WIND REPOWER & RETROFIT DUE DILIGENCE SUMMIT

February 11-12, 2019
San Diego Marriott La Jolla Hotel
La Jolla, CA

“A well thought out program that covered the major factors.”
Director of Preconstruction, Rosendin Electric

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

EUCI is authorized by CPE to offer 12 credits for the conference
OVERVIEW

The National Renewable Energy Laboratory has estimated that U.S. wind repowering investments could reach $25 billion a year by 2030. Wind repowering – replacing older turbines or other components on a wind farm to improve power capacity and generation – is increasingly becoming an attractive option for developers, owners and investors to profit off existing wind project assets. Federal production tax credit incentives, technical advancements in wind turbine technology, and opportunities for increased performance and revenues are all driving the repower movement. Moreover, North America’s aging wind fleet is causing a surge in operations and maintenance spending from the wind industry, with project owners spending up to $4 billion annually. Repowering wind farms is a viable solution to manage these increasing O&M costs, all the while improving capacity and revenues. All these incentives are prompting the wind industry to evaluate a full spectrum of repower development – from a range of ‘partial’ repowers that involve simple to more complex technical updates – to full repowers, where entire wind farms are decommissioned and replaced with new turbines in the same project area, or relocated to a more economical area.

This emerging repower movement is an attractive opportunity for the wind industry, with experts estimating that repowered turbines can increase fleet output by 25% and add 20 years to turbine life (General Electric). However, although repower projects holds big potential, there are major challenges involved that must be evaluated when considering or undergoing the repower process. Each wind farm is unique and will require a critical due diligence review of financial, technical, and legal considerations to determine if repowering is: 1) a profitable option; and 2) what type of upgrades are necessary to optimize wind generation resources and revenues.

This program is designed to provide expert insight on the repower development market, providing holistic coverage of the financial, technical, and legal due diligence items involved in repowering wind farms, and insight on evaluating what constitutes as a bankable repower project. This instructional symposium will be relevant to both industry veterans and those new to the business.

LEARNING OUTCOMES

- Assess key technical, financial, and legal due diligence items related to wind project repowering
- Identify key trends in U.S. wind repower market
- Examine key tax and project finance concerns and qualification opportunities for wind repower projects
- Assess key legal considerations, construction contract provisions, and insurance issues for wind repowers
- Review wind repower economics and what constitutes a bankable repower project
- Discuss project developers who are evaluating repowering options and their analytical processes
- Assess the interconnection process for repowering wind farms
- Analyze technical due diligence for wind energy assessment for repowering valuation
- Identify methodology for conducting a comprehensive independent engineering (IE) review for wind repower projects

SPONSORSHIP OPPORTUNITIES

Do you want to drive new business through this event’s powerful audience? Becoming a sponsor or exhibitor is an excellent opportunity to raise your profile before a manageably sized group of executives who make the key purchasing decisions for their businesses. There is a wide range of sponsorship opportunities available that can be customized to fit your budget and marketing objectives, including: **Platinum, Gold, or VIP Sponsor, Reception host, Networking break host, Tabletop exhibit, Workshop sponsor, Lanyard sponsor, Luncheon host and Breakfast host.**

Please contact Maggie Field at mfield@euci.com or 720-988-1250 for more information.
AGENDA

MONDAY, FEBRUARY 11, 2019

12:30 – 1:05 pm  Registration

1:05 – 3:00 pm  Update on Wind Repower Market Landscape & Evaluating Bankable Project Opportunities
  • Major trends in the wind project repower market
    o New technologies, taller turbines & longer blades
    o Rising costs of O&M for aging wind fleet
    o Re-qualifying for tax credits
  • Types of repowering
    o Full vs. partial repower
    o Variances of partial repowering
  • Benefits of repowering
  • Project economics
    o Analyzing whether the site is appropriate for repowering
    o Logistics of considering whether a site can be repowered
  • Overview of due diligence for repowering projects
    o Identifying key issues, questions and features

  Carter Atlamazoglou, Senior Director – Global Clean Energy, FTI Consulting
  Ravi Bantu, Director, Transmission, Americas, RES Americas
  Fernando Sosa, Director - Valuation & Advisory, Cushman & Wakefield
  Jim Duffy, Partner, Nixon Peabody LLP

3:00 – 3:15 pm  Afternoon Break

3:15 – 4:15 pm  Legal and M&A Issues with Wind Repower Projects
  • Overview of key legal considerations for partial & full wind repowering
    o Larger or taller equipment issues
    o Wind resource
    o Contract restrictions
    o Community response
    o Decommissioning
  • Legal contract structuring for repowering agreements
    o Operating agreement review (O&M, PPA, Interconnection)
    o Contracting for new vs. existing equipment
    o Ensuring that key provisions of development contracts work together
  • Legal due diligence for wind repower M&A transactions

  Rochelle Rabeler, Partner, Holland & Hart

“Excellent program overall.”

Environmental Review Manager, Minnesota Department of Commerce
AGENDA

MONDAY, FEBRUARY 11, 2019 (CONTINUED)

4:15 – 5:15 pm   Developer Perspective: Analyzing Project Potential & Interconnection Aspects of Repower Projects
- Evaluating the repower market and possible expansion of RES Americas’ development services in wind repowering
- Key construction and engineering aspects of wind project repowering
- Analyzing if a wind asset is bankable for a repower and resale
- Maximizing the value of wind generation capacity with existing ground assets
- Interconnection process for repowering wind
  - How it varies from a typical interconnection process
  - What ISO’s and RTO’s are doing for repower interconnection
  
  Ravi Bantu, Director, Transmission, Americas, RES Americas

5:15 pm   Program Adjourns for the Day

TUESDAY, FEBRUARY 12, 2019

8:00 – 8:30 am   Continental Breakfast

8:30 – 10:00 am   Environmental, Land Use and Permitting Considerations
- Types of permits required for repower projects
- Permitting and design challenges associated with replacing and upgrading turbines
- Timelines for obtaining approvals
- Zoning and entitlement
  - States vs. local permitting
- NEPA/CEQA
- Community issues
- Wildlife studies and government agency (local and federal) interactions
- Water use and wetlands
- Cultural resources
- Native American consultation
- Special issues

  Eric Hansen, Director – Environmental Services, Westwood

10:00 – 10:15 am   Morning Break

10:15 – 11:00 am   State Regulator Approaches to Wind Repower Projects
- Variations in state regulations and rules - what to be aware of in state of operation
- Establishing contacts within all appropriate agencies
- Building a successful developer – regulator relationship for project approval
- Issues and areas of concern for regulatory approval of repower projects
  - Noise modeling
  - Property owner participation
  - Wildlife and permitting
- Tips for developer due diligence for regulator review of repower projects
  - GIS/maps
  - Surveys
  - Processes and timelines
  - Input from developer partners
    - Biologists
    - Lawyers
- Who should you bring to the table?

  Richard Davis, Environmental Review Manager, Minnesota Department of Commerce
**AGENDA**

**TUESDAY, FEBRUARY 12, 2019 (CONTINUED)**

**11:00 – 11:45 am**  
**Financial Modeling for Wind Repowering Analysis**  
- Financial due diligence for potential wind repower projects  
  - Grid interconnection  
  - Balance of plant  
  - Tax credit qualification  
  - Pre-installation of balance of plant  
  - Transmission rights and PPAs  
- Acquiring older facilities at a discount  
- Capitalizing on good existing wind sites  
- Using existing infrastructure  
- What investors are looking for in a repower project  
  *Fernando Sosa, Director - Valuation & Advisory, Cushman & Wakefield*

**11:45 am – 1:00 pm**  
**Group Luncheon**

**1:00 – 2:30 pm**  
**Energy Assessment & Independent Engineering (IE) Review for Wind Projects**  
This session will discuss key technical and engineering considerations for wind repowering farms, evaluating how to determine if turbines on a wind farm will work and are certified to work. It will review seven key areas that owners, investors, lenders and engineers should analyze to maintain ongoing operations and plan for successful repowering:  
- Wind turbine foundations  
- Electrical balance-of-plant  
  - Reactive compensation  
  - Projected expected life  
  - Ampacity overload analysis  
  - Harmonics/sub synchronous resonance (SSR)  
  - Interconnection Agreement (IA)  
- Wind turbine towers  
  - Mechanical loads analysis  
  - Protective coating maintenance  
  - Anchor bolt maintenance  
- Wind resource assessment  
- Wind turbine technology and site suitability review  
- Commercial and permitting review  
- Operations and Maintenance (O&M) cost assessment  
  *Eric Soderlund, Senior Manager, Sargent & Lundy LLC*  
  *Jessica O’Connor, Consulting Engineer & Data Analyst, ArcVera Renewables*

**2:30 – 2:45 pm**  
**Afternoon Break**

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"Great program!"

Executive Director, E3 Consulting

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REGISTER TODAY! CALL 303-770-8800 OR VISIT WWW.EUCI.COM
TUESDAY, FEBRUARY 12, 2019 (CONTINUED)

2:45 – 3:45 pm  
**Wind Turbine Foundations Analysis – Deep Dive**

The integrity and capacity of the existing foundations are the most critical considerations for the long-term success of a repowering effort. Specifically, owners and tax-equity investors have demanded a thorough, detailed, and comprehensive review of existing foundations, including strength, serviceability, and fatigue analysis. This session will discuss key discoveries and outcomes from extensive modeling research conducted on a variety of wind turbine foundation designs, and key methodology steps needed to assess the risk of foundation failure:

- Determining the risk of wind turbine foundation failure
- Reviewing original foundation design
- Analyzing design consideration for fatigue loading
- Assessing condition of exposed (above ground) portion of foundations
- Below-ground foundation inspection
- Cracked versus uncracked properties
- Skewed wind load test
- Site specific design loads
- Exposed foundation inspection findings
- Project's quality assurance and quality control (QAQC) documentation to assess quality of workmanship and adherence to wind turbine and foundation design specifications from initial construction

*Amr Sallam, Sr. Principal & Sr. Engineering Consultant, Terracon*

3:45 – 4:30 pm  
**The OEM Perspective on Wind Repower Projects**

- Construction and installation experiences for repower projects – lessons learned
- Analyzing long term integrity of existing towers and foundations
- Conducting a thorough engineering analysis of changes in force and load
- Methodology for engineering solutions of repower options
  - Part replacements
  - Equipment sizing
- Risk management
  - Warranties
  - Third party certification
  - Back end services to consider

*Matthew Salmi, Repower Product Manager, General Electric (GE) Renewable Energy*

4:30 pm  
Program Adjourns
INSTRUCTIONAL METHODS

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

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 the conference.

CPE CREDITS

EUCI is registered with the National Association of State Boards of Accountancy (NASBA) as a sponsor of continuing professional education on the National Registry of CPE Sponsors. State boards of accountancy have final authority on the acceptance of individual courses for CPE credit. Complaints regarding registered sponsors may be submitted to the National Registry of CPE Sponsors through its website: www.learningmarket.org.

Upon successful completion of this event, program participants interested in receiving CPE credits will receive a certificate of completion. EUCI is authorized by CPE to offer 12 credits for this course and 3.5 credits for the workshop.

There is no prerequisite for this course. Program Level 1: Beginner and Intermediate, Delivery Method: Group-Live, Advanced Preparation: None

EVENT LOCATION

A room block has been reserved at the San Diego Marriott La Jolla Hotel, 4240 La Jolla Village Drive, La Jolla, CA 92037, for the nights of February 10-11, 2019. Room rates are $179 plus applicable tax. Call 1-800-228-9290 or click here for reservations and mention the EUCI event to get the group rate. The cutoff date to receive the group rate is January 21, 2019 but as there are a limited number of rooms available at this rate, the room block may close sooner. Please make your reservations early.

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.
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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?

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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

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 January 11, 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 conference 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.