

# 2<sup>nd</sup> WIND TURBINE RELIABILITY WORKSHOP

September 17-18, 2007

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## Monday, September 17

### Welcoming Remarks, Importance of Reliability

1. *Welcome, Perspectives on an Expanded Wind Role in the National Portfolio*, **Stan Calvert, US Department of Energy**
2. *Renewable Energy "Surety"*, **Les Shephard, Sandia National Laboratories**
3. *Reliability Program Goals and Status; Purpose of the Workshop*, **Roger Hill, Sandia National Laboratories**
4. *North American Wind Research and Training Center*, **Jim Morgan, Mesalands Community College**

### Foundations of Reliability – Ensuring Reliability Needs Are Met

5. *Wind Turbine Design Standards: Influence on Reliability*, **Paul Veers, Sandia National Laboratories**
6. *Turbine Class Selection and Layout Design According to Site Conditions*, **Dan Bernadett, AWS Truewind**
7. *Reliability Observations of a Large Wind Farm Operator*, **Larry Barr, enXco**
8. *Reliability Centered Maintenance and SCADA*, **Patrick Quinlan, Second Wind**

### Expanding Markets – Considerations of Reliability and Improving Availability

9. *Technology and Reliability Improvements in GE's 1.5 MW Fleet*, **James Maughan, General Electric**
10. *Reliability Oriented Methodology For New Turbine Operation*, **Jordi Roca Carbonell, ECOTÈCNIA**
11. *Clipper's Design Approach to Improving Reliability and Integrated Condition Based Monitoring*, **Shaw Makaremi, Clipper Wind**

### Reliability Practices, Case Studies, Tools, and Techniques

12. *Operating Wind Plant Monitoring and Performance Optimization*, **AnneMarie Graves, Garrad Hassan America**
13. *Tools for Estimating Operation and Maintenance Costs of Offshore Wind Farms*, **Tom Obdam, Energy Research Center of the Netherlands**
14. *Reliability Centered Maintenance Applied to Jet Engine Maintenance*, **Jim Henry, Standard Aero**
15. *Wind Farm Modeling, and Prognostic Opportunities*, **Jennifer Stinebaugh and Dan Briand, Sandia National Laboratories**

## Tuesday, September 18

### (A) Gearboxes

1. *Gearbox Reliability Collaborative*, **Brian McNiff, McNiff Light Industry**
2. *Gearbox Failure Overview from a Rebuilder's Perspective*, **Paul Baker, Moventas**
3. *Experience with CalWind's Condition Monitoring System*, **Jon Powers, CalWind Resources**

### (B) Blades and Structures

- Addressing Safety Margins in Reliability-Based Design of Wind Turbines*, **Lance Manuel, University of Texas**
- Practical Experiences in the Repair of Blades*, **Gary Kanaby, Knight and Carver**
- Predictive Maintenance for Pitch Systems*, **Paul Rowan, MLS Electrosystem**

### (A) Plant Wide Health Monitoring & RCM/D Approach

4. *Comprehensive Health Monitoring for Wind Turbines*, **Chris Walford, Global Energy Concepts**
5. *Cost Effective Retrofit Condition Monitoring Systems*, **Joe van Dyke, DLI Engineering**
6. *Data Fusion Applied to Helicopter Gearbox Condition Assessment*, **Paula Dempsey, NASA Glenn Research**
7. *Capitalizing on Existing SCADA Data*, **Justin Judkins, Ridgetop Group**

### (B) Electrical and Utility Power Systems

- Large-Scale Wind Generation: Impact On Grid Reliability*, **Abraham Ellis, PNM**
- Wind Turbine Generators: Operation, Maintenance and Repair*, **Tom Ellenbecker, TRICO TCWIND**
- North American Electric Reliability Corporation - Generating Availability Data System (GADs)*, **Mike Curley, NERC**

### Organizational Activities

8. *AWEA O&M Working Group*, **John Dunlop, AWEA**
9. *UWIG O&M Turbine Working Group*, **Larry Barr, enXco**
10. *Gas Turbine Failure Database*, **Sal DellaVilla, Strategic Power Systems**