EUCI
COURSE

ELECTRIC UTILITY SYSTEMS 101- CANADA

July 15-16, 2019
Hilton Toronto/Markham Suites Conference Centre & Spa
Toronto, ON

> ***"Great at taking complex information and breaking it down into the simplest of terms so that anyone could understand. Highly recommend."***
>
> Government Relations Officer,
> Canadian Electricity Association

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AUTHORIZED IACET PROVIDER

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

OVERVIEW

There is a paradigm shift occurring in the power industry brought about in part by advances in technology and, to a greater extent by the shift towards greener solutions to lessen the impact on our environment.

This seminar is intended to provide non-power engineers with a basic understanding of how power systems are planned, designed and operated. The goal is to provide individuals with a level of knowledge that will enable them to enter meaningful discussions with utility professionals. It will also provide the necessary information that will allow participants to make informed opinions on the various discussions on energy matters that are trending today's media.

In addition to the basic concepts of power systems, the seminar will examine emerging trends in electric grid configuration and the role disruptive technologies play in shaping this evolution. It will also touch on how customer expectations are pushing the envelope of customer service.

The seminar uses only basic math (no slide rule required) and draws on the science skills learned in high school.

LEARNING OUTCOMES

- Recognize how power grids started and how they continue to evolve as technology advances
- Review utility demographics and how Canada and US systems are interrelated
- Examine the basic elements of a power system
- Describe the components of a power system and have an understanding of how they work together
- Identify the planning methods that are used to ensure continued service and to enable new growth
- Discuss how the electric grid is operated and why health and safety management is critical
- Discuss the regulatory environment under which power systems operate
- Discuss the paradigm shift occurring in the industry today – smart and micro grids and disruptive technologies
- Explain how customer expectations for value added services are driving innovation
- Review technological innovations to the electric utility system

WHO SHOULD ATTEND

Anyone who needs an overview or a deeper understanding of transmission and distribution systems will benefit from this content.

> ***"Very interesting."***
>
> Mechanical Designer, G&W Canada

> ***"Great at taking highly technical terms and breaking it down into the simplest terms so that anyone could understand."***
>
> Advisor-Government Strategies, Canadian Electricity Association

AGENDA

MONDAY, JULY 15, 2019

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

8:30 am – 5:00 pm **Course Timing**

12:00 – 1:00 pm **Group Luncheon**

Overviewing Electric Power Systems
- Introduction to the course
- Learning objectives
- History of the electric grid
- Power system components
- Electric grids of the 21st century

Relating the Canadian System to the US Grid
- Structure of the provincial utilities
- What is the role of the Federal Government
- What are the size of the markets
- What regions are deregulated
- How the US structure is similar
- Power pools and interconnectivity

Exploring the Basic Electrical Engineering Factors
- Resistance, inductance and capacitance
- Voltage and current
- Power and energy
- Losses
- Frequency
- Reactive power
- Power factor and correction

Generation
- Heat (thermal) energy generated from:
  - Fossil fuels
  - Coal
  - Petroleum
  - Natural gas
  - Solar thermal energy
  - Geothermal energy
  - Nuclear energy
- Potential energy from falling water in a hydroelectric facility
- Wind energy
- Tidal energy from the ocean tides
- Solar electric from solar (photovoltaic) cells
- Chemical energy from: fuel cells. batteries

AGENDA

MONDAY, JULY 15, 2019 (CONTINUED)

Transmission Lines
- Characteristics
- Conductors
- Surge impedance Loading
- St. Clair Curve
- Sag
- HVDC

Substations
- Purpose of a substation
- Components that make up a typical substation
- Protection
- Grounding
- Security and related safety issues

Transformers
- How they work
- Distribution type
- Single and three phases
- Ratings and operational factors

Distribution Grids
- Familiar images – typical distribution equipment
- Automated sectionalizing switches and reclosers
- Lightning/surge arrestors
- Protection

Operating the Power System
- Reliability SAIFI, SAIDI and SAIRI
- NERC
- Operating control centers
- SCADA
- Outage management systems
- Response
- Communication networks
- Health and safety management

Planning for the Electric Utilities System
- Load forecasts
- Power flow analysis
- Short circuit studies
- Asset management

TUESDAY, JULY 16, 2019

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

8:30 am – 12:00 pm **Course Timing**

Regulating Canadian Electric Utility Systems
- Regulatory Oversight
- Rate Applications

Evolving Systems to Smart and Micro Grids
- What is a smart grid
- What is a micro grid

Disrupting Technologies and Global Landscapes
- Electric Vehicles
- Charging stations
- Energy storage
- Distributed generation
- Smart meters
- Emerging technologies
- Global influences

Emerging Customer Service expectations
- Electricity as an essential service
- Pricing matters
- Mobile notifications
- Web self-service requirements
- Self-managed energy solutions
- Plug and play
- The value propositions

Wrapping Up: Closing Questions and Answers
- Summary
- Questions

COURSE INSTRUCTOR

Ron LaPier, P. Eng.

Vice President, Engineer, Costello Utility Consultants

Ron LaPier is a professional electrical engineer with more than 30 years' experience in the design, operation and management related to distribution systems. For more than six years, he was responsible for managing the engineering and operations for an Ontario distribution utility. Ron has worked with several LDCs on various design projects, system studies, and system planning. Some of the LDCs he's worked with include: Innisfil Hydro, Five Nations Energy, Veridian Connections Ltd., Ottawa River Power Corp., London Hydro, PowerStream, Burlington Hydro, Woodstock Hydro, Westario Power, Enersource, Waterloo North Hydro, Entegrus (formerly Chatham-Kent Hydro), and Erie Thames Powerlines. He's also worked with telecommunications companies for third party attachment projects. He is very familiar with Ontario Regulation 22/04 and the application of the USF standard design drawings.

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

This course will use Power Point presentations, case studies, and open discussion.

EVENT LOCATION

A room block has been reserved at the Hilton Toronto/Markham Suites Conference Centre & Spa, 8500 Warden Ave, Markham, ON L6G 1A5, Canada, for the nights of July 14-18, 2019. Room rates are $175 CAD, plus applicable tax. Call **+1 905-470-8500** for reservations. The cutoff date to receive the group rate is June 21, 2019 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 1.1 CEUs for the 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.

REGISTRATION INFORMATION

Mail Directly To:
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4601 DTC Blvd., Ste. 800
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OR, scan and email to: conferences@euci.com

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p: 303-770-8800
f: 303-741-0849

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PLEASE SELECT

◯ **ELECTRIC UTILITY SYSTEMS 101- CANADA COURSE**
JULY 15-16, 2019: $1695 CAD + 13% HST ($1915.35 CAD)
EARLY BIRD on or before June 28, 2019: $1495 CAD + 13% HST ($1689.35 CAD)

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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 June 14, 2019 in order to be refunded and will be subject to a CAD $295.00 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 303-770-8800.
EUCI reserves the right to alter this program without prior notice.