

UNDERSTANDING ELECTRIC UTILITIES

April 24-25, 2018
Hyatt Place Durham Southpoint
Raleigh, NC



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EUCI is authorized
by IACET to offer
1.1 CEUs for the
course

OVERVIEW

This training program will provide a foundation of understanding for persons working in, dealing with, or having special interest in the electric utility industry. The training explains utilities from four separate perspectives: Infrastructure, Operations, Business, and Regulatory.

The infrastructure perspective covers electricity basics, equipment, and power systems in terms of generation, transmission, distribution, and customer. The operations perspective covers energy markets, bulk power dispatch, outage response, and storm restoration. The business perspective covers ownership structure, investor expectations, budgeting, and business transformation / utilities of the future. The regulatory perspective covers state regulation, federal regulation, and general rate cases.

The course is designed so that anyone who is not familiar with utilities and electric power systems can benefit from the content. The course material will be a useful resource for future reference. The program is designed to stimulate dialog between the attendees and the instructor. A prior background in electric power systems or engineering is not required.

LEARNING OUTCOMES

- Discuss the basics of voltage, current, power, and energy
- Identify and explain the equipment and terminology associated with generation, transmission, distribution, and customer services
- Explain the history of the utility industry, what has changed, why it matters, and where it is going
- Discuss major regulatory events and why they matter to the industry
- Describe the different ownership structures and business models
- Explain the basics of daily utility operations
- Discuss the general rate case process, revenue requirements, and return on rate base
- Examine the challenges and opportunities for utilities in the future



“If you want a deep, efficient and quick look at the basics of electric utilities, this course does the job.”

Customer Experience Program Manager, Portland
General Electric

AGENDA

TUESDAY, APRIL 24, 2018

8:00 – 8:30 am **Registration and Continental Breakfast**

8:30 – 9:00 am **Introduction**

9:00 – 9:30 am **History of Industry**

- Electrification and Growth
- Energy Crisis
- Today

9:30 – 10:00 am **Electricity Terms**

- Power & Energy
- Three Phase Power
- Real and Reactive Power

10:00 – 10:15 am **Morning Break**

10:15 – 11:00 am **Generation**

- Traditional Generation
- Renewable Generation
- Energy Markets

11:00 am – 12:00 pm **Transmission**

- Overhead Transmission
- Underground Transmission
- Regional Transmission Planning

12:00 – 1:00 pm **Group Luncheon**

1:00 – 2:00 pm **Substations**

- Substation Layout
- Substation Equipment
- Protection & Automation

2:00 – 3:00 pm **Distribution**

- Overhead Primary
- Underground Primary
- Underground Residential

3:00 – 3:15 pm **Afternoon Break**

3:15 – 4:00 pm **Service & Metering**

- Secondary and Service Drops
- Secondary Networks
- Customer Metering

4:00 – 5:00 pm **Standard of Care**

- Safety
- Bulk Power Reliability
- Distribution Reliability

AGENDA

WEDNESDAY, APRIL 25, 2018

8:00 – 8:30 am	Continental Breakfast
8:30 – 9:00 am	Ownership Structure <ul style="list-style-type: none">• Investor Owned• Customer Owned• Government Owned
9:00 – 10:00 am	Rate Cases <ul style="list-style-type: none">• Revenue Requirement• Rate Base• Rate Design
10:00 – 10:15 am	Morning Break
10:15 – 11:15 am	Utility Operations <ul style="list-style-type: none">• Generation Dispatch• Outage Response• Storm Restoration
11:15 – 11:45 am	Utility of the Future <ul style="list-style-type: none">• Smart Grid• Data Analytics• New Business Models
11:45 am – 12:00 pm	Course Review
12:00 – 1:00 pm	Adjourn

COURSE INSTRUCTOR



Richard Brown

Director of the Engineering Management Consulting Practice, Exponent

Richard E. Brown is Director of the Engineering Management Consulting Practice at Exponent. He has been on the leadership team for three successful startup organizations; has published more than 90 technical papers related to asset management and performance management; is author of the books *Business Essentials for Utility Engineers* and *Electric Power Distribution Reliability*; and is a registered professional engineer. He is an IEEE Fellow. Richard earned his BSEE, MSEE, and PhD from the University of Washington in Seattle, and his MBA from the University of North Carolina at Chapel Hill. He is a registered professional engineer.

REQUIREMENTS FOR SUCCESSFUL COMPLETION

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

Power Point presentations and open discussion will be used in this program.

IACET CREDITS



EUCI has been accredited as an Authorized Provider by the International Association for Continuing Education and Training (IACET). In obtaining this accreditation, EUCI has demonstrated that it complies with the ANSI/IACET Standard which is recognized internationally as a standard of good practice. As a result of their Authorized Provider status, EUCI is authorized to offer IACET CEUs for its programs that qualify under the ANSI/IACET Standard.

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EVENT LOCATION

A room block has been reserved at the Hyatt Place Durham Southpoint, 7840 Nc Highway 751, Durham, NC 27713, for the nights of April 23-24, 2018. Room rates are \$131 plus applicable tax. Call **1-919-688-7800** for reservations and mention the EUCI event to get the group rate. The cutoff date to receive the group rate is March 29, 2018 but as there are a limited number of rooms available at this rate, the room block may close sooner. ***Please make your reservations early.***

REGISTER 3, SEND THE 4TH FREE

Any organization wishing to send multiple attendees to this course may send 1 FREE for every 3 delegates registered. Please note that all registrations must be made at the same time to qualify.

Please make checks payable to: "PMA"

REGISTRATION
to register [CLICK HERE](#) or

Call: 201 871 0474
fax: 253 663 7224
email: register@pmaconference.com
web: <http://pmaconference.com/>
Mail: POB 2303 Falls Church Va 22042

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PLEASE REGISTER

UNDERSTANDING ELECTRIC UTILITIES COURSE

APRIL 24-25, 2018: US \$1395

Early bird on or before April 6, 2018: US \$1195

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

Print Name _____ Job Title _____

Company _____

What name do you prefer on your name badge?

Address _____

City _____ State/Province _____ Zip/Postal Code _____ Country _____

Phone _____ Email _____

List any dietary or accessibility needs here

CREDIT CARD INFORMATION

Name on Card _____ Billing Address _____

Account Number _____ Billing City _____ Billing State _____

Exp. Date _____ Security Code (last 3 digits on the back of Visa and MC or 4 digits on front of AmEx) _____ Billing Zip Code/Postal Code _____

OR Enclosed is a check for \$ _____ to cover _____ registrations.

Substitutions & Cancellations

Your registration may be transferred to a member of your organization up to 24 hours in advance of the event. Cancellations must be received on or before March 23, 2018 in order to be refunded and will be subject to a US \$195.00 processing fee per registrant. No refunds will be made after this date. Cancellations received after this date will create a credit of the tuition (less processing fee) good toward any other EUCL event. This credit will be good for six months from the cancellation date. In the event of non-attendance, all registration fees will be forfeited. In case of course cancellation, EUCL's liability is limited to refund of the event registration fee only. For more information regarding administrative policies, such as complaints and refunds, please contact our offices at (201) 871-0474.