EUCI COURSE

ELECTRIC UTILITIES 101

May 1-2, 2017
Atlanta Marriott Suites Midtown
Atlanta, GA

AUTHORIZED IACET PROVIDER

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

OVERVIEW

This seminar is targeted toward increasing the knowledge of non-technical staff who work or have an interest in the electric utility industry. Participants who are not familiar with utilities and electric power systems can significantly benefit from attending. Since this is a basic seminar, a prior background in electric utility systems or engineering is not expected or required.

The seminar discusses basic concepts ranging from "what is electricity?" to the functions of the major components in electric power systems. The attendees will learn how generation, substations, transmission and distribution function together to provide a reliable energy supply chain. The seminar identifies opportunities, challenges and uncertainties facing the electric utility industry resulting from a paradigm shift driven by customers, technology, legislation and regulation.

Unlike many courses this course will provide the participants with useful reference materials which will assist them as they work with and in the electric utility industry.

The seminar is presented in a professional manner which is not stressful. No one will be called on to participate, however, it is delivered in a way which encourages questions and interactive discussions between the attendees and the instructor on the issues they are facing and the things they want to learn. It is not death by PowerPoint. The participants will have a fun and rewarding learning experience.

The following topics will be included from a non-technical perspective:

- A history and background of the electric industry
- The major non-utility players in the industry
- Types of electric companies; IOUs, cooperatives, public power and government utilities
- What is electricity and its voltage, current and resistive components?
- What is power and how does it relate to voltage, current and resistance?
- Real and reactive power and their role in the electrical system?
- Power factor and load factor?
- What is single phase and three phase power? How are they produced and used?
- Types and reasons for diverse forms of generation; Traditional and renewable
- Distributed energy resources (DER); Solar, batteries, customer self-generation
- Energy efficiency and demand response's role in the new utility marketplace
- The role of substations in a reliable electric grid
- The types and functions of transmission lines in the energy supply chain
- Major components in the distribution systems and how they contribute to a reliable system
- The key performance indicators used in monitoring reliability
- The paradigm shift occurring in the industry and its marketplace from vertically integrated to distributed energy resources
- The need for non-traditional rate structures. The evolution in rates such as the REV in NY
- Strategic technologies and their impact on both the utilities and its customers; Smart Grids
- Changing customer's needs, wants, expectations and demographics and how utilities must adapt

LEARNING OUTCOMES

- Discuss the utility industry, its concepts and hardware used in electric power supply chain
- Review the history of the industry and how it continues to evolve
- Identify the non-utility players who shape the industry
- Explain the types of electricity generation and the reasons for their use in the electric system
- Examine the components and functions of substation, transmission and distribution systems
- Analyze the paradigm shift occurring in the industry and its impact on the electric utilities and their customers
- Identify opportunities and challenges in the utility marketplace of the future

COURSE TIMING

MONDAY, MAY 1, 2017

8:00 – 8:30 am	**Registration and Continental Breakfast**
8:30 am – 5:00 pm	**Course Timing**
12:00 – 1:00 pm	**Group Luncheon**

PROGRAM AGENDA

Introduction of Instructor and Attendees
Company, where it is located, attendee responsibilities and how long in the industry

Learning Objectives and Goals of the Course

History of the U.S. Electricity Industry
- How the industry began and its early years
- AC vs. DC. Edison and Tesla and "The Battle of the Currents"
- Groups that shaped the industry
- The evolution of state and federal regulation
- Types of electric companies; IOUs, cooperatives, public power and government utilities
- Service areas and retail competition
- Open access, FERC Orders 888 & 889, PURPA and EPAC
- Wholesale markets evolution with RTOs & ISOs
- The electric utility historical vertically integrated business model
- The risks of a capital intensive industry

Electricity and Power – An Overview
- Voltage, current and resistance (impedance)
- Power and its relationship to voltage, current and resistance (impedance)
- Electricity measures; kWh, KW, MW, kVA, VARS
- Load factor and why it's important
- The concept of load diversity
- Real and reactive power and power factor
- Leading and lagging power in non-technical terms
- The role of capacitor banks in correcting power factor
- Single phase and three phase power. How are they produced and used?
- System losses, their cause and mitigation
- KPI - reliability indices - SAIDI, SAIFI, CAIDI, etc.

"I am very new to the utility community, I am not an engineer. This course provided critical knowledge at an entry level allowing me to understand the scope of the industry."

Deputy Director, CPUC

PROGRAM AGENDA

MONDAY, MAY 1, 2017 (CONTINUED)

Generation or Power Plants - The First Link in the Power Supply Chain
- Coal, nuclear, natural gas-fired, hydro, wind and solar, batteries and distributed energy resources
- Basic components of generation and how the different components function in the first step of the energy supply chain
- Energy generation by fuel type and how it is evolving due to technology and legislation
- Factors impacting generation fuel diversity
- Energy, capital and O&M costs by type of generation
- Base, peak, intermediate generation and the concept of economic dispatch
- Voltage & frequency and generation's role in regional reliability

Substations - Nodes in the Power System
- The role of substations in a reliable electric grid
- How substations link the generator to the transmission and distribution system
- Types of substations; step up and step down
- Major substation components and their function
- SCADA systems and the role of substations in controlling power flow across the supply chain

Transmission Lines - The Bulk Power Movers in the Power System
- The role of transmission lines in a reliable electric grid
- The need for high voltage transmission lines
- System loss reduction due to transmission lines and power flow across the supply chain
- How transmission lines link substations
- Types of transmission lines
- Voltages and design
- AC vs. DC transmission lines and their pros & cons
- First contingency planning and the evolution of the transmission system
- Major transmission components and their function

> ***"Over 20 years of web experience did not prepare me for the nuances of the electric utility world. Wallace Barron's expertise and overview of the industry was a critical part of my energy education - by providing key data, industry phrasing, and how to talk to key accounts and decision makers, I have been able to better express myself and focus on what they want and need. If you're looking for a fun, engaging, and thorough way to learn about the energy utility industry, take Wallace's class and fast track yourself to success. You'll be glad you did."***
>
> Chief Information Officer, Cooperative Advisors

> ***"Mr. Barron is extremely knowledgeable about the industry and has great energy conducting the class. Wonderful speaker and overall incredible individual! I'd love to take another class taught by Mr. Barron!"***
>
> External Affairs Manager, Commonwealth Edison

COURSE TIMING

TUESDAY, MAY 2, 2017

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

8:30 am – 12:00 pm **Course Timing**

PROGRAM AGENDA

Distribution System – The Link to the Customer
- The role of the distribution system in the supply chain
- The primary and secondary distribution lines
- Major distribution system components and their function
- How the distribution lines connect to the customer
- System loss at the distribution level
- Power factor correction on the distribution system
- Types of distribution lines
- Voltages and overhead/underground design

System Problems – New challenges
- Operating in a difficult environment
- Power quality
- Different types of loads which are computer managed
- Regional blackouts 8/14/2003 and 9/8/2011 and their aftermath

The Future Utility and the Paradigm Shift
- The evolution of the historical utility business model
- Strategic technologies are changing the marketplace
- Customer self-generation with solar and batteries and their role in the paradigm shift
- Stagnant energy growth and electricity use
- Renewable and energy portfolio standards
- Energy efficiency and demand response's role in the new utility marketplace
- The need for non-traditional electric rates and the leading players in the rate evolution
- Customer's changing needs, wants, expectations and demographics and how utilities must adapt
- Residential, commercial, and industrial load profiles and demand drivers

Course Recap and Other Topics of Interest from the Participants

> ***"Excellent course and speaker. I am a complete newbie to the electricity industry. This course provided a good overview of the industry and was appropriate for my level of knowledge."***
>
> Finance Manager, San Manuel Band of Mission Indians

> ***"The course delivered exactly what the syllabus identified. Very refreshing to attend a course that delivers what it promises."***
>
> Senior Account Rep., APS

INSTRUCTOR

Wallace L. Barron

President, Barron & Associates, Corporate Solutions, LLC

Mr. Barron has over four decades of experience in the electric energy industry. He is currently the President of the consulting firm, Barron & Associates, Corporate Solutions, LLC, located in Atlanta, which specializes in consulting to the energy industry in the areas of Strategic Planning, Board leadership and governance, DSM, Marketing, Customer Service, Key Accounts and Competitive issues. He was the Vice President of DSM, Marketing, Customer Service & Distribution Technology at Florida Power Corporation in St. Petersburg, Florida. His responsibilities included all of the DSM programs, developing and managing the strategic plan for the distribution sector, Forecasting, Key Accounts, Rates, System Planning, Competitive Marketing, Market Research, Customer Service, Economic Development, Load Management and Load Research as well as the Distribution Engineering functions. He was responsible for the Customer, Energy, and Demand Forecasts from 1977 to 1990. Mr. Barron also has extensive experience in the areas of System Planning, Pricing, Wholesale Marketing, and, Transmission Design, during his forty years in the energy industry and was president of two unregulated subsidiaries developing Cogeneration Projects. He is the past Chairman of the IEEE System Planning Subcommittee, the NERC Load Forecasting Working Group and the IEEE Load Forecasting Working Group. He was Chairman of the EPRI Power Electronics & Controls Task Force. Mr. Barron facilitates strategic planning activities for utilities and delivers a variety of Director and Policy Makers seminars on governance issues for the National Rural Electric Cooperative Association (NRECA), and the American Public Power Association (APPA). He has also taught at the Center for Professional Advancement in New Jersey, and engineering courses at the University of South Florida in Tampa and has also participated as a speaker in many IEEE, EEI, EPRI, NRECA, APPA and Statewide Association conferences. Mr. Barron holds a Master of Science Degree in Electrical Engineering from Mississippi State University. Mr. Barron has been an expert witness in the areas of System Planning, DSM, Forecasting, Load Research, and Market Research and has submitted testimony on those topics in dockets before the Florida Public Service Commission and the Federal Energy Regulatory Commission.

> ***"Excellent speaker, Wallace makes it easy and fun for non-technical people. Relevant and concise course."***
>
> Director of Finance, San Manuel Band of Mission Indians

> ***"Wallace Barron is the kind of trainer and educator that every industry wishes they had. It just so happens the utility industry is the beneficiary of his skill, ability and extensive knowledge. Wallace takes teaching to a new level through real world examples and application of the most advanced technical and regulatory developments as well. He does that in a style that has few equals and no superiors in my experience. His insight and love of the industry and the determination to share the best he has, has benefited thousands over the years. Barron rocks!"***
>
> Retired Fortune 500 Utility Vice President

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

Case studies, PowerPoint presentations and classroom exercises will be used in this course.

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 Atlanta Marriott Suites Midtown, 35 14th Street NE, Atlanta, GA 30309, for the nights of April 30 - May 2, 2017. Room rates are $175, plus applicable tax. Call **404-876-8888** for reservations and mention the EUCI event to get the group rate. The cutoff date to receive the group rate is April 2, 2017 but as there are a limited number of rooms available at this rate, the room block may close sooner. ***Please make your reservations early.***

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.

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

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"

PLEASE REGISTER

○ **ELECTRIC UTILITIES 101 COURSE**:
May 1-2, 2017: US $1395
Early bird on or before April 14, 2017: US $1195

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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 | Account Number

Billing Address | Billing City | Billing State

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

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 31, 2017 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.