for CPE credit. Complaints regarding registered sponsors may be addressed to the National Registry of CPE Sponsors, 150 Fourth Avenue North, Suite 700, Nashville, TN, 37219-2417. Web site: [www.nasba.org](http://www.nasba.org).

### CPE CREDITS

Upon successful completion of this event, program participants interested in receiving CPE credits will receive a certificate of completion.

There is no requirement beyond a desire to gain a better understanding of electric utility power systems.

CPE – 13.5

**Program Level:** Beginner

**Delivery Method:**

Group-Live

**Advanced Preparation:**

None

## CLE



This course has been approved by the Colorado State

Supreme Court Board of Continuing Legal and Judicial Education for 13 CLE credits.

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## PROGRAM AGENDA

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### MONDAY, FEBRUARY 27, 2012

**Registration and Continental Breakfast: 7:30 – 8:00 a.m.**

**Course Timing: 8:00 a.m. – 5:00 p.m.**

**Group Luncheon: 12:00 – 1:00 p.m.**

#### Introduction and Overview

##### Generation

- Load characteristics
- Baseload, intermediate, and peaking capacity
- General cost characteristics
- Emerging technologies

##### Transmission

- Transmission's mission
- Components
- Characteristics
- Emerging technologies

##### Substations

- Components
- Configuration
- Reliability

##### Distribution

- Definitions
- Components
- Characterization of circuits by type
- Reliability
- Customer satisfaction

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### TUESDAY, FEBRUARY 28, 2012

**Continental Breakfast: 7:30 – 8:00 a.m.**

**Course Timing: 8:00 a.m. – 12:00 p.m.**

#### Distribution Wrap-Up (if required)

#### System Integration and Operations

- Utilities as asset managers
- Reliability
- Optimization
- Supporting technology

#### The Modern Utility Environment

- Evolution
- Competitive market structure
- Organizational and technical challenges

## IACET

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EUCI has been approved as an

Authorized Provider by the International Association for Continuing Education and Training (IACET), 1760 Old Meadow Road, Suite 500, McLean, VA 22102. In obtaining this approval, EUCI has demonstrated that it complies with the ANSI/IACET Standards which are widely recognized as standards of good practice internationally.

As a result of their Authorized Provider membership status, EUCI is authorized to offer IACET CEUs for its programs that qualify under the ANSI/IACET Standards.

EUCI is authorized by IACET to offer 1.1 CEUs for this program.

#### Requirements for Successful Completion of Program

Participants must sign in/out each day and be in attendance for the entirety of the course to be eligible for continuing education credit.

#### Instructional Methods

PowerPoint presentations will be used in this course.

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## INSTRUCTOR

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### **Greg Welch, Triangle Power Systems Consulting**

Mr. Welch has over 40 years of experience in engineering, planning, and management in the electrical utility industry. For more than 15 years, his responsibilities included explaining the design and operation of electric power systems to residential, commercial, and industrial customers; reporters; municipal officials; lawyers; and legislative and regulatory personnel. He formed Triangle Power Systems Consulting in 2003 after working for ABB Inc. as an executive consultant. As an executive consultant, he participated in the development of power delivery system designs that reduced capital and maintenance costs without compromising reliability and served as an advisor to executives in charge of improving the operating condition of power delivery systems. He also provided technical support for clients in preparation for rate case litigation and in development of innovative, cost-saving approaches to reliability improvement. Prior to joining ABB, Mr. Welch was vice president of technical services and supply management for the transmission and distribution business unit of Commonwealth Edison of Chicago. Prior to his promotion to vice president, he was the manager of distribution planning and reliability. He has extensive experience in generation planning, transmission planning, distribution planning, forecasting, and the management of electric power delivery system operations.

## PROCEEDINGS

The proceedings of the course will be published, and one copy will be distributed to each registrant at the course.

## EVENT LOCATION

A room block has been reserved at the Gaylord Opryland Resort & Convention Center, 2800 Opryland Drive, Nashville, TN 37214, for the nights of February 26-27, 2012. Room rates are \$180, plus applicable tax. Call 1-866-972-6779 for reservations, and mention the EUCI course to get the group rate. Make your reservations prior to February 5, 2012. There are a limited number of rooms available at the group rate. **Please make your reservations early.**

## REGISTRATION INFORMATION

### REMEMBER, EVERY FOURTH REGISTRANT IS FREE

For instant registration, call (201) 871-0474 or fax the registration form to (253) 663-7224

Register Three, Send Fourth Free!

Any organization wishing to send multiple attendees to these conferences may send one FREE for every three delegates registered. Please note that all registrations must be made at the same time to qualify.

All cancellations received on or before January 28, 2012, will be subject to a \$195 processing fee. Written cancellations received after this date will create a credit of the tuition (less processing fee) good toward any other EUCI conference or publication. This credit will be good for six months. In case of course cancellation, Electric Utility Consultants' liability is limited to refund of the course registration fee only. For more information regarding administrative policies such as complaints and refunds, please contact our offices at (201) 871-0474.

### FIVE EASY WAYS TO REGISTER

**One: CALL**  
(201) 871-0474

**Two: FAX**  
(253) 663-7224

**Three: E-MAIL**  
register@pmaconference.com

**Four: MAIL**  
PMA  
P.O. Box 2303  
Falls Church, VA 22042

**Five: WEB SITE**  
www.pmaconference.com

## PLEASE REGISTER THE FOLLOWING

- An Introduction to Electric Utility Systems for Non-Engineers, February 27-28, 2012: US \$1395  
**Early bird on or before February 17, 2012: US \$1195**

### ENERGIZE WEEKLY

When you sign up for "Energize Weekly," you will receive a new conference presentation each week via e-mail on a relevant industry topic. The presentations are selected from a massive library of over 1,000 current presentations that EUCI has gathered during its 24 years organizing conferences.

- Sign me up for "Energize Weekly"**

How did you hear about this event?  
(direct e-mail, colleague, speaker(s), etc.)

Name \_\_\_\_\_ Job Title \_\_\_\_\_

Name Preferred for Badge \_\_\_\_\_ E-Mail \_\_\_\_\_

Company \_\_\_\_\_ Telephone \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

## PAYMENT METHOD

Please make checks payable to "PMA"

Please charge my credit card:  Visa  MC  AMEX  \_\_\_\_\_

Visa and MC cards have a 3-digit code on the signature panel on the back of the card, following the account number. American Express cards have a 4-digit code on the front of the card, above the card number.

Name on Card \_\_\_\_\_ Signature \_\_\_\_\_

Account Number \_\_\_\_\_ Exp. Date \_\_\_\_\_

Card Holder Phone Number \_\_\_\_\_

Billing Address \_\_\_\_\_ Billing Zip Code \_\_\_\_\_

Or enclosed is a check for \$ \_\_\_\_\_