TRANSMISSION UPGRADES AND RECONDUCTORING TECHNOLOGIES

October 10 - 11, 2018
PSE&G Facilities
South Plainfield, NJ

PRE-CONFERENCE WORKSHOP
Transmission Upgrades 101
WEDNESDAY, OCTOBER 10, 2018

POST-CONFERENCE WORKSHOP
Reconductoring, Rebuild and Upgrade Technologies & Work Methods
FRIDAY, OCTOBER 12, 2018

EUCI is authorized by IACET to offer 1.1 CEUs for this conference and 0.3 CEUs for each workshop.

HOST UTILITY
PSEG

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OVERVIEW

The problem of aging infrastructure has only become worse in recent years, putting grid reliability at risk nationwide without major investments in upgrades and reconductoring technologies. Meanwhile, regulatory burdens for new transmission builds have not lightened, paired with the growing trend of corporate commitment to procure renewable energy and DERs. Because of these challenges, utilities have begun looking into alternatives such as new technologies that utilize the existing ROW and take advantage of the current infrastructure. New sensors and measurement technologies, dynamic line rating capabilities, substation upgrades, and reconductoring have all helped to increase existing capacity, allowing new generation sources to come online. These strategic moves provide cost effective alternatives that allow utilities to meet fluctuating demand needs, and their goals and regulatory standards in grid resiliency and reliability.

EUCI’s upcoming 2nd Annual Transmission Upgrades Summit, will examine the viability of each of these new technologies, and feature case studies on how utilities are currently implementing them. Key insights into cost analysis of transmission line upgrades, mitigating structural challenges during planning an upgrade, and overcoming regulatory hurdles will be discussed. This conference will explore the evolution of these cost and time-saving techniques and provide networking with top-level professionals in the industry from utilities and developers.

LEARNING OUTCOMES

- Evaluate existing and new transmission upgrade technologies, and their proof of reliability and viability on a utility scale
- Analyze the financial impact and effectiveness of adding cost effective upgrades to prolong transmission infrastructure life
- Analyze the economic impact of major weather events and resulting transmission outages and how to incorporate these risks into project evaluations and criticality rankings
- Analyze existing regulations for new builds, and utilizing existing ROW
- Assess impact of DERs and risk of congestion
- Explore how the cost of new upgrades determines which are ultimately implemented
- Determine proven strategies to enhance grid reliability and resiliency
- Best practices in managing transmission upgrade design and construction challenges

WHO SHOULD ATTEND

- Transmission planners and developers
- Utility transmission and substation project managers and engineers
- Renewable energy project developers
- EPC contractors and construction managers involved in transmission upgrades
- Government representatives and regulators seeking an understanding of how upgrades fit into ROW regulations
- Attorneys and accountants serving utilities and developers navigating the upgrade process
- Financial professionals seeking to get involved in transmission development

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

WEDNESDAY, OCTOBER 10, 2018

12:30 – 1:00 pm  Registration

1:00 – 1:30 pm  Keynote Address

*Mike Kayes, Senior Director of Construction and Engineering, PSE&G*

1:30 – 3:00 pm  Regulatory Initiatives Panel

With a greater focus on transmission system reliability and resiliency from federal and state regulators, utilities are taking a fresh look at how their systems are designed, built, and upgraded over time to address threats to the fundamental duty of “keeping the lights on.” This panel will discuss the recent regulatory challenges utilities have faced in developing their systems to be resilient and ensure a reliable flow of power and the initiatives undertaken by utilities in meeting those challenges including:

- How the plans of ISOs and RTOs to maintain system reliability and resiliency have changed and the opportunities for transmission upgrades resulting from those planning changes
- How the federal government can assist utilities in identifying and addressing system reliability concerns and current initiatives underway to improve those efforts
- How pressure from state regulators has led utilities to enhance the ability of the system to respond to major weather events
- How and if Order 1000 has led to more cost-effective or efficient transmission development and whether changes are due to enhance the efficacy of that rule
- Whether rate recovery issues are restricting the ability of utilities to upgrade their transmission systems and regulatory strategies for addressing those concerns

**Moderator:**
*J. Daniel Skees, Partner, Morgan, Lewis & Bockius LLP*

**Panelists:**
*Upendra Chivukula, Commissioner, NJ Board of Public Utilities*  
*Alfred Corbett, Manager of Reliability and Engineering Services, FERC*  
*Craig Glazer, VP, Federal Government Policy, PJM Interconnection*  
*Kevin Huyler, Director, Federal Regulatory Affairs, National Grid*

3:00 – 3:30 pm  Networking Break Sponsored by AECOM

3:30 – 4:15 pm  Improving Grid Resiliency and Reliability

For a year the issue of grid resiliency has been hotly debated at FERC and within the industry. Key concerns in that debate include the role of transmission and transmission upgrades in improving the resiliency of the grid, the manner in which resiliency differs from and overlaps with reliability, and whether existing transmission planning efforts are sufficient to achieve a resilient transmission system.

This presentation will assess the current transmission resilience efforts in organized markets, outline ways in which transmission owners can weave resiliency planning into their existing reliability planning efforts, and consider the financial and operational benefits from combining resiliency and reliability planning.

*J. Daniel Skees, Partner, Morgan, Lewis & Bockius LLP*

4:15 – 5:00 pm  Impact of Weather Uncertainty and Transmission Outages on Economic Project Evaluations

Transmission planners often use production cost savings as one of the primary metric to measure the economic and societal benefits of a transmission projects. These savings are usually based on an 8760-hour production cost simulation for certain weather conditions and do not incorporate transmission outages. This presentation will discuss a new methodology to factor in the impact of weather variability and transmission outage on evaluation of economic benefits from a transmission project.

*Sandeep Bokar, Manager, Transmission Planning, ERCOT*
AGENDA

WEDNESDAY, OCTOBER 10, 2018 (CONTINUED)

5:00 – 5:30 pm  **Case Study: PSE&G Susquehanna-Roseland: Adapting Solutions to Protect the Environment**
The Susquehanna-Roseland Electric Reliability Project consisted of a new 145-mile 500kV transmission line spanning from the Susquehanna Nuclear facility near Berwick, Pennsylvania to PSE&G’s switching station in Roseland, New Jersey. PSE&G’s portion of the project was 46 miles of the line which runs through New Jersey. PSE&G’s and Burns & McDonnell’s project managers will discuss innovative solutions developed specific to the project to address key technical, environmental and community challenges which the project faced. Some of these solutions became paramount in securing the Special Use Permit with the National Park Service for the crossing of the Delaware Water Gap National Recreation Area and the Appalachian Trail. These solutions included automated bird activity sensing equipment and reporting, on-demand aviation (FAA) obstruction lighting systems, and helicopter construction of massive 500kV structures and foundations in challenging terrain. The Project went into service in June 2015.

*Jason Kalwa, Senior Project Manager, PSE&G*
*David Carr, Project Manager, Burns & McDonnell*

5:30 – 6:30 pm  **Networking Reception sponsored by**

THURSDAY, OCTOBER 11, 2018

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

8:00 – 8:40 am  **Capabilities of the Powerline Conductor Accelerated Test Facility**
Industry acceptance of new conductor technologies and line instrumentation have a large hurdle to overcome. Typically, a new technology will not be placed in a stressed environment where it sees a heavy utilization and really proves out the technology. The Powerline Conductor Accelerated Test (PCAT) Facility bridges this gap to accelerate the commercial adoption of new overhead conductor technologies.

*Dan King, Technical Staff Engineer, Oak Ridge National Laboratory*

8:40 – 9:40 am  **Cost Analysis & Investment Decisions Panel**
This panel will discuss best practices in analyzing the financial impact of adding cost effective upgrades to prolong transmission infrastructure life as opposed to new builds, techniques and best practices in ranking the criticality of upgrade projects, how to best prepare a business case, and mitigating and determining real costs from project engineering.

Panelists:
*Moderator: Lane Puls, Senior Project Manager, Transmission & Distribution Services, Burns & McDonnell*
*Brian Hayduk, Director, Director of Transmission Planning & Asset Management, New England, National Grid*
*Suzanne Glatz, Director, Infrastructure Planning, PJM Interconnection*
*Sugirtha Judd, Project Engineering Manager Transmission & Substations, PPL*

9:40 – 10:20 am  **PSE&G Case Study: 3D Modeling on 26kV to 69kV Conversion Project**
Jim Flaherty, Manager of Project Integration, will discuss the Lakeside substation conversion project. The presentation will outline the key drivers for the project and will also discuss the 3D modelling tools utilized by the team to compare the various configurations which were considered for the new station.

*Jim Flaherty, Manager of Project Integration, PSE&G*

10:20 – 10:50 am  **Networking Break Sponsored by**
THURSDAY, OCTOBER 11, 2018 (CONTINUED)

10:50 – 11:30 am  ComEd’s Grand Prairie Gateway 345kV Project
In 2012, PJM identified 13 points of bulk power congestion in ComEd’s area. A 60-mile 345kV line connecting ComEd’s Byron and Wayne substations was selected as the solution to alleviate that congestion. This project was designated as Grand Prairie Gateway and was one of ComEd’s largest transmission facilities upgrade since the 1980’s. There were numerous Real Estate, Environmental, and Public matters that impacted the engineering team’s design approach. The project was completed in 2017.
David Alvarez, Senior Project Manager Transmission and Substations, ComEd

11:30 am – 12:15 pm  Commonwealth Edison: Methods to upgrade Transmission Lines While Energized
In 2016 ComEd Planning identified the need to increase capacity, reduce congestion and improve power flow on 345kV lines. Engineers were required to think outside the box. New initiatives were analyzed and approved by ComEd. The new methods utilized were energized tower lifts and energized 345kV single dead ends. The methods were used to upgrade over 130 miles of ComEd territory. The program supports several elements of ComEd’s strategic agenda specifically, Premier Customer Experience, Bending the Cost Curve and Reducing the Carbon Footprint. It also aligns and supports ComEd’s value of Innovation and it’s continued technical leadership in the industry.
Maria Zack-Cabadas, Project Engineer, ComEd
Brian Cramer, Program Manager in Emergency Preparedness, ComEd

12:15 – 1:15 pm  Group Luncheon Sponsored by FERREIRA

1:15 – 2:00 pm  Expanding Use of Composite Core Conductor in AEP’s Transmission Portfolio
James will discuss how ACCC Conductor is delivering value for American Electric Power in a growing number and variety of transmission upgrade projects.
James Berger, Managing Director, Transmission Projects, American Electric Power
Bill White, Northeast Representative, CTC Global

2:00 – 2:45 pm  FirstEnergy Case Study: The Challenge of Helicopter Operations and the Industry Demand on Transmission Work
Helicopter use for transmission projects is increasing as utility construction schedules have continued to be expedited and outages harder to schedule. The presentation will cover the advantages and challenges when utilizing helicopters for line work. As more helicopters take to the air each year, safety and the risk associated with flying move to the forefront of the industry. FirstEnergy and Quanta Services will discuss the steps and procedures being developed to ensure safety and efficiency in this important tool used by the industry.
Mark D. Mroczynski, FirstEnergy
Ned Biehl, Director of Aviation Services, Quanta Service Inc.

2:45 – 3:15 pm  Networking Break Sponsored by AECOM

3:15 – 4:00 pm  Design Options to Avoid Permitting and Siting Challenges Within Existing Rights-of-Way
This case study will explore strategies for taking advantage of existing ROW to mitigate permitting and siting challenges with projects.
Amit Urs, Project Manager, National Grid
Kevin Baxter, Engineer, POWER Engineers
AGENDA

THURSDAY, OCTOBER 11, 2018 (CONTINUED)

4:00 – 5:30 pm  Industry Panel: Project Challenges and Solutions
Transmission upgrades, rebuilds or reconductoring projects face uncertainty, problems issue and unforeseen complications occur on every project. This panel session will offer a discussion on specific projects from the panelists and then a Q&A session where attendees can provide examples of their challenges and solutions.
Moderator:
Jodi Moskowitz, Senior Director of Transmission Strategy, PSE&G
Panelists:
Brian Bailey, Project Engineer, POWER Engineers
Brian Standish, Operation Director, Quanta Services
Richard Smith, President, RJ Smith Companies
Bill White, Northeast Representative, CTC Global
Frank Morrissey, Department Manager, Transmission & Distribution Services, Burns & McDonnell

5:30 pm  Program Concludes

“Excellent learning experience for this critical technology area that is operating behind the scenes.”
Senior Metallurgist, Ames Lab

“EUCI events always contain cutting edge technology, industry experts and the most relevant & emerging topics in the power industry. The events leave you informed and wanting to learn more.”
PhD Engineer, Unable to use company

“Speakers did a great job focusing on the technical challenges and solutions. No real sales pitches.”
VP Business Development, MJ Electric
WORKSHOP

PRE-CONFERENCE WORKSHOP
Transmission Upgrades 101

WEDNESDAY, OCTOBER 10, 2018

OVERVIEW

A review of ISO-RTO records reveals the increasing amount of projects to address the issue of the transformation of the existing transmission system. Many transmission projects are addressing end of life issues via a rebuilding, most are upgrade of kV loads over short and some longer mileage projects due to a variety of issues including load shifts, population increase and DER penetration. Many include substation replacements. This Workshop will provide an overview of the type of projects that can be utilized to address transmission issues, a glossary of terminology, what are the engineering requirements and what types of contractual relationships are utilized for safe project management.

LEARNING OUTCOMES

- Review how the transmission system is being transformed within service territories
- Determine what are the reasons for making changes to the transmission system
- Specify the type of projects that can be employed
- Provide a glossary of terms that are unique to transmission upgrades and rebuilds
- Discuss what engineering requirements exist to design the projects
- Explore the available contractual relationship that can be utilized for successful project completion

AGENDA

WEDNESDAY, OCTOBER 10, 2018

8:00 – 8:30 am  Registration & Continental Breakfast

8:30 – 11:30 am  Workshop Timing

- Drivers causing the need to change the transmission system
- Terminology needed to understand the project design and management process
- Typical process for how transmission owners determine their needs
- Review what types of projects address specific requirements
- How to develop an internal business case for a project
- The composition of a typical project management team
- Options for employing consultants, vendors and contractors
- Timelines for varying project types to energized status
PRE-CONFERENCE WORKSHOP INSTRUCTOR

Bill White
Director of Business Development, Northeastern United States, CTC Global

Mr. White is responsible for product marketing and continued sales growth for high value ACCC conductor products to key utility and industrial accounts in the electric transmission industry.

Previously, Mr. White was President and Founder of Norton White Energy, a consulting firm providing energy and environmental strategy, policy, and analysis to non-profit organizations, trade associations, and corporations. In 2008, Bill founded and served as Senior Advisor to Americans for a Clean Energy Grid (ACEG), an initiative of the Energy Future Coalition and United Nations Foundation dedicated to building broad support for expanding and modernizing America's high voltage transmission network among utilities, renewable energy developers, environmental advocates, elected officials, and regulators.

Bill holds a Master’s in Public Policy from Harvard University and a B.A. in Biology from the State University of New York at Buffalo.
WORKSHOP

POST-CONFERENCE WORKSHOP

Reconductoring, Rebuild and Upgrade Technologies & Work Methods

FRIDAY, OCTOBER 12, 2018

OVERVIEW

Experienced Live-line experts will present on the technologies utilized in reconductoring, rebuilding and upgrading existing transmission lines and discuss new and exciting energized work methods to improve on system reliability and efficiency without compromising safety. Specific successful projects including the record 240 mile South Texas Energized Reconstructor Project will be featured in a series of Case Studies demonstrating what technologies were utilized and how the projects were designed, engineered, scoped and what work methodologies were employed to complete the projects.

LEARNING OUTCOMES

• Discover what available technologies exist for transmission owners to address the needs of their system to transform
• Explore what type of project to employ for improving the transmission system; reconductor, rebuild or upgrade
• Review specific projects that have been completed to gain knowledge of available options
• Identify what work methodologies have been employed for safe project completion
• Discuss project challenges and how they were overcome

AGENDA

FRIDAY, OCTOBER 12, 2018

8:00 – 8:30 am  Registration & Continental Breakfast

8:30 – 11:30 am  Workshop Timing

• Available technologies overview
• Review of the different type of projects available to address transmission system needs
• Case studies of projects
• Discussion on work methodologies utilized to provide for safe energized project completion
• Q & A on challenges and solutions experienced by project managers
Dave Wabnegger
President Energized Services, Quanta

Dave Wabnegger has more than 25 years of lineman experience and has developed 13 separate industry-specific inventions. As President of QES, he is responsible for leading energized project integration between Quanta Energized Services and the Quanta operating units, as well as providing oversight and expertise to multiple energized education and training programs offered by Quanta.
INSTRUCTIONAL METHODS

PowerPoint presentations and classroom discussion will be used in this program.

REQUIREMENTS FOR SUCCESSFUL COMPLETION

Participants must sign in/out each day and be in attendance for the entirety of the conference to be eligible for continuing education credit.

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 this conference and 0.3 CEUs for each workshop.

EVENT LOCATION

PSE&G Facilities
4000 Hadley Road
South Plainfield, NJ 07080

NEARBY HOTELS

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2991 Hamilton Boulevard,
South Plainfield, NJ, 07080
(844) 974-6835
0.3 miles to PSE&G Facilities

Hampton Inn South Plainfield - Piscataway
205 New World Way,
South Plainfield, NJ, 07080
(908) 561-2600
0.5 miles to PSE&G Facilities

Fairfield Inn & Suites by Marriott Edison-South Plainfield
875 New Durham Rd,
Edison, NJ, 08817
(732) 650-0011
1.8 miles to PSE&G Facilities

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Please contact Maryjane Jarvis at mjarvis@euci.com or 720-988-1227 for more information.
REGISTRATION INFO

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TRANSMISSION UPGRADES AND RECONDUCTORING TECHNOLOGIES
CONFERENCE AND BOTH WORKSHOPS: OCTOBER, 10–12, 2018: US $2195
EARLY BIRD on or before SEPTEMBER 21, 2018: US $1995
Utility/Government: US $1695, Early Bird $1495

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CONFERENCE AND ONE WORKSHOP: US $1795, EARLY BIRD on or before
$1195 (MAKE SELECTION BELOW)

PRE-CONFERENCE WORKSHOP: WEDNESDAY, OCTOBER 10, 2018
POST-CONFERENCE WORKSHOP: FRIDAY, OCTOBER 12, 2018

TRANSMISSION UPGRADES AND RECONDUCTORING TECHNOLOGIES
CONFERENCE ONLY: OCTOBER, 10-11, 2018: US $1395, EARLY BIRD on or before
SEPTEMBER 21, 2018: US $1195
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How did you hear about this event? (direct e-mail, colleague, speaker(s), etc.)

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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 September 7, 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 303-770-8800. EUCI reserves the right to alter this program without prior notice.

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