



EUCI Presents:

4TH ANNUAL UNDERGROUND TRANSMISSION CONFERENCE

January 28 - 29, 2010 • Loews Royal Pacific Hotel • Orlando, Florida

"A must attend for all professionals associated with UG Transmission engineering, construction and planning."

Underground Transmission Engineer, Los Angeles Department of Water and Power

"Wealth of technical information integrated with actual case studies in an environment that afforded excellent networking opportunities."

Senior Vice President, Power Partners Mastec LLC



EUCI is authorized by IACET to offer up to 0.9 CEUs for this conference and 0.2 CEUs for the workshop.

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OVERVIEW

New transmission is being planned at a fast and furious rate in order to accommodate growing demand and the need to bring new and different types of generation online. The desire to preserve open space, coupled with NIMBY issues in many urban areas has meant that utilities must consider installing underground transmission, even though the cost of underground transmission (UT) has traditionally been many times the cost of overhead transmission and maintenance and repair has proved costly and difficult. Going underground with transmission is not usually a transmission owner's first choice, but often is necessary in order to get a project sited and built.

This EUCI conference on underground transmission will feature several case studies of underground transmission projects in different types of environments with various types of design, installation techniques, cable and other equipment. For each project, we'll examine the costs along with the pros and cons of siting and installation and any lessons learned. In addition, the conference will highlight new technologies that are making UT more reliable, accessible and affordable, and possibly even greener.

This is the ideal event for utilities considering UT projects or looking for new approaches to existing systems.

Attendees will hear from experienced professionals on the following:

- Reasons for taking transmission underground
- Costs/benefits of underground v. overhead transmission
- Installation techniques
- Planning criteria and siting
- Permitting, stakeholder issues and public involvement
- Regulatory cost recovery issues
- Assessment of available technologies
- Maintenance and repair

LEARNING OUTCOMES

Attendees to this conference will:

- Analyze lessons learned from a variety of underground transmission (UT) case studies
- Examine all factors of underground transmission projects to include public and political pressure, construction and installation, conductors, timelines and project management
- Discuss the implementation of new transmission technologies such as HVDC and superconductors
- Examine the design, standards, components, accessories and installation of extruded cable systems
- Appraise the methodology to decide whether or not to employ a rigorous underground cable testing program
- Discuss industry standards and best practices in advanced construction techniques for underground transmission as identified through EPRI research

WHO SHOULD ATTEND

- Transmission planners
- Transmission engineers
- Project managers
- Regulators and regulatory staff
- Utility construction contractors

IACET



EUCI has been approved as an

Authorized Provider by the International Association for Continuing Education and Training (IACET), 1760 Old Meadow Road, Suite 500, McLean, VA 22102. In obtaining this approval, EUCI has demonstrated that it complies with the ANSI/IACET Standards which are widely recognized as standards of good practice internationally.

As a result of their Authorized Provider membership status, EUCI is authorized to offer IACET CEUs for its programs that qualify under the ANSI/IACET Standards.

EUCI is authorized by IACET to offer up to 0.9 CEUs for this program.

Requirements for Successful Completion of Program

Participants must sign in/out each day and be in attendance for a minimum of four hours to be eligible for continuing education credit.

Instructional Methods

This program will feature Case Studies and PowerPoint Presentations.

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PROGRAM AGENDA

THURSDAY, JANUARY 28, 2010

7:30 – 8:00 a.m. Registration and Continental Breakfast

Conference Co-Chairmen:

- Dennis Johnson, T&D Senior Project Engineer, POWER Engineers and
- Austin Tingley, T&D Senior Engineering Consultant, POWER Engineers

8:00 – 8:30 a.m. Global Trends in Underground Transmission

- Austin Tingley, T&D Senior Engineering Consultant, POWER Engineers

8:30 – 9:30 a.m. Best Practices in Underground Transmission at ATC

8:30 – 9:30 a.m. Case Study: Progress Energy Florida – Bartow Northeast 230 kV Project

The expansion of the Bartow Power Plant required the installation of three additional 230 kV underground circuits and one future circuit connecting the power plant and the Northeast Substation. The project was over four miles in length and consists of four circuits with 5,000 kcmil conductors – the largest installed at this length in the U.S. to date. Installation involved standard jack and bore, microtunneling, and a double 42-inch diameter, 1,700-foot horizontal directional drill. This presentation will discuss the various project challenges: regulatory, permitting, design and construction and how each was successfully overcome.

- Jerry Johnson, Project Engineer, POWER Engineers

9:30 – 10:30 a.m. Case Study: Platte River Power Authority 115/230 kV Underground Transmission Project

Platte River Power Authority and Black & Veatch began planning this project 4 years ago to improve reliability and security of their 115 kV and 230 kV transmission system. The project includes overhead transmission improvements, three substation improvements, one new substation, and 13 circuit miles of new 230 kV and 2 circuit miles of new 115 kV underground transmission in Colorado through urban areas Longmont and Ft. Collins and rural sections of Weld and Boulder County. Challenges included two 3,000 foot double circuit HDD's through two parks and a golf course, eleven jack and bores, and twelve riser structures with fiber optic CT's for cable fault monitoring.

- John Rector, Associate Vice President and Senior Project Manager, Black & Veatch
- Forest Rong, Project Manager, Black & Veatch

10:30 – 11:00 a.m. Networking Break

11:00 a.m. – 12:00 p.m. Case Study: Underground Transmission Upgrade at ENMAX

Work is progressing on a 138 kV underground transmission line replacement project for ENMAX, a Canadian utility that is a wholly owned subsidiary of The City of Calgary, Canada. The purpose of the project is to increase transmission capacity in downtown Calgary and reduce future maintenance costs by eliminating the existing high-pressure and low-pressure (HPFF/LPF) oil-filled cables with XLPE cable. The replacement program involves four existing 138 kV lines located under Calgary streets and sidewalks that tie into three downtown substations, of which two are GIS substations. The line routing also crosses under Canadian Pacific railroad and the Calgary transit light rail systems. This presentation will discuss Phase I conceptual design, which included preliminary routing, and preliminary cable specification preparation and Phase II with the detailed engineering. Construction will be starting at the time of the conference. This will be a unique look at a project in process.

- Mr. Derek Hanna, Engineering Supervisor, ENMAX Power Corporation
- Robert E. O'Hara, Project Manager, Sargent & Lundy LLC
- Joseph A. Mac Dougall, Project Manager, Sargent & Lundy LLC

PROGRAM AGENDA

THURSDAY, JANUARY 28, 2010 (CONTINUED)

12:00 – 1:00 p.m.

Group Luncheon

Sponsored by:



1:00 – 2:00 p.m.

10 Years of Underground HVDC

Transmission capacity demand is expected to continue to grow rapidly in the coming years, especially with an increased emphasis on renewable generation and retirement of aging, green-house gas emitting, fossil fuel based generators. This demand for increased grid capacity often clashes with increasingly fierce opposition from various stakeholders and communities whenever new overhead transmission lines are being proposed. Fortunately, there are new technological advancements that utilities and transmission owners can tap into in overcoming these challenges. The world's first long distance underground transmission circuit using polymeric insulated DC cables was commissioned in 1999 at a circuit rating of 160kV (± 80 kV), 50 MW. Unlike AC, there is no length limit for underground DC transmission cables. The DC underground transmission circuit, which is approximately 43 miles long, connects a large wind farm on the south end of the island of Gotland in the Baltic Sea to the island's principal population center, which is located to the north. Since 1999, polymeric insulated DC cables have been introduced for commercial use at incrementally higher circuit ratings.

In addition to the Gotland project, this case study will discuss the design and installation of the polymeric insulated DC cable circuits for the Murray Link underground transmission project in Australia, the Cross Sound transmission project between Connecticut and Long Island and the BorWin 1 submarine and underground transmission project in northern Germany. The presentations will also discuss planned use of polymeric insulated DC cables in new EHV transmission circuits in North America.

– Roger Rosenqvist, Executive Consultant, ABB Inc.

2:00 – 2:45 p.m.

Tres Amigas: Taking Underground Transmission to the Next Level

Tres Amigas is an ambitious project being planned as the first system to connect America's three power grids (Eastern Interconnect, Western Interconnect and Texas Interconnect). Goals of the new system include enhanced capacity, reliability and efficiency of America's power grids. In addition, the project will enable gigawatts of "green" power to be carried from region to region thereby creating the nation's first renewable energy trading hub. This presentation will provide an overview of the proposed project highlighting the planned utilization of the latest power grid technologies, including underground and overhead DC superconductor power cables, HVDC voltage source converters and energy storage systems.

– Jack McCall, Director of Business Development T&D Systems, American Superconductor

2:45 – 3:15 p.m.

Networking Break

3:15 – 4:00 p.m.

Case Study: Underground Superconductor Installation in Korea

– S. K. Lee, LS Cable America

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PROGRAM AGENDA

THURSDAY, JANUARY 28, 2010 (CONTINUED)

4:00 -5:00 p.m.

Advanced Construction Techniques

The Electric Power Research Institute (EPRI) is in process of compiling an Underground Transmission Cable System Installation and Construction Practices Manual. They have collaborated with several construction companies, utilities, cable manufacturers, and consultants on the project. The work has been underway for a year, with a completion target of December 2010. This presentation will report the progress and scope of the manual and will focus on key results including case studies.

- *Dr. Tiebin (Tom) Zhao, Project Manager, Underground Transmission, Electric Power Research Institute (EPRI)*

5:00 – 6:00 p.m.

Networking Reception

FRIDAY, JANUARY 29, 2010

8:00 – 8:30 a.m.

Continental Breakfast

8:30 – 9:30 a.m.

Extruded Transmission Cables & Systems

This presentation will cover current cable standards and main cable components, various cable designs and basic manufacturing steps. It also addresses the cable system design and key parameters that determine cable ampacity ratings, main cable system accessories as well as system installation practices.

- *Tomislav Novakovic, Director, HV and International Sales, Southwire, Energy Division*

9:30 – 10:30 a.m.

The Pros and Cons of Cable Testing

After Laying Testing of Solid Dielectric Cables – Test Methodologies

- *Withstand Testing Methodologies*
 - o DC
 - o VLF – up to 69kV
 - o AC
- *Partial Discharge Testing*
 - o *PD Magnitudes – PD Charge vs. Apparent charge, how do they relate?*
 - o *Factory Testing vs. Field Testing*
 - o *Conventional PD detection vs. Wideband and Ultra Wide Band PD detection*
 - o *Terminal vs. Distributed PD Measurement*
 - o *On-Line vs. Off-Line*
 - o *PD Sensitivity Assessment*
 - o *Interpretation of Results*

- *Mark Fenger, Senior Engineer, Transmission and Distribution Technologies, Kinectrics*

10:30 – 11:00 a.m.

Networking Break

4TH ANNUAL UNDERGROUND TRANSMISSION CONFERENCE

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PROGRAM AGENDA

FRIDAY, JANUARY 29, 2010 (CONTINUED)

11:00 – 11:45 a.m.

Power Cable Temperature Monitoring using FiberOptics

This presentation will discuss the innovative practice of installing fiber optics along side power cables in order to monitor hot spots. Costs, benefits and experiences from the field will be highlighted.

– *Greg McElyea, Americas Sales Manager, AP Sensing USA*

12:00 p.m.

Conference Adjourns

GOLD SPONSOR



**POWER
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POWER delivers in today's dynamic energy business. We offer reliability, capacity, performance-enhancing technologies, and the expertise of the largest dedicated T&D staff of any U.S. consultant. Our areas of expertise include overhead line design, underground line design, substation design, electrical systems studies, utility automation, testing and commissioning, environmental services, geographic information systems, and construction management.

4TH ANNUAL UNDERGROUND TRANSMISSION CONFERENCE

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PRE-CONFERENCE DINNER WORKSHOP

PUBLIC COMMUNICATION DURING THE CONSTRUCTION PHASE

Wednesday, January 27, 2010

5:30 – 6:00 p.m. Registration

6:00 – 8:30 p.m. Workshop

Dinner will be provided

OVERVIEW

Designing, engineering, planning, communicating and permitting a major utility project is challenging enough, but what happens when you're ready to rock-n-roll and begin construction? All your promises, comments and commitments are put to the test with many eyes watching—regulators, opponents, supporters, news media and shareholders.

Communication is a critical component during the construction phase, especially with stakeholders who have been involved with the process since the beginning. It's important to integrate the communications efforts from siting through construction. How well this is done can have a huge impact on the perception of your organization as a whole and any future efforts to build new facilities.

After you've endured months, if not years, of difficult negotiations and debate, the process is not over, and when it's time to break ground your company will again need to focus on being effective communicators with key "audiences". The instructors will present interactive examples of effective communications tools and illustrate what can happen when things go exceedingly well or terribly wrong.

Putnam Roby Williamson Communications has been on the front lines of numerous transmission line battles with a success rate of 100%. Your construction phase is your reward for a job well done, now it's time to deliver the goods. Most projects are struck by opposition; we'll illustrate those road blocks and give you tools to move beyond them

LEARNING OUTCOMES

- Identify the need to begin the project communications plan before you begin construction
- Analyze tools and strategies to communicate with stakeholders during project construction in order to maintain strategic field position and remain engaged with all stakeholder
- Demonstrate how to finish on a positive note to build goodwill and strong community support for future projects

AGENDA

Constructing "Support" First

- Building a framework for the future by assessing and identifying opposition, developing a strategic communications plan and tools for building your cache of 3rd party advocates

Construction Phase is your Reward for a Solid Strategic Plan

- How to keep the promises made during pre-construction phase

Construction Phase Tools

- Develop and implement communications tools for your key "audiences"
- Videos, training sessions, interactive websites, newsletters

Maintaining Strategic Field Position

- Remain engaged with opposition, landowners, regulators, news media, stakeholders, elected officials

Developing a Strong End Game

- Reassure the public
- Explain the 'win' to key stakeholders
- defend the campaign (shareholders)
- Say 'thank you'

Register Today! Call 303-770-8800 or visit www.euci.com

4TH ANNUAL UNDERGROUND TRANSMISSION CONFERENCE

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INSTRUCTORS

Mark Williamson, Chairman, Putnam Roby Williamson Communications (PRW)

Mark Williamson is a veteran utility executive who has been responsible for successfully permitting and placing in service several billion dollars of extra-high voltage transmission lines, power plants and natural gas pipelines. He served as executive vice president and chief strategic officer for Madison Gas & Electric Company in Madison, Wisconsin, and as vice president of major projects for American Transmission Company (ATC) based in Pewaukee, Wisconsin. While at ATC he managed all aspects of the Arrowhead—Weston transmission line project, a new right-of-way 220-mile 345 kV interstate line, which received the prestigious Edison Award in July, 2009, from EEI. Williamson has addressed countless groups over the past 30 years on the importance of building strong relationships with the public, politicians, regulators and others when approaching utility infrastructure projects. He teaches the “political campaign method” of getting needed infrastructure through the process from concept to completion. Since January 2008, Williamson has served as chairman of Putnam Roby Williamson Communications, a public relations firm based in Madison, Wisconsin, specializing in strategic communications, media relations and government affairs. The firm works closely with utilities throughout North America on infrastructure projects.

Roger Putnam, Co-Founder and Chief Executive Officer, Putnam Roby Williamson Communications (PRW)

Roger Putnam is co-founder and chief executive officer of Putnam Roby Williamson Communications, a Madison, Wisconsin-based public relations firm where he serves as key strategist and communications expert for transmission companies across North America. For the past decade he has helped develop winning campaigns that resulted in poles in the ground and wires in the air. Mr. Putnam started his professional career in television news where he handled just about every job imaginable within the news hierarchy, including executive producer, senior political correspondent and public affairs show host. He eventually chose a related career path as a media relations executive handling strategic communications, news media training workshops and outreach efforts for national accounts for a public relations firm in Madison, WI. He and business partner Tim Roby established Putnam Roby Communications in August, 2004, and later welcomed senior energy executive Mark Williamson to the firm as a partner in January, 2007, thus creating Putnam Roby Williamson Communications (PRW).

Paula Gilbeck, Vice President of Corporate Relations, Putnam Roby Williamson Communications (PRW)

Paula Gilbeck serves as Vice President of Corporate Relations for Putnam Roby Williamson Communications. She handles just about everything ranging from client relations, office management, and news media outreach to product development and art direction. Her diverse professional background in radio, TV and public relations brings a wealth of experience to every client mission PRW faces. Ms. Gilbeck employed her dynamic leadership skills as news director at various Wisconsin radio stations for more than eight years, and felt equally comfortable behind the microphone as news anchor. She honed her crisis management and organizational skills while serving as the newsroom Assignment Editor for two Madison television stations. Ms. Gilbeck then took her news media credentials and impressive managerial skills and entered the new professional arena of public relations. She held the title of Associate Account Manager for a respected Madison-based PR firm for four years where she was responsible for client management, media training seminars and targeted magazine publications for national and state trade organizations. She joined Putnam Roby Williamson Communications in 2004 as an account executive being promoted to vice president, corporate relations in 2007.

PROCEEDINGS

A copy of the conference proceedings will be distributed to attendees at the event. If you are unable to attend or would like to purchase additional copies, flash drives are available 2 weeks after the conference is complete. The cost per Flash Drive is US\$395 [add US\$50 for international shipments]. Flash Drives include visual presentations only. Upon receipt of order and payment the Flash Drive will be shipped to you.

NOTE : All presentation flash drive sales are final and are non-refundable.

CONFERENCE LOCATION

A room block has been reserved at the Loews Royal Pacific Hotel, 6300 Hollywood Way, Orlando, FL 32819, for the nights of January 24 – 28, 2010. Room rates are US \$159 single/double guest rooms. Call (888) 430-4999 for reservations and mention the EUCI conference to get the group rate. Make your reservations prior to January 8, 2010. There are a limited number of rooms available at the conference rate. Please make your reservations early.

REGISTRATION INFORMATION

REMEMBER, EVERY 4TH REGISTRANT IS FREE

For instant registration, call (303) 770.8800 or fax the Registration Form to (303) 741.0849.

Register 3, Send 4th Free!!

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

All cancellations received on or before December 24, 2009 will be subject to a US\$195 processing fee. Written cancellations received after this date will create a credit of the tuition (less processing fee) good toward any other EUCI conference or publication. This credit will be good for six months. In case of conference cancellation, Electric Utility Consultants' liability is limited to refund of the conference registration fee only. For more information regarding administrative policies such as complaint and refunds, please contact our offices at (303) 770.8800.

EUCI reserves the right to alter this program without prior notice.

MAIL DIRECTLY TO:

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Greenwood Village, CO 80121

FAX TO: (303) 741.0849 **PHONE:** (303) 770.8800

PLEASE REGISTER THE FOLLOWING

- 4th Annual Underground Transmission Conference Only
January 28-29, 2010, US\$1395,
Early Bird on or Before January 15, 2010, US\$1195
- 4th Annual Underground Transmission Conference Plus
Pre-Conference Dinner Workshop, January 27-29, 2010, US\$1795,
Early Bird on or Before January 15, 2010, US\$1595
- I'm sorry I cannot attend, but please send me the conference proceedings at \$395.
(Please add \$50 for international shipping)

ENERGIZE WEEKLY

When you sign up for "Energize Weekly" you will receive a new conference presentation each week via email on a relevant industry topic. The presentations are selected from a massive library of over 1000 current presentations that EUCI has gathered during its 22 years organizing conferences.

Sign me up for "Energize Weekly"

How did you hear about this event?
(Direct email, Colleague, Speaker(s), etc.)

Name _____ Job Title _____
Name Preferred for Badge _____ E-Mail _____
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Address _____ City _____ State _____ Zip _____

PAYMENT METHOD

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