

AN INTRODUCTION TO ELECTRIC UTILITY SYSTEMS FOR NON-ENGINEERS

December 4-5, 2018
Hilton Arlington
Washington D.C.

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“This course covers everything you would need to know about electrical utilities for the corporate setting. I feel much more comfortable leaving this conference than when I came in and I feel very confident in having an educated conversation with my clients.”

Marketing & Bid Coordinator, Kenny
Construction Company



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



EUCI is authorized
by CPE to offer
12 CEUs for the
course

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 rigorous 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.

LEARNING OUTCOMES

This class provides a strong layman's understanding of the fundamental concepts underlying the design, economics, and operation of electric power systems, as well as contemporary issues facing the designers, operators, and managers of modern electric power systems. The course takes participants on a virtual tour of all functional areas of the power system where they will learn to recognize equipment and facilities in the field and understand their purpose and functioning.

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 of all functional areas of electric utility systems
- The drivers of system design and operation
- Key power systems definitions and terminology
- The effects of industry and corporate changes on power systems design and operations, including
 - o Alternative energy resources
 - o New concepts in system architecture such as the smart grid
 - o Emphasis on reliability and power quality
- Industry standards-related issues
- Challenges created by the evolving regulatory/market environment



"A very useful introduction to the fundamentals of electric utility systems for the layman."

Corporate Affairs
Manager, Con Edison



"Very informative and great lecturer. I now have the information and knowledge I need to do my job better."

Project Regulatory Coordinator, Brazos
Electric Power Cooperative

WHAT PAST ATTENDEES HAVE SAID

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“The course offered answers to many questions I have. I feel more confident after taking this course.”

Power Contracts Specialist, SMUD

“This is my second course with EUCI designed for non-technical professionals in the industry. Both were excellent and gave me credibility within my organization and also externally in dealing with media and stakeholders.”

Communications Manager, EPRI

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“An excellent seminar to introduce you to the electric utility industry.”

Manager - Strategic Initiatives, Duke Energy

“The course was well presented. Larry Vogt was knowledgeable and insightful. He proved his expertise in explaining the material in a way that non-engineers can understand it.”

Senior Rate Analyst, Con Edison

“

“A fantastic overview of utility systems presented in a way that all can understand.”

REP Analyst, BPA

“If new to the industry, must take course for the fundamentals.”

Midwest Territory Manager, Exacter Inc.

“The course offered answers to many questions I have. I feel more confident after taking this course.”

Power Contracts Specialist, SMUD

“Very interesting and educational course.”

Senior Asset Manager, Con Edison Development

AGENDA

TUESDAY, DECEMBER 4, 2018

7:30 – 8:00 am **Registration and Continental Breakfast**

8:00 am – 5:00 pm **Course Timing**

12:00 – 1:00 pm **Group Luncheon**

Introduction to Power Systems

- Power System Overview and Electricity Basics
- End-Use Loads and Load Characteristics

The Distribution System

- Services and Secondary Lines
- Line Transformers
- Primary Line Equipment and Facilities
- System Protection

Substations

- Power Transformers
- Substation Equipment and Facilities

The Transmission System

- Alternating Current Transmission
- Direct Current Transmission
- Transmission Structures



“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

WEDNESDAY, DECEMBER 5, 2018

7:30 – 8:00 am **Continental Breakfast**

8:00 am – 12:00 pm **Course Timing**

Electricity Metering

- Watt-Hour and Demand Metering
- Metering High Voltages and Currents
- Meter Reading Methods
- Special Metering Applications

Electrical Losses

- Line and Transformer Losses
- Power Flow Model
- System Demand and Energy Losses

Power Generation

- Fossil-Fired and Nuclear Thermal Plants
- Hydroelectric Plants
- Renewable Energy Resources

Other Power System Topics

- System Operations
- System Expansion
- System Restoration
- FERC and Regulatory Agencies
- NERC and Regional Reliability Authorities

INSTRUCTOR

Lawrence (Larry) J. Vogt

Vogtage Engineering Corporation

Mr. Vogt has 44 years of experience in engineering, industrial marketing, demand-side management, and rates and regulations in the electrical utility industry. He has a comprehensive knowledge of power system planning, design, and operations, as well as forecasting, cost-of-service analysis, and electricity pricing methodologies. Mr. Vogt has served in various engineering and managerial positions at ABB Power T&D Company, Louisville Gas & Electric Company, Mississippi Power Company, Public Service Indiana (now known as Duke Energy – Indiana), and Southern Company Services. He is a member of AEE, IEEE, and NSPE, and he is a registered Professional Engineer in several states. Mr. Vogt has served as an expert witness in several regulatory proceedings. He has Bachelor of Science and Master of Engineering degrees in the field of electrical engineering from the University of Louisville. Mr. Vogt is the author of several technical papers and the textbooks: *Electricity Pricing: Engineering Principles and Methodologies*, CRC Press, 2009 and *Electrical Energy Management*, Lexington Books, 1977. He is also a chapter author in the 3rd Edition of the *Power Systems* volume of *The Electric Power Engineering Handbook*, CRC Press, 2012. He has conducted numerous courses and webinars for the Electric League of Indiana, Inc., the Edison Electric Institute, EUCL, and the University of South Alabama. In addition, Mr. Vogt has served as an Adjunct Professor in Penn State University's International Power Engineering Program.



"A good overview to electric utility systems. Larry was detailed enough for me to achieve my learning objectives without talking over my head."

Vice President, Volkert, Inc.



"I appreciate Larry's patience answering questions from all of us new to the industry"

Director PMO, Intren



"I would definitely recommend this course to my colleagues."

Engineering Analyst, ITC Holdings Corp.

CPE CREDITS



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 submitted to the National Registry of CPE Sponsors through its website: www.learningmarket.org.

Upon successful completion of this event, program participants interested in receiving CPE credits will receive a certificate of completion. **EUCI is authorized by CPE to offer 12 credits** for this course. There is no prerequisite for this course. **Program Level 1:** Beginner and Intermediate, **Delivery Method:** Group-Live, **Advanced Preparation:** None

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 AN-SI/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 AN-SI/IACET Standard.

EUCI is authorized by IACET to offer 1.0 CEUs for the course.

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

PowerPoint presentations will be used in this course.

EVENT LOCATION

A room block has been reserved at the Hilton Arlington 950 N. Stafford St., Arlington, VA 22203, for the nights of December 3-4, 2018. Room rates are US \$149, plus applicable tax. To reserve your room, please call **1-703-528-6000**. Attendees need to reference the **EUCI Meeting Group** to get the group rate. The cutoff date to receive the group rate is November 3, 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"



EVENT LOCATION

A room block has been reserved at the Hilton Arlington 950 N. Stafford St., Arlington, VA 22203, for the nights of December 3-4, 2018. Room rates are US \$169, plus applicable tax. To reserve your room, please call 1-703-528 6000. Attendees need to reference the EUCI Meeting Group to get the group rate. The cutoff date to receive the group rate is November 3, 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.

PLEASE REGISTER

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DECEMBER 4-5, 2018 : US \$1395

EARLY BIRD on or before NOVEMBER 16, 2018: US \$1195

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

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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 November 2, 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 EUCI 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, EUCI'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