COST ESTIMATING METHODOLOGIES FOR SUBSTATION AND TRANSMISSION PROJECTS

February 12-13, 2020
EUCI Conference Center
Plaza Tower One Conference Center
Denver, CO

RELATED EVENT
FUNDAMENTALS OF ELECTRICITY TRANSMISSION
February 10-11, 2020 | Denver, CO

POST-COURSE WORKSHOP
Cost Estimating 201
THURSDAY, FEBRUARY 13, 2020

“Excellent content, great speakers, wonderful accommodations!”
Estimator, 3 Phase Line Construction

EUCI is authorized by IACET to offer 1.1 CEUs for the course and 0.4 CEUs for the workshop
EUCI is authorized by CPE to offer 12.0 credits
OVERVIEW

Throughout North America, the need for new utility projects is projected to grow to improve electricity delivery, increase capacities, improve reliability, and meet new standards associated with incorporating renewable energy generation into the smart grid.

In order to effectively utilize allocated and dedicated funding, it is critical for utilities, developers, sub-contractors, project managers, and suppliers to fully understand efficient utility project cost estimation, as this new infrastructure has substantial costs and risks associated with each project. In fact, new overhead transmission lines can cost $1 million or more per mile. The process of building transmission level projects often takes many years—even in the most streamlined process.

In this course, attendees will recognize the critical components to consider in a transmission project estimate. Key components of the course include all factors that impact the final cost of building this infrastructure, including permitting and siting, materials and engineering, construction, and project management.

LEARNING OUTCOMES

• Discuss utility project planning process and budget considerations utilizing industry samples of typical industry projects
• Discuss the environmental and siting processes and the impact on schedules and costs
• Analyze engineering, material cost, and construction considerations for transmission lines and substations
• Compare and contrast contracting methods to include design-bid-build vs. OE/EPC
• Identify strategies to mitigate risks across the spectrum of project types and sizes

WHO SHOULD ATTEND

• Transmission and substation project managers, estimators, and contract managers who are new to the job
• Transmission and substation engineers
• Supply chain and cost accounting professionals for utilities and other energy companies
• Generation project developers and engineers who need an understanding of transmission components and costs
• Regulatory agency staff
• Consultants and engineering firms that work within the electricity transmission sector

“As an estimator in the power industry this course was exactly what I needed in filling gaps in my utility knowledge.”

Estimator, Kenny Construction Company
AGENDA

WEDNESDAY, FEBRUARY 12, 2020

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

8:30 am – 5:00 pm  Course Timing

12:00 – 1:00 pm  Group Luncheon

Session I:
Costs for Major Utility Projects: Substations, Overhead Transmission, and Underground Transmission
Group discussion of major components, including materials and construction

Project Begins at the Substation
• Planning
• Site development

Conduit & Grounding Plan
• Foundations
• Materials
• Substation bus
• Conductor/cables overhead

Transmission Lines
• Plan & profile
• Staking
• Foundations
• Structures
• Hardware

Underground Transmission Lines
• Plan & profile
• Duct bank
• Line splice and pull-through vault
• Line cable
• Line substation riser details

Session II:
Permitting, Siting, and Right of Way Considerations and Costs
• Overview of environmental siting process
• Potential impacts to project timelines and costs
• Urban vs rural considerations
• Construction considerations
• Strategies to minimize schedule obstacles
AGENDA

WEDNESDAY, FEBRUARY 12, 2020 (CONTINUED)

Session III:
Utility Cost Estimation Process
- Developing budget parameters and the project plan
- Utility estimate components
- Cost estimating best practices during the project life cycle
- Cost reference development
- Risk management
- Expected accuracy ranges
- Measuring performance
- Project cost estimate example

THURSDAY, FEBRUARY 13, 2020

8:00 – 8:30 am  Continental Breakfast
8:30 am – 12:00 pm  Course Timing

Session IV:
Methods of Contracting
- Identify common types of contracts and contract delivery methods and understand the risks and advantages and disadvantages associated with each
- Fixed price/lump sum
- Cost plus
- Time and material
- Traditional arrangement/design-bid-build
- EPC arrangements and risk management
- Open book EPC variations
- Impacts to construction process

Session V:
Project Cost Estimate Case Study
Class exercise to estimate major categories of project costs compared to actual costs on two real life projects

“I am from NYISO, a new Planning Engineer. I took on the responsibility of cost-estimation. I think I walked into the water without knowing the depth. This course gave me the life jacket to survive.”

Planning Engineer, NYISO
POST-COURSE WORKSHOP

Cost Estimating 201

THURSDAY, FEBRUARY 13, 2020

12:30 – 1:00 pm  Workshop Registration

1:00 – 5:00 pm  Workshop Timing

OVERVIEW

This workshop is geared towards those who would like a further understanding of the cost estimating process and experience a more in-depth teaching session, after they’ve attended the Cost Estimating Methodologies course. Attendees will learn more of the guidelines for different types of estimating projects, as well as how to use these guides. Attendees will also be working with real-life examples so they can dig deeper into the process and gain a full understanding of cost estimating for substation and transmission projects.

Class participation will provide opportunity for professional networking and learning from others who are actively involved in estimating large projects.

LEARNING OUTCOMES

- Learn how to apply AACE guides to major power projects and how the guides can be used to provide meaningful information to utility managers
- Calculate risk management parameters based on known project information
- Use different Estimating tools currently available to the industry
- Participate in exercises in developing revised cost estimates throughout the project life cycle
- Know how to prepare CE for both a small EPC solar project and a large EPC transmission project
AGENDA

THURSDAY, FEBRUARY 13, 2020

12:30 – 1:00 pm  Workshop Registration
1:00 – 5:00 pm  Workshop Timing

2. Types of Cost Estimates and how they are used
3. Cost Estimating Guidelines - the application of AACE Recommended Practices to major power projects and how they can be used to provide meaningful information to utility managers
   a. AACE 96R, 69R, 56R, etc.
   b. How to use the Guides for different types of projects
   c. Application of Contingency
   d. Expected Accuracy Range
   e. Confidence Interval
4. Identification of Critical Project Elements
   a. Substation
   b. Transmission
   c. Distribution
   d. Generation
5. Cost Estimating Tools commonly used in the industry
6. Class Exercise - Building a Cost Estimating from the bottom up for:
   a. Solar Garden
   b. Gas Turbine
   c. Transmission Line

Class participation will provide opportunity for professional networking and learning from others who are actively involved in estimating large projects.

“The instructors are industry experts that are engaging, knowledgeable, and professional. The course is worth the trip.”

Project Manager, Puget Sound Energy

“Ed and Jay were great! Good material and great discussions.”

Researcher, NREC
COURSE AND WORKSHOP INSTRUCTORS

Edward Weber  
**Senior Transmission Planning Advisor/Project Manager, HDR Engineering Inc.**

Ed Weber is a senior electrical engineer with over 35 years of experience in power system analysis and planning throughout the US. He has extensive experience in power system reliability compliance and system modeling, power flow and stability analysis, transmission tariff process, and generator interconnections. Ed’s experience includes over 30 years of management of large power projects requiring coordination of project planning, design, and environmental activities; coordination of consultant activities; coordination of regulatory and contractual activities; interfacing with the developers and transmission owners and operators; and preparation of technical reports. He has supervised a diverse staff of professional engineers and was responsible for all facets of power system planning and operational support across the country. Since coming to HDR Engineering, Ed has worked on several large transmission and generation projects along with conducting numerous planning and interconnection studies for a long list of clients.

Jay Turner, EIT, PMP, Six Sigma Green Belt  
**Project Controls Major Projects Advisor, Southern California Edison**

Jay Turner has fifteen years of cost estimating, project management, root cause analysis, and process improvement experience in the utility, accounting, and consulting industries. He currently estimates and tracks project costs for transmission, substation, and generation projects for Southern California Edison. Jay has been certified as a Project Management Professional by the Project Management Institute and a Six Sigma Green Belt by the Institute of Industrial Engineers. He earned his M.B.A. and M.S. Systems Engineering from Loyola Marymount University and his B.S. in Engineering and Applied Science from the California Institute of Technology.
REQUIREMENTS FOR SUCCESSFUL COMPLETION

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

PowerPoint presentations, interactive group exercise, and group discussion will be used during this course.

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 and 0.4 CEUs for the workshop.

REGISTER 3, SEND THE 4TH FREE

Any organization wishing to send multiple attendees to this event 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

Plaza Tower One Conference Center
6400 S Fiddlers Green Cir.
Greenwood Village, CO 80111
The EUCI conference center is conveniently located adjacent to the Arapahoe at Village Center Light Rail Station, allowing easy access to and from DIA, Downtown, and Local Area Attractions.

NEARBY HOTELS

Each of these hotels offers a complimentary shuttle to and from the EUCI conference center.

Hyatt Regency Denver Tech (2.8 miles away)
7800 E. Tufts Ave. Denver, CO 80237
303-779-1234

Special EUCI Room Rate: $179.00
To access EUCI room rate visit denvertechcenter.regency.hyatt.com
Click “Book Now”, then click “Special Rates”,
Click “Corporate or Group Code” and enter CR102338

You may also call central reservation at 1-800-233-1234 and give them the corporate code of CR102338

Springhill Suites DTC (.3 miles away)
7900 East Peakview Ave., Greenwood Village, CO 80111
303-721-3321

Wingate by Wyndham (.3 miles away)
8000 E. Peakview Ave., Greenwood Village, CO 80111
303-626-2641

Hyatt Place DTC (2.1 miles away)
8300 E. Crescent Pkwy, Greenwood Village, CO 80111
303-804-7000

Denver Marriott Tech Center (3.1 miles away)
4900 S. Syracuse St., Denver, CO 80237
303-779-1100
**Please Register**

- **Special Bundle Price:** Fundamentals of Electricity Transmission and Cost Estimating Methodologies for Substations and Transmission Projects Courses and Cost Estimating 201 Workshop
  - February 10-13, 2020: US $2395
  - Early Bird on or before January 24, 2020: US $2195

- **Fundamentals of Electricity Transmission and Cost Estimating Methodologies for Substations and Transmission Projects Courses**
  - February 10-13, 2020: US $2195
  - Early Bird on or before January 24, 2020: US $1995

- **Cost Estimating Methodologies for Substations and Transmission Projects Course and Post-Course Workshop: Cost Estimating 201**
  - February 12-13, 2020: US $1795
  - Early Bird on or before January 24, 2020: US $1595

- **Cost Estimating Methodologies for Substations and Transmission Projects Course Only:**
  - February 12-13, 2020: US $1395
  - Early Bird on or before January 24, 2020: US $1195

- **Post-Course Workshop: Cost Estimating 201 Only**
  - Thursday, February 13, 2020: US $595
  - Early Bird on or before January 24, 2020: US $495

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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**

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**Credit Card Information**

- **Name on Card**
- **Billing Address**
- **Account Number**
- **Billing City**
- **Exp. Date**
- **Billing State**
- **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.

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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 January 10, 2020 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. EUCI reserves the right to alter this program without prior notice.