

Wind Power Development Tutorial

November 4-6, 2009

Houston, TX

Thursday, Nov. 5, 2009

- 8:00-8:05 **Administrative announcements and opening remarks by the Conference Chair**
Edward Zaelke, *Partner*, Chadbourne & Parke LLP
- 8:05-8:45 **How New Federal Support Changes Wind Development and Finance**
The project finance and development landscape is rapidly changing—ARRA and pending energy policy legislation will have major impacts on wind projects in both the near- and far-term. This presentation will provide a summary of ARRA provisions and their effects on project financeability in permitting, equipment procurement and construction phases, as well as how the federal RPS and transmission bills might impact project site acquisition, transmission interconnection and related issues.
Edward Zaelke, *Partner*, Chadbourne & Parke LLP
- 8:45-10:00 **Wind Power Business Models: Deal Structures and Economics and Overview of Wind Power Project Financing**
As wind power developments see exponential growth, project financing races to keep pace. This presentation will explore a range of issues that can impact upon the viability of a project's financing, including: general costs and economics, debt vs. equity financing, capitalizing upon governmental incentives and creating a sound legal structure of contracts for your financing. The presentation will also introduce attendees to how wind power projects work as businesses and produce cash. It will provide sample project *pro formas* for wind power projects, with the goal of illustrating the key economic factors, given a range of financing structures. It will also spell out the chief wind power project risk factors and how they can be mitigated.
Mohammed J. Alam, *President*, Alyra Renewable Energy Finance, LLC
Stephen Krebs, *Partner*, Baker Botts LLP
- 10:00-10:15 Break
- 10:15-11:00 **Wind and Project Performance Risk Assessment**
 - Wind Resource Fundamentals
 - Variability

- Shear
- Turbulence
- Accessing the Resource
 - Modeling
 - Met towers
 - Designing a program
- Estimating Energy
 - Gross energy
 - Net energy
 - Uncertainty Analysis

Michael Drunsic, *Technical Analyst, Feasibility & Consulting Services*,
DNV Global Energy Concepts Inc.

11-11:45 **Turbine Selection**

At the heart of every wind project is the wind turbine generator. With a value of 70% - 80% of the overall project capital cost and being the project revenue driver, wind turbine selection is a critical project development decision. This presentation will discuss the major criteria involved in selecting wind turbines including:

- Current market availability of wind turbines
- Power curve and power density
- Ease of transportation, installation, and operation and maintenance
- Reliability
- Grid stability features
- Warranties and O&M services
- New technologies in the marketplace

Bernie Holst, *Senior Vice President & COO*, Padoma Wind Power, LLC /
NRG Energy, Inc.

11:45-1:15pm **Group Luncheon**

1:15-2:00 **Financing the Purchase of Wind Turbine Generators**

- Changing sources of financing
- Typical turbine supply loan terms
- Loan-to-value ratio
- Security mechanics
- Making the Turbine Supply Agreement financeable
- Vendor consents
- Coordination with other project developing activities: timing

Allan Marks, *Partner*, Milbank, Tweed, Hadley & McCloy LLP

2:00-2:45 **Successfully Permitting Wind Energy Facilities**

This presentation will provide a roadmap to successfully permitting wind energy facilities. It will explore the major environmental issues and steps

that you must take to complete the permitting process. The following topics will be addressed:

- Environmental permitting as part of the development process including an overview of the permitting process, project feasibility and design from an environmental perspective, must-do steps, and how long it will take.
- Major environmental issues including:
 - Avian and bat assessments
 - Wetlands and other sensitive habitats
 - Visual impact analysis
 - Aviation and Radar
- Major environmental regulations and how they affect your project including the National Environmental Policy Act, state equivalent acts, state siting councils, and local zoning requirements.

M. Benjamin Cowan, *Partner*, Locke Lord Bissell & Liddell LLP

2:45-3:15 Break

3:15-4:00 **Transmission Access and Interconnection Related Issues**

- Transmission access and interconnection – key determinants of wind project success
- Overview of processes in various regions, including Midwest, Texas, NYISO, CAISO
- Potential pitfalls and workarounds
- FERC review of queuing and interconnection issues with renewables
- New Hopes from Stimulus Bill For Wind Transmission
- Securing Cost-Effective Station Power for Wind Facilities
- Network Upgrade Disputes

Thomas McCann Mullooly, *Partner*, Foley & Lardner LLP

4:00-4:45 **Pricing Strategies and Negotiating Power Purchase Agreements**

- Potential impacts of a federal RPS and corresponding transmission buildout on PPA terms
- What pricing structures are available?
- What are the availability requirements?
- What are the milestones and what are the penalties for missing them?
- How are risks associated with PTC loss allocated?
- How are transmission risks dealt with?
- How are imbalance risks dealt with?
- How are competing interests of power purchasers and lenders resolved?
- What performance security is required?

William Holmes, *Member*, Stoel Rives LLP

4:45-5:30 **Estimating Costs**

- Capital Costs

- Turbines
- Other equipment
- Construction costs
- Operational Costs
 - O&M
 - Fixed & Variable Parts
- Feasibility
 - Revenue
 - IRR
 - Cost of Funds

Andrew Chant, *Managing Director, Renewable Energy*, ORTECH Power

Friday, November 6, 2009

8:00-8:45 **Tools and Techniques for Asset Valuation of Wind Plants**

- Why do developers need an accurate valuation of their asset?
 - Project Finance requires it
 - You need it for assessing cash-flows out of the asset
 - Your business plan should reflect the asset value and the methodology used to compute the value
- How do wind asset valuations differ from valuations of all other types of power plants?
- Uncertainty
- Introduction to methods used to accurately model wind variability
- How do you model the min and max capacities of a wind asset?
 - They are modeled as fractionally firm assets
 - A portion of the MW capacity is “reliable” based on historical data
 - The other portion is ‘uncertain’ and can fluctuate widely
- Scenario analysis of wind assets versus stochastic analysis
 - Scenario Analysis:
Wind variability is a scenario
Wind equipment outages can be a scenario
- Stochastic Analysis:
 - Understand how these variables can interplay with each other to impact valuation of the asset

John Moore, *Director*, Navigant Consulting, Inc.

8:45-9:15 **Wind Development Case Study One:**

Hal Romanowitz, *President & COO*, Oak Creek Energy Systems, Inc.

9:15-9:45 **Wind Development Case Study Two: 100 MW Hatchet Ridge Project in Shasta County, CA**

George Hardie III, *Senior Developer*, PATTERN ENERGY

- 9:45-10:30 **Structuring and Financing a Wind Project After the Stimulus Bill**
- Update on renewable energy subsidies in the Stimulus Bill
 - Overview of the Treasury Department's cash grant program work
 - How the DOE Loan Guarantee Program is expected to work
 - How renewable energy projects will get financed after the Stimulus Bill
 - Issues left open after the Stimulus Bill
- Eli Katz**, *Counsel*, Chadbourne & Parke LLP

10:30-10:45 Break

- 10:45-12:00 *Panel Discussion:*
- The Evolution of Wind Project Finance: ARRA Provisions, Risk Structures, and Financing Vehicles**
- Impact of the 'ARRA' stimulus bill on how wind farms will now be financed
 - Reports on early applications for federal loans and project loan guarantees
 - What are the new funding and financing sources being tapped against the backdrop of the credit crisis?
 - What are the most common structures?
 - Most successful?
 - Newest arrangements?
 - Which work best for what size project?

Panelists:

James Boyle, *First Vice President*, Commerzbank AG

Stuart J. Murray, *Director, Infrastructure & Energy Finance*,
Citibank USA

Christopher Stolarski, *Senior Vice President, Project Finance*,
Mizuho Corporate Bank Ltd.

12:00-12:15 Chairman's Closing remarks

12:15PM Conference Adjourns