EUCI CONFERENCE

TRANSMISSION UPGRADES AND RECONDUCTORING TECHNOLOGIES

October 4 – 5, 2017
PSE&G Facilities
South Plainfield, NJ

POST-CONFERENCE WORKSHOP

Thought Leadership Discussion: Tackling Complex Utility Risk Decisions to Establish Long-Term System Resiliency and Reliability

THURSDAY, OCTOBER 5, 2017

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HOST UTILITY

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OVERVIEW

The problem of aging transmission infrastructure has only worsened in recent years, putting grid reliability at risk nationwide without major investments into upgrades and reconductoring technologies. As regulatory burdens for new transmission builds have not lightened either, utilities are pushing into alternatives, using 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.

EUCI's upcoming **Transmission Upgrades and Reconductoring Technologies Conference,** taking place this coming October, will examine the viability of each of these new technologies, and feature case studies on how utilities are currently implementing them. We will discuss the challenge in validating the resiliency and reliability in these new technologies that have not yet been exposed to all operating conditions, and how this will affect the future of the grid. This conference will look into the evolution of these cost and time-saving techniques, and provide networking with top level professionals in the industry from the utilities and the 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 of adding cost effective upgrades to prolong transmission infrastructure life, and the most effective ways utilities have done so
- Determine the most efficient use of renewables and existing grid infrastructure to improve transmission capacity and grid reliability
- Define how the cost of new upgrade technology determines which are ultimately implemented on the grid, and what the future of the grid looks like from this perspective
- Outline strategies in building generation around underutilized lines and retiring plants
- Assess existing regulations for new builds, and utilizing existing ROW
- Examine the impact proactive asset management will have on infrastructure life, and the best strategies for doing so cost effectively

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

AGENDA

WEDNESDAY, OCTOBER 4, 2017

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

8:30 – 8:45 am **Conference Welcome**
Kim Hanemann, Senior Vice President – Delivery Projects and Construction, PSE&G

Conference Chairperson: Steve Walker, Unit Director, Transmission Business, POWER Engineers

8:45 – 9:30 am **The Industry of Upgrading Transmission Infrastructure**
- A look at what is being done on existing infrastructure nationwide, and the universal issue of aging transmission lines
- Best practices for analyzing if new builds are necessary, and strategies for taking advantage of existing ROW and extending equipment life
- Existing technologies being used, and their proof of concept on a utility scale
- Future growth expectations in transmission and the drive behind upgrading infrastructure
- Powerline Conductor Accelerated Testing (PCAT)

Phil Irminger, Power & Energy Systems Group – Electrical and Electronics Systems Research Division, Oak Ridge National Laboratory

9:30 – 10:15 am **Using Risk Analysis to Build a Business Case to Prioritize Projects on Aging Infrastructure**
Today's utilities are faced with thousands of system assets which require maintenance, refurbishment, or replacement, all at a time when available resources are limited. Deciding which assets to address and when it is difficult, if not impossible, without an organized approach to evaluating the available data. This presentation will present a program developed to evaluate, prioritize, and ultimately decide what course of action results in the most efficient use of today's limited resources in dealing with the challenge of aging infrastructure.
Brian Bailey, Project Engineer, POWER Engineers

10:15 – 10:45 am **Networking Break**

10:45 – 11:30 am **FERC Regulations and Cost Allocations for Transmission Upgrades**
- History of FERC's role and major rulemakings regarding transmission planning
  - o Analysis of Order 1000 regarding transmission planning groups, public policy projects and cost allocation
- Brief history of FERC's role in transmission incentives
- Rates and terms and conditions on transmission lines

Sanjay Bhatia, Electrical Engineer, FERC

11:30 am – 12:45 pm **Group Luncheon**

12:45 – 1:30 pm **Methods for Performing Upgrades on Energized Transmission Lines**
- Assessment of the advantages of implementing upgrades on energized transmission lines
- Training for workers performing these upgrades to ensure safety
- Qualifications necessary for those committed to performing these types of upgrades on energized transmission lines
- Required maintenance on energized transmission lines
- Evaluation of the methods for performing this type of work
- Cost-benefit analysis of carrying out upgrades on energized lines, and how this will impact the utility's investment to the project long-term
- Case studies for successful projects completed, and the biggest concerns to keep in mind when committing to the dangers associated

Carl Segneri, Vice President, Business Development, Quanta Services

AGENDA

WEDNESDAY, OCTOBER 4, 2017 (CONTINUED)

1:30 – 2:15 pm

PSE&G Case Study: Bergen Linden Corridor Voltage Uprating
Hear from a senior project manager at PSE&G involved in the recent upgrade of the Berger Linden Corridor. This project upgraded an existing 138kV transmission line to 345kV through Hudson County in Northern New Jersey, taking advantage of the existing lines there to increase capacity for consumers.
Mike Kayes, Director of Transmission Growth, PSE&G

2:15 – 2:45 pm

Networking Break

2:45 – 3:30 pm

Deploying FACTS technologies as a Method for Increasing Transmission Capacity
Flexible alternating current transmission systems (FACTS) provide reactive power compensation on AC networks to increase transmission capacity, regulate voltage and improve grid reliability. By using advanced power electronic devices, Static Var Compensators (SVCs), Statcoms, and Series Capacitors are able to instantly and dynamically respond to grid events to increase reliability and optimize power flow. FACTS technologies have a small footprint and minimal impact on the environment, with significantly reduced project implementation times and lower investment costs compared to building new transmission lines. This presentation will provide a technical overview of the various FACTS technologies and as well as case studies where deploying a FACTS device allowed for more power to flow through the network and improved system efficiency.
Eric John, Director, FACTS North America, ABB

3:30 – 5:00 pm

Utilizing Existing Transmission Infrastructure and Proactively Improving Project Resiliency

- Enabling better use of renewables and existing infrastructure
- Strategically planning new generation builds in areas where plants are retiring
- Smartwire allowing for the rerouting of power using data to evenly distribute transmission usage, even in high load areas
- Analyzing new technology risk factors and the viability of the investment
- Taking a look at key points in existing technologies that have been proven, and what is necessary to show proof of concept to the utility scale
- Steps taken for successful implementation that achieves the desired results on existing transmission infrastructure
- Storm hardening technologies and increasing infrastructure resiliency
- Shifting a utility to a proactive mindset and communicating these shifts to stakeholders

Panel Moderator: Carl Segneri, Vice President, Business Development, Quanta Services
Ed Gray, Director of Transmission Asset Strategy, PSE&G
Mohammed Ahmed, Manager, East Transmission Planning, AEP
Nabil Hitti, Vice President, Capital Investments, NY Transco

5:00 pm

Networking Reception – The Lobster Pub
101 New World Way, South Plainfield, NJ 07080

Sponsored by HAUGLAND GROUP

AGENDA

THURSDAY, OCTOBER 5, 2017

8:00 – 8:30 am **Continental Breakfast**
Conference Chairperson: Carl Segneri, Vice President, Business Development, Quanta Services

8:30 – 9:15 am **Capital Planning to Prepare for Transmission Outages and Natural Disasters**
Learn how to create a resilient system by analyzing existing transmission infrastructure and reviewing possible damage from wildfires and other natural disasters within your local service area. You can understand exposure to risk from service outages and capital losses by using a risk visualization tool, and then planning short-term maintenance and spending efforts on the most immediate needs in high risk areas. This evaluation helps develop long-term capital budgets, and determine the work that will take precedence to reduce your unique, relative risk profile and improve system reliability.

- Understand how risk assessment tools can help support your short- and long-term planning to minimize wildfire and storm-related service failures
- Gain perspective on key variables that increase your risk and impact your system reliability
- Learn how further analysis can be applied to help you prioritize short- and long-term maintenance and capital spending

Benjamin McKinsey, Transmission Project Manager and Utility Risk Assessment Lead, HDR

9:15 – 10:00 am **Alternatives for Effective HVDC Transmission**
HVDC transmission is the preferred technology for renewable energy generation, but as the sources are typically sited in remote areas, traditional ACSR cables can't support the necessary reliability and efficiency. The Ames Laboratory and the US Department of Energy have developed deformation-processed aluminum/calcium conductors that are lighter, stronger, and more conductive than ACSR cables. This new conductor effectively reduces electrical losses, lowers costs, and enhances grid reliability, and one of the developers here will share information on its proven efficiency and the potential for implementation at utility scale today.
Iver Anderson, Adjunct Professor, Division of Materials Science & Engineering, The Ames Laboratory

10:00 – 10:30 am **Networking Break**

10:30 am – 12:00 pm **The Future of the Grid**

- New technologies with the potential to impact the grid
- Analysis of how these technologies will affect our generation sources
- Ideal utilization of existing infrastructure
- Future new transmission developments in AC and DC lines, making infrastructure multi-purpose and providing more longevity
- Reliability of the grid in high demand areas in the future
- Changes that need to be made to reach these goals
- The growth and potential in international interconnection

Moderator: Steve Walker, Unit Director, Transmission Business, POWER Engineers
Zhi Li, Research and Development Member, Oak Ridge National Laboratory
Nabil Hitti, Vice President, Capital Investments, NY Transco
Ginger Roether, Senior Project Manager and Associate Vice President, HDR
Nicole Segal, Systems Analysis Engineer, NERC

12:00 pm **Program Concludes**

WORKSHOP

POST-CONFERENCE WORKSHOP

Thought Leadership Discussion: *Tackling Complex Utility Risk Decisions to Establish Long-Term System Resiliency and Reliability*

THURSDAY, OCTOBER 5, 2017

OVERVIEW

This interactive workshop will explore key variables for identifying and managing your utility risk to achieve long-term system resilience to hazard events and improve system reliability.

Utility risk is defined as "the positive or negative effects of uncertainty or variability upon utility objectives." Managing your risk involves understanding the wide array of environmental, economic, political, and social variables that affect your system, along with the importance of each one. Considering these complex details can help you make more thoughtful decisions on where to focus your resources and capital spending when it comes to risk mitigation and asset management.

So, which variables do you need to consider, and how do you know which are most important?

Join us to work through these questions. You'll gain perspective regarding exposure to risk from service outages and capital losses through discussion and experiences shared by fellow utility industry members. You'll also learn how to create a more resilient system by using new approaches to support the decision-making process and minimize service failures related to natural weather events.

LEARNING OUTCOMES

- Evaluate the array of variables to consider when making decisions about your unique utility risk, and which are most important to you
- Analyze which tools can help support your short- and long-term planning to minimize service failures related to natural hazard events
- Apply data analytics techniques to help prioritize short- and long-term maintenance and capital spending

AGENDA

THURSDAY, OCTOBER 5, 2017

1:00 – 1:30 pm **Workshop Registration**

1:30 – 4:30 pm **Workshop Schedule**

- Explore system challenges
- Identify emerging industry practices
- Develop resiliency strategies and best practices
- Explore a recent risk assessment case study
- Develop a more proactive approach to asset management that promotes data driven decision making for upgrade and replacement instead of by age of asset

INSTRUCTOR

Benjamin McKinsey

Transmission Project Manager and Utility Risk Assessment Lead, HDR

Ben leads HDR's Utility Risk Assessment Program, focused on helping utilities become more resilient to hazard events and improve system reliability. As a transmission project manager with more than nine years of experience, he has worked on transmission projects ranging from 25kV to 345kV across the country for both small county utilities and large investor-owned utilities.

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 1.0 CEUs for this conference and 0.3 CEUs for the workshop

EVENT LOCATION

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

NEARBY HOTELS

WoodSpring Suites South Plainfield
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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Edison, NJ, 08817
(732) 287-3500
2.8 miles to PSE&G Facilities

REGISTER 3, SEND THE 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.

EVENT LOCATION

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

See nearby hotels on page 8

PLEASE SELECT

- ◯ **TRANSMISSION UPGRADES AND RECONDUCTORING TECHNOLOGIES CONFERENCE** AND **WORKSHOP:** OCTOBER, 4 – 5, 2017: US $1795
  EARLY BIRD on or before SEPTEMBER 15, 2017: US $1595
  Utility/Government: US $1395, Early Bird $1195

- ◯ **TRANSMISSION UPGRADES AND RECONDUCTORING TECHNOLOGIES CONFERENCE** ONLY
  OCTOBER, 4 – 5, 2017: US $1395
  EARLY BIRD on or before SEPTEMBER 15, 2017: US $1195
  Utility/Government: US $1095, Early Bird $895

- ◯ **POST-CONFERENCE WORKSHOP** ONLY
  THURSDAY, OCTOBER 5, 2017: US $595
  EARLY BIRD on or before SEPTEMBER 15, 2017: US $495

- ◯ I'M SORRY I CANNOT ATTEND, BUT PLEASE EMAIL ME A LINK TO THE CONFERENCE PROCEEDINGS FOR US $395

Please make checks payable to: "PMA"

REGISTRATION
to register CLICK HERE or

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How did you hear about this event? (direct e-mail, colleague, speaker(s), etc.)

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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 September 1, 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.