

2009 Wind Turbine Reliability Workshop 05/04/09

“Digging Down for Reliability”

DAY 1:

Reliability: Impacts across the Spectrum

The maximization of production and minimization of costs in a highly competitive and difficult economy sets the stage for a discussion of the reliability of wind turbines. National programs and an examination of market and economic factors will be addressed as a common basis for the Reliability Workshop.

Operator Approaches to Managing the Costs of Unreliability

Managing wind plants poses the logistical challenge of operating many gigantic, complex, electricity generating devices and collecting the output energy for seamless integration into the utility system. Operators will share their reliability experiences ranging from the practical to analytical.

Wind Turbines in Today’s Environment

With an ever evolving market, the wind turbine manufacturers manage a challenging manufacturing supply chain to meet the demands of the market. With a wide variety of product and services, and looking toward a future offshore market where reliability requirements will be even higher, invited manufacturers will provide information on how risks are managed and how high reliability and service needs are addressed.

Components are the Source of Turbine Reliability

The major components are the organs of the turbine system. Their effectiveness drives expectations for turbine efficiency and power performance. In most cases, they also drive reliability performance. Manufacturers of these major components, the blades, gearboxes, and generators, address how reliability and innovation are balanced.

DAY2:

Gearbox Reliability

Gearbox failures have been a major source of uncertainty in planning and managing O&M costs. Both industry and the DOE Wind Program have focused on improving the understanding of wind turbine applications of geared systems and are working toward higher reliability in that application. This session will discuss what has been done in design, to manage existing systems, and what should be done in the future to improve reliability and reduce the costs of maintaining gearboxes.

Condition Monitoring

Tracking the metrics and general operating conditions allows for a reliability centered maintenance approach. Through trending, vibration, acoustic emissions, particulate deposition and data fusion, a maintenance approach can be adjusted according to the indicated needs of the equipment, thus balancing optimized protection of the equipment and costs of maintenance actions.

Blade Reliability

Blades are the first turbine component to communicate the wind energy in the turbine. Energy capture, as well as other loads, feed into the drivetrain. Managing loads in the blades can lead to improved turbine system reliability. This session will address reliability issues with turbine blades, from design, to manufacturing, to inspection, to repair.

Reliability Analysis and Data Collection

Frequency, duration, and consequence of events (how often, how many, how much) are key to establishing baseline statistics for reliability performance. Discussions will investigate not only how to feed critical information to improve operations, but also how critical performance information can flow to turbine manufacturers and even down the component supply chain.

A View from the Field: Perspectives Panel, Closing Discussion

Operations in the field reveal significant issues and opportunities for RAMS (Reliability, Availability, Maintainability, and Safety). Consultants who have seen a wide range of operations will share their experiences. Speakers will provide their observations, and then proceed to a panel discussion with representatives from across the industry addressing issues of interest, approaches, and future paths, after which, the floor will be opened to the attendees for an extended period of moderated questions and answers.

Confirmed Speakers:

Arnie Baker, Sandia National Laboratories

Phillip Barry, North American Wind Research and Training Center

Jeff Bingaman, US Senate (video address)

Sandy Butterfield, National Renewable Energy Laboratory

Doug Cairns, Montana State University

Antoino Coutinho, Horizon Wind

Ashley Crowther, Romax

Ben Bell, Garrad Hassan

Sal Della Villa, Strategic Power Systems

Roger Hill, Sandia National Laboratories

Jim Johnson, National Renewable Energy Laboratory

Gary Kanaby, Knight and Carver

James Maughan, GE

Megan McCluer, DOE

Steve Nolet, TPI

Francisco Oyague, National Renewable Energy Laboratory

Valerie Peters, Sandia National Laboratories

Dennis Roach, Sandia National Laboratories

Mark Rumsey, Sandia National Laboratories

Shuangwen Sheng, National Renewable Energy Laboratory

Mike Sirak GE Transportation

Mike Smith, enXco

Justin Stover, CC Jensen

Peter Tavner, Durham University

Paul Veers, Sandia National Laboratories

Eric White, AWS Truewind

Michael Wilkinson, Garrad Hassan