

2016 Wind Turbine Blade Workshop

Sandia National Laboratories

August 30 - September 1



Monday, August 29th

4:00 pm – 6:00 pm **Early Registration and Booth Setup, Embassy Suites, Sandia Ballroom V**

Tuesday, August 30th

8:30 am – 10:00 am

Sandia Ballroom V-VIII

Opening Session

Chair: Josh Paquette, Sandia National Laboratories

- **Opening Remarks**

Josh Paquette

Principal Member of the Technical Staff, Sandia National Laboratories

- **Wind Energy and Renewables Policy**

Honorable Martin Heinrich

U.S. Senator, New Mexico

- **DOE Wind Program Blade Research Objectives**

Jose Zayas

Director, Wind & Water Power Technologies Office in the Office of Energy Efficiency and Renewable Energy at the U.S. Department of Energy

- **Sandia's Renewables Research**

Carol L. Adkins

Director, Energy Technologies & System Solutions Sandia National Laboratories

- **The Dynamic Wind Energy Market and Impact on Blade Technology**

Aaron Barr

Senior Technology Advisor, MAKE Consulting

10:00 am – 10:30 am

Break, Booths, and Posters

10:30 am – 12:00 pm

Sandia Ballroom V-VIII

Panel: Trends in Blade Technology and Changing R&D Needs

Chair: Carsten Westergaard, Sandia National Laboratories

- Anurag Gupta

Director for Advanced Technologies, Vestas Wind Systems A/S

- Ken Lee

Blades Structures, Engineer, Envision Energy

- Jesper Månsson

Senior Director, Technical Business Development, LM Wind Power

- Jacques Nader

Head of Blade Design and Boulder R&D Office, Siemens Energy, Inc.

12:00 pm – 1:00 pm

Lunch, Sandia Ballroom IV

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1:00 pm – 2:30 pm

Sandia Ballroom V-VIII

Panel: Establishing a Successful Blade Maintenance Program

Chair: Carsten Westergaard, Sandia National Laboratories

- Josh Crayton
Director of Business Development, Rope Partner
- Jeffrey Hammit
Principal Technical Specialist, NextEra Energy Resources
- Olen Richardson
President, Blade Consultant Services
- Gary Kanaby
Commercial Manager, WindCom

2:30 pm – 3:00 pm

Break, Booths, and Posters

3:00 pm – 4:30 pm

Sandia Ballroom V-VIII

Panel: Blade RCA Processes and Inspection Methods

Chair: Matt Malkin, DNV GL

- Ron Grife
Director of Engineering, Leeward Renewable Energy
- Fabrizio Leone
Manager, Blades Engineering, Vestas Wind Systems
- Jian Lahir
Blade Specialist, EDP Renewables

4:30 pm - 5:00 pm

Wrap-up

6:00 pm - 8:00 pm

Evening Reception – Hosted by [Hexion](#): – Join us in the La Ventana Room

Wednesday, August 31st Track 1 (see page 4 for Track 2)

8:30 am – 10:00 am

Sandia Ballroom IV

Power Performance I

Chair: David Maniaci, Sandia National Laboratories

- **Structural Enhancements – The Way to Lower LCOE**
Find Jensen
Founder, Bladena
- **Sandia National Laboratories Leading Edge Erosion Project**
David Maniaci
Senior Member of the Technical Staff, Sandia National Laboratories
- **A Validation and Verification Plan for Wind Turbine and Wind Plant Computational Models, and How it Relates to Blade Design**
Jonathan Naughton
Director, Wind Engineering Research Center, University of Wyoming
- **Performance of Northern Power's Rotor Systems**
Garrett Bywaters
Chief Engineer, Northern Power Systems

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10:00 am – 10:30 am Break, Booths, and Posters

10:30 am – 12:00 pm Power Performance II

Sandia Ballroom IV

Chair: David Maniaci, Sandia National Laboratories

- **The Impact of Atmospheric Stability on Wind Structure and Turbine Wakes as Revealed by Radar Measurements**

John Schroeder

Professor of Atmospheric Science, Texas Tech University

- **National Rotor Testbed**

Chris Kelley

Senior Member of the Technical Staff, Sandia National Laboratories

- **Wake Steering**

Andrew Scholbrock, Engineer, National Renewable Energy Laboratory

12:00 pm – 1:00 pm Lunch, Sandia Ballroom V

1:00 pm – 2:30 pm Large Rotor Design I

Sandia Ballroom IV

Chair: D. Todd Griffith, Sandia National Laboratories

- **LM 88.4P Blade: The World's Longest Blade**

Jesper Månsson

Senior Director, LM Wind Power

- **AVATAR Project: Advanced Aerodynamic Tools for Large Rotors**

Gerard Schepers

Researcher, Energy Research Center of the Netherlands

- **Design of an Aeroelastically Tailored 10 MW Wind Turbine Rotor**

Frederik Zahle

Senior Scientist, Wind Energy Department, Technical University of Denmark

2:30 pm – 3:00 pm Break, Booths, and Posters

3:00 pm – 4:30 pm Large Rotor Design II

Sandia Ballroom IV

Chair: D. Todd Griffith, Sandia National Laboratories

- **Challenges and Opportunities for Large-scale Floating Offshore Vertical Axis Wind Turbines**

D. Todd Griffith

Principal Member of the Technical Staff, Sandia National Laboratories

- **IEC Blade Standard**

Dayton Griffin

Senior Principal Engineer, DNV GL

- **50 MW Segmented Ultralight Rotor: Design Concept and Controls Strategies**

Daniel Zalkind

University of Colorado-Boulder

Dana Martin

Colorado School of Mines

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4:30 pm – 5:00 pm **Wrap-Up**

Wednesday, August 31st **Track 2**

8:30 am – 10:00 am **Blade Materials, Manufacturing, and Transportation**

Sandia Ballroom VI-VIII

Chair: Brian Naughton, Sandia National Laboratories

- **Trends in Rotor Blade Manufacturing**
Dirk-Jan Kootstra
Director and Co-Founder, Pontis Engineering
- **Printed Molds**
Lonnie Love
*Group Leader, Automation, Robotics and Manufacturing;
Oak Ridge National Laboratory*
- **Space Frame Blade Technology**
Ryan Barnhart
Lead Engineer, Materials & Processes, Wetzel Engineering, Inc.
- **Blade Transportation Challenges**
Brian Vargas
Manager, Landstar Global Logistics

10:00 am – 10:30 am **Break, Booths, and Posters**

10:30 am – 12:00 pm **Blade Materials, Manufacturing, and Transportation**

Sandia Ballroom VI-VIII

Chair: Brian Naughton, Sandia National Laboratories

- **Institute for Advanced Composites Manufacturing Innovation**
Derek Berry
Senior Engineer, National Renewable Energy Laboratory
- **Low Cost Carbon Fibers for Wind Energy**
Cliff Eberle
*Director, Materials and Processing, Institute for Advanced Composites Manufacturing
Innovation*
- **Advancements in Composite Materials for Wind Blades**
Dave Hartman
Scientist, Program Manager, Owens Corning
- **Effects of Defects in Wind Blade Laminates**
Doug Cairns
Professor of Mechanical & Industrial Engineering, Montana State University

12:00 pm – 1:00 pm **Lunch: Sandia Ballroom V**

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1:00 pm – 2:30 pm

Defects, Damage, and Repair

Sandia Ballroom V-VIII

Chair: Josh Paquette, Sandia National Laboratories

- **Lightning Protection: Securing Higher Reliability and Meeting the New Standards**
Kim Bertelsen
CEO, Founder & Owner, Global Lightning Protection Services A/S
- **Lightning Detection System: Strategies for Monitoring & Integrating Into a Blade Maintenance Program**
Ben Rice
Operations Engineering Manager, Pattern Energy Group, Inc.
- **Blade Repairs**
Sheryl Weinstein
Blade Services Manager, Rope Partner, Inc.
- **Toward a New Sub-component Test Method for the Trailing Edge Region of Wind Turbine Blades**
Kim Branner
Head of Structural Design & Testing Team, Technical University of Denmark

2:30 pm – 3:00 pm

Break, Booths, and Posters

3:00 pm – 4:30 pm

Blade Materials

Sandia Ballroom V-VIII

Chair: Josh Paquette, Sandia National Laboratories

- **Optimizing Quality Assurance Inspections to Improve the Probability of Damage Detection in Wind Turbine Blades**
Dennis Roach
Senior Scientist, Transportation Safeguards & Surety Program, Sandia National Laboratories
- **Drone Inspection**
Chris Bley
CEO, InspecTools
- **Ground-Based Inspection**
John Newman
President, Digital Wind Systems, Inc.
John Lindberg
Program Manager–NDE Innovation, Electric Power Research Institute (EPRI)
- **Field Inspection of Wind Turbine Blades Using a Microwave Interferometric Method**
Alexander Tran
Lead Engineer of Structural Design, Wetzel Engineering, Inc.

4:30 pm – 5:00 pm

Wrap-Up

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Thursday, September 1st Post-Workshop Meetings

8:00 am – 12:00 pm **IEA Task 35 Meeting**

Sandia Ballroom II Chair: Scott Hughes, National Renewable Energy Laboratory

8:00 am – 10:00 am **IEC 61400-5 Stakeholder Group**

Sandia Ballroom III Chair: Dayton Griffin, DNV GL

10:00 am – 12:00 pm **Blade Reliability Collaborative**

Sandia Ballroom III Chair: Josh Paquette, Sandia National Laboratories

12:00 pm – 1:00 pm **Lunch, Sandia Ballroom TBA**

8:00 am – 12:00 pm **IEA Task 35 Meeting, continued**

Sandia Ballroom II Chair: Scott Hughes, National Renewable Energy Laboratory

1:00 pm – 5:00 pm **Scaled Rotor Testing: Tutorial and Research Discussion Forum**

Sandia Ballroom III Chair: David Maniaci, Sandia National Laboratories

