

UNDERGROUND TRANSMISSION FUNDAMENTALS

July 24-25, 2019
EUCI Office Building
Conference Center
Denver, CO



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

OVERVIEW

Underground transmission is a costly and complicated option for transmission projects. This course will provide an in-depth overview of underground systems, technology, construction, and installation. This is the ideal course for engineers new to underground transmission projects, regulatory staff that needs an overview to evaluate project options and vendors and contractors that support utilities as they build new transmission.

LEARNING OUTCOMES

- Review underground transmission technology and systems
- Examine the basics of underground design and construction
- Delve into the details of cable design and manufacturing
- Review the considerations that affect cable system ampacity
- Discuss the design, operation and maintenance of solid dielectric cable systems
- Discuss the design, operation and maintenance of high-pressure fluid-filled cable systems

INSTRUCTORS

Dennis Johnson

Senior Project Engineer, POWER Engineers

Dennis Johnson has more than 30 years of experience in the design and construction of underground transmission and distribution systems. He has served as a design and project engineer on numerous underground transmission projects at voltages ranging from 69 kV to 500 kV. Mr. Johnson is an active voting member of the IEEE Insulated Conductors Committee (ICC). He is a member of various ICC subcommittees that are developing guides and standards for high voltage underground cable systems.

Todd Goyette

Senior Project Engineer, POWER Engineers

Todd Goyette joined POWER Engineers in November of 2012 and is a senior project engineer in the underground transmission group. He has over 24 years of experience in many aspects of high voltage and extra high voltage underground cable projects including design, permitting & licensing, construction and operation & maintenance. He has experience with self-contained fluid filled, high pressure fluid filled, high pressure gas filled and extruded dielectric cable systems. Prior to joining POWER, Todd worked for National Grid, a large investor-based utility, for 18 years performing similar functions. He serves on several working group committees for the IEEE Insulated Conductors Committee. He holds a Bachelor of Science and Master of Science degree in Electrical Engineering from Worcester Polytechnic Institute and is a registered Professional Engineer in several New England states.

REGISTER TODAY! CALL **303-770-8800** OR VISIT **WWW.EUCI.COM**

AGENDA

WEDNESDAY, JULY 24, 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**

- Underground Transmission Technology Overview
 - o Available Technology
 - o Drivers
- Basics of Underground Design
 - o Preliminary Design Considerations
 - o Route Selection
 - o Design Considerations
 - o Installation Considerations
- Cable Design & Manufacturing
 - o Conductor Materials & Design
 - o Insulation Materials, Thicknesses and Electrical Stress
 - o Shielding Materials and & Design
 - o Jacket Materials
- Cable System Ampacity
 - o Problem Statement
 - o Thermal Circuit Model
 - o Temperature Limitations (Conductor, Soil)
 - o Grounding & Bonding Considerations
 - o Backfills
 - o Emergency Calculations

THURSDAY, JULY 25, 2019

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

8:30 am – 12:00 pm **Course Timing**

- Review of Day One Materials and Questions
- Solid Dielectric Cable Systems
 - o Trench Design
 - o Manhole & Structure Designs
 - o Other Design Considerations
 - o Operation and Maintenance
- High Pressure Fluid Filled Cable Systems
 - o Trench Design
 - o Cathodic Protection
 - o Manhole & Structure Design
 - o Hydraulic System
 - o Operation & Maintenance

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REQUIREMENTS FOR SUCCESSFUL COMPLETION

Participants must sign in/out each day, be in attendance for the entirety of the course

INSTRUCTIONAL METHODS

Case studies, PowerPoint presentations, and group discussion will be used in this event.

EVENT LOCATION

EUCI Conference Center

4601 DTC Blvd., B-100
Denver, CO 80237

NEARBY HOTELS

Hyatt Regency Denver Tech Center

7800 E. Tufts Ave
Denver, CO 80237
Phone: 303-779-1234
0.3 miles away

Hilton Garden Inn Denver Tech Center

7675 E. Union Ave
Denver, CO 80237
Phone: 303-770-4200
0.6 miles away

Denver Marriott Tech Center

4900 S. Syracuse St
Denver, CO 80237
Phone: 303-779-1100
0.7 miles away

Hyatt Place Denver Tech Center

8300 E. Crescent Parkway
Greenwood Village, CO 80111
Phone: 888-492-8847
0.9 miles away

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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REGISTER 3, SEND THE 4TH FREE

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

REGISTER TODAY! CALL **303-770-8800** OR VISIT **WWW.EUCI.COM**

REGISTRATION INFORMATION

EVENT LOCATION

Mail Directly To:

EUCI
4601 DTC Blvd., Ste. 800
Denver, CO 80237

OR, scan and email to: conferences@euci.com

Please make all checks payable to: EUCI

WWW.EUCI.COM

p: 303-770-8800

f: 303-741-0849

EUCI Conference Center

4601 DTC Blvd., B-100
Denver, CO 80237

See nearby hotels on page 4

PLEASE REGISTER

**UNDERGROUND TRANSMISSION
FUNDAMENTALS COURSE**

July 24-25, 2019: US \$1395

Early bird on or before July 5, 2019: US \$1195

ENERGIZE WEEKLY

Energize Weekly is EUCI's free weekly newsletter, delivered to your inbox every Wednesday. We provide you with the latest industry news as well as in-depth analysis from our own team of experts. Subscribers also receive free downloadable presentations from our past events.

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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

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 June 21, 2019 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 303-770-8800. EUCI reserves the right to alter this program without prior notice.

