

*Pre-Tutorial Workshop A*  
**Wind Resource and Energy Assessment**  
November 4, 2009, 9 AM –12 Noon  
Houston, Texas

Accurate prediction of the long-term production for a wind project is one of the most important aspects of the development process. Much of the risk associated with a wind project is related to the accuracy of the pre-construction assessment of a project's long-term output. Proper wind resource assessment and wind farm design practices can help a developer reduce risks associated with the wind resource and increase the value of the project.

This workshop will help participants understand the fundamentals of the wind resource and energy assessment process. The workshop will explore and reveal best practices in wind resource and energy assessment by stepping through the process for a hypothetical wind project. The workshop will address several key topics in an applied manner including fundamental characteristics of the wind resource, designing a wind measurement program, data quality control and validation, long-term adjustments, simulation modeling programs and techniques, estimating energy output, and uncertainty analysis. In addition, the workshop will cover issues associated with designing a turbine layout.

Specifically, the workshop will cover the following topics:

- Wind resource fundamentals
  - Shear
  - Turbulence
  - Variability (temporal and spatial)
- Wind measurement programs
  - Wind measurement technology
    - Met Towers
    - Remote sensing (sodar/lidar)
  - Locating measurement instruments
  - Duration of measurement campaign
  - Data management
- Wind resource assessment
  - Measured data
  - Long-term adjustments
  - Wind flow modeling
- Energy Assessment
  - Layout design
    - Turbine selection
    - Constraint mapping
    - Turbine spacing
  - Gross Energy

- Wake modeling
- Technical losses
- Uncertainty Analysis

Instructor:

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