## NAWEA WindTech 2019 Program
All rooms located in the Campus Center
1 Campus Center Way, Amherst, MA 01003
(Unless otherwise noted.)

### Monday, October 14, 2019

#### 7:30AM-9:00AM
Registration and Continental Breakfast
Room: Campus Center Auditorium

#### 9:00AM-9:30AM
Opening Welcome: James Manwell, University of Massachusetts Amherst
Room: Campus Center Auditorium

#### 9:30AM-11:30AM
**PLENARY 1**

**Grand Challenges in Wind Energy Science**
Room: Campus Center Auditorium
Session Chair: Paul Veers, NREL
- Paul Veers, NREL - The Grand Wind Vision
- Katherine Dykes, DTU – Control and the Grid
- Melinda Marquis, NOAA – The Atmosphere
- Carla Bottasco, TUM – The Growing Turbine
- Joachim Peinke, Oldenburg – Wind Integrated Science
- Eric Lantz, NREL – Intersections with Social Science

#### 11:30AM-12:00PM

#### 12:00PM-1:00PM
LUNCH
Room: Campus Center Auditorium

#### 1:00PM-3:00PM **SESSION 1** (all rooms in Campus Center)

<table>
<thead>
<tr>
<th>Track A Room: 174</th>
<th>Track B Room: 803</th>
<th>Track C Room: 165</th>
<th>Track D Room: 904</th>
<th>Track E Room: 805</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wind Turbine Controls</strong></td>
<td><strong>Distributed wind power/hybrid power systems</strong></td>
<td><strong>Meteorological/oceanographic design condition</strong></td>
<td><strong>Wake Physics and Array Effects</strong></td>
<td><strong>Regulations &amp; Economics: International Comparisons</strong></td>
</tr>
<tr>
<td>David Schlipf</td>
<td>Ian Baring-Gould</td>
<td>Jim Edson</td>
<td>Jason Jankman</td>
<td>Erin Baker</td>
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</tbody>
</table>

- Wind turbine control open-source software for control education, compilation and standardization
  - Sebastiaan Mulders, Delft University of Technology
- An Update to the National Renewable Energy Laboratory Baseline Wind Turbine Controller
  - Nikhar Abbas, National Renewable Energy Laboratory
- Effective wind speed estimation for wind turbines in down-regulation
  - Fanzhong Meng (for Wai Hou Lio), Technical University of Denmark
- Wind turbine power curve upgrades: methods for the assessment and test cases study
  - Francesco Castellani, University of Perugia
- Mechanism analysis of distributed wind turbines performance in turbulent environment
  - B. Jia Yan, Inner Mongolia University of Technology
- Aerodynamic Performance Prediction of S6043 airfoil for a Horizontal-axis Small Wind Turbine
  - Panyue Shao, Korea Institute of Energy Research
- An Evaluation of Advanced Tools for Distributed Wind Turbine Performance Estimation
  - Ram Pratap, National Renewable Energy Laboratory
- Distributed Wind Resource Assessment for Small, kW-class Wind Turbines using Computational Fluid Modeling Software
  - Tom Acker, Northern Arizona University

- Industry Requirements for Metocean Infrastructures
  - Michael Drunsic, Renewables WSP USA
- Industry requirements for Metocean Infrastructures
  - Anthony Krinich, Woods Hole Oceanographic Institution
- Offshore floating wind turbines as sea state observers
  - Marco Belloli, Politecnico di Milano
- An Experimental Study to Characterise the Effects of Ice Accretion on Wind Turbine Performance
  - Hui Hu, Aerospace Engineering Dept., Iowa State University
- Offshore Wind Turbines Will Encounter Very Low Atmospheric Turbulence
  - Julie Lundquist (for Nicola Bodini), University of Colorado Boulder
- Wake Meandering in a Large Experimental Model Wind Turbine Array
  - Martin Wosnik, University of New Hampshire

#### 3:00PM-3:30PM
BREAK

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**Invited Talk: A2e - Addressing Wind-Plant Design Challenges**
- Paul Veers, National Renewable Energy Laboratory

**The Climate Value of Offshore Wind Energy**
- Aleksej Cramner, Bentley University and Erin Baker, UMass

**Complexity and Relevance of the Planning of Offshore Wind Farms in French Law**
- Nicolas Boillet, Université de Bretagne Occidentale

**Regulatory Development of Offshore Wind in the United States**
- Dylan Jones, Tufts University

**Local Sourcing in Floating Offshore Wind: a Case Study**
- Thomas Choisnet, Ideol, La Ciotat, France

The US could provide 20% of the World’s OSW by 2050
- Ross Tyler, Business Network for Offshore Wind (BNOW)
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<tr>
<th>Wind Plant Controls Room: 174</th>
<th>Education Room: 803</th>
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<th>Wind Plant Modeling and Design Room: 904</th>
<th>Insights on Public and Community Perspectives Room: 805</th>
</tr>
</thead>
<tbody>
<tr>
<td>The effect of minimum threat coefficient control strategy on power output and fatigue loads of a wind farm</td>
<td>The Caliguate Wind Competition – Undergraduate Education through Student Competition</td>
<td>Characterizing Marine Atmospheric Boundary Layer to Support Offshore Wind Energy Research</td>
<td>Comparison of Botor Wake Identification and Characterization Methods for the Analysis of Wake Dynamics and Evolution</td>
<td>Overall Analysis of Attitudes</td>
</tr>
<tr>
<td>Farzhong Meng, Department of Wind Energy, Technical University of Denmark</td>
<td></td>
<td>Hsu-Huang Jiang, Woods Hole Oceanographic Institution Modeling Hall and Convection stdrooms with WRF for Wind Energy Applications</td>
<td>Eliot Quinn, National Renewable Energy Laboratory</td>
<td>Ben Hoer, Lawrence Berkeley National Lab</td>
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<tr>
<td>Wind Deflection Experiments on a Model Wind Turbine using lidar Windscanner</td>
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<td>Friedrich Letton, Cornell University</td>
<td>Wind Farm Layout Optimization in Complex Terrain</td>
<td>Public Participation and Process Fairness: LBNL national survey</td>
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<tr>
<td>Paul Halaman, Furtbild – University of Oldenburg</td>
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<td>Characterizing Hurricane Loading on a Proposed Windfarm Offshore Rhode Island</td>
<td>Jeffrey Allen, National Renewable Energy Laboratory</td>
<td>Joe Rand, Lawrence Berkeley National Lab</td>
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<td>Wake deflection physics development using HAWKS</td>
<td>Using a Coupled Ocean-Atmosphere Modeling System</td>
<td>Wind Farm Layout Optimization with Loads</td>
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<td>LBNL National Survey: Relative Preferences between Wind Power and Other Sources of Electricity (Proctor, 2021)</td>
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<tr>
<td>Ricardo Castillo &amp; Andy Swift, Texas Tech University</td>
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<td>Re-parameterized WebbDistribution for Modeling Mericoan Extremes with the Rosenblatt</td>
<td>Considerations</td>
<td>Jeremy Firestone, University of Delaware</td>
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<td>Field Validation of Wake Steering Control with Wind Direction Variability</td>
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<td>Transformation</td>
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<td>A review of empirical findings on community wind energy</td>
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<td>Eric Simley, National Renewable Energy Laboratory</td>
<td>WindDr: An NSF-sponsored consortium in wind energy graduate education</td>
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<td>Jamie Baxter, Western University</td>
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<td>Total Variation of Wind Turbine Operational Data to Detect Conditions of Interest</td>
<td>Tom Acker, Northern Arizona University</td>
<td>Can we predict short-term extreme conditions from 10-minute data only?</td>
<td>Michael Sprague, National Renewable Energy Laboratory</td>
<td>Community consent: An alternative framework for reaching agreements about wind turbines and wind farms projects</td>
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<td>Nicholas Hamilton, National Renewable Energy Laboratory</td>
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<td>Ásta Hannesdóttir, Danish Technical University, Department of Wind Energy</td>
<td>The curled wake model: equivalence of shed vorticity models</td>
<td>Tom Weidler, Kean State College and SEH, Seth P. Tuler, Worcester Polytechnic Institute and SEH</td>
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<td>Wind tunnel experimental variability of aerodynamic loads for wind turbine blades</td>
<td>Distributed wind power/ hybrid power systems Review of Hybrid Offshore Wind Energy Platforms</td>
<td>Simulating the response of a small horizontal-axis wind turbine during a wind event using FAST</td>
<td><strong>Monday, October 14, 2019, continued</strong></td>
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<td>Muhammad Rabil, The University of Newcastle, Australia</td>
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<td>Aligning the Linearized Hinge-Spring blade Model with modern conventions: UHSBM2 and FAST</td>
<td>Wind turbine technology Effect of the Dust Shaps on the PerfoRoomance of a Ducted Wind Turbine</td>
<td>Effect of Dusting-inflow on Boundary Layer Development</td>
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<td>Optimizing the Use of ULTRAd in Wind Farms: Minimizing Life-Cycle Cost Impact of Wake Error</td>
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<td>Correction of numerical errors in complex terrain based on numerical models</td>
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<td>Performance of implicit hole-cutting-based overset grids for incompressible flow</td>
<td>Offshore Wind Graduate Certificate Program at UMass Amherst M. Ida Campus and On-Line</td>
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<td>Tom Weidler, Kean State College and SEH, Seth P. Tuler, Worcester Polytechnic Institute and SEH</td>
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### Tuesday, October 15, 2019

#### 7:30AM-8:15AM

Registration and Continental Breakfast  
Room: Campus Center Auditorium

#### 8:15AM-10:00AM

**PLENARY 2**

Hurry up, and wait! Cross-cultural stakeholder engagement while solving urgent engineering climate change challenges!  
Room: Campus Center Auditorium  
Session Chair: Bonnie Ram

David Cash, Dean, John W. McCormack Graduate School of Policy and Global Studies  
Jennie Stephens, Director, School of Public Policy & Urban Affairs, Northeastern University  
Suzanne Tegen, Assistant Director, Center for the New Energy Economy  
Paul Veers, Wind Energy Science Group Manager, National Renewable Energy Laboratory  
Bonnie Ram, Interim Director, Strategic Partnerships and Initiatives and Associate Director of the Center for Research in Wind, University of Delaware

#### 10:00AM-10:30AM

**SESSION 3** (all rooms in Campus Center)

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<th>Turbine Technology - 1 Room: 174</th>
<th>Structures, safety and reliability/Turbine lifecycle considerations Room: 805</th>
<th>Wind resource Room: 904</th>
<th>Offshore Wind - Session 1 Room: 165</th>
<th>Environmental Risks and Sound Annoyance Room: 803</th>
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<tr>
<td>Todd Griffis</td>
<td>Rupp Carriveau</td>
<td>Julie Lundquist</td>
<td>Chris Allen</td>
<td>Ben Hoen</td>
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</table>

- Introduction of a Free Vortex Wake Method Into OpenFAST  
- Kyle Shaler, National Renewable Energy Laboratory  
- A Numerical Model for the Analysis of Leading-Edge Protection Tapes for Wind Turbine Blades  
- Desirae Major, The Pennsylvania State University  
- Enhancement of Unsteady and 3D Aerodynamics Models using Machine Learning  
- Ganesh Vijayakumar, National Renewable Energy Laboratory  
- Simulations for Effect of Surface Roughness on Wind Turbine Aerodynamic Performance  
- Yong Su Jung, University of Maryland  
- Effects of hydrometeor droplet characteristics on wind turbine blade leading edge erosion: A numerical study  
- Rebecca Barthelemy, Cornell University

- Reliability Analysis of Wind Turbine Blades Considering Lightning Strike  
- Wenzao Zhao, Zhejiang University  
- Geologic Setting of the Maryland Wind Energy Area: Implications for Foundation Selection and Design  
- Katie Diaz, University of Delaware  
- Remaining Useful Life Determination for Wind Turbines  
- Michael Paglisch, RWTH Aachen University, Center for Wind Power Drives  
- Acoustic Sensing Based Operational Wind Turbine Blade Monitoring  
- Murat Işıküt, University of Massachusetts Lowell  
- Analysis of Economic Sensitivities Surrounding Wind Farm Life Extension  
- Rupp Carriveau, University of Windsor

- Multi-scale simulations of wind farm performance with complex terrain and weather events  
- Fanxu Chao, University of California, Berkeley  
- The New European Wind Atlas Model Chain  
- Javier SaezRodrigo, CENER  
- Mesoscale to Microweather Coupling for Wind Energy Applications: Addressing the Challenges  
- Sue Ellen Haupt, National Center for Atmospheric Research  
- Three-Dimensional Planetary Boundary Layer Parameterization for High-Resolution Mesoscale Simulations  
- Brian Kocin, NCAR  
- Large Eddy Simulations of Idealized Atmospheric Boundary Layers using Nalu-Wind  
- Colleen Kaul, Pacific Northwest National Laboratory

- Keynote  
  - Chris Allen, University of Maine  
  - Global Energy Conversion from Wind over Water: The Energy Ship Concept  
  - Max Plaetzer, UC Davis  
  - Wind Turbines: Operation of Offshore Wind Energy System  
  - In Far Offshore Environment  
  - Aaron Annan, University of Massachusetts Amherst  
  - The Influence of Synthetic Mooring Line Stiffness Model Type on Global Floating Offshore Wind Turbine Response  
  - William West, University of Maine  
  - Frequency-Dependent Aerodynamic Damping and Inertia in Linearized Dynamic Analysis of Floating Wind Turbines  
  - Carla Eduardo Silva de Sousa, Norwegian University of Science and Technology

- Literature Review of Wind Turbines and Health Effects  
  - Sonja Sax, Ramboll  
  - Strategies for Mitigating Bat Impacts Using Smart Wind Turbine Curtailment  
  - Jian Teng, University of Iowa  
  - A comprehensive review analyzing avian mortality studies performed around wind parks  
  - Edina Salamová, Aarhus University  
  - Addressing Effects of Offshore Wind Energy Development on Bats  
  - Zara Dowling, UMass Clean Energy Extension

- LBNL National Survey: Sound Annoyance  
  - Ben Hoen, LBNL  
  - Understanding Community Audibility and Annoyance to Wind Turbine Sounds  
  - Ryan Hase, Resource Systems Group  
  - Associations between wind turbines and health using residential proximity to wind turbines as an alternative exposure  
  - Sandra Schild, Ramboll

- LUNCH  
  - Room: Campus Center Auditorium

#### 10:30AM-12:30PM

#### BREAK

#### 12:30PM-1:30PM

LUNCH  
Room: Campus Center Auditorium
Turbine Technology - 2 Room: 174  
Room: 805 Wind Resource Room: 904  
Offshore Wind - Session 2 Room: 165  
Stakeholder Perspectives on Offshore Wind Room: 803

Carlos Simao Ferreira  
Sanjay Arwade  
Julie Lundquist  
Charles Aubeny  
Bonnie Ram

Invited Talk  
(speaker TBD)
Experimental characterization of H-VAWT turbine for aero-elastic model development
Bruce LeBlanc, Delft University of Technology
Aerodynamic Load and Wake Measurements on a Sub-scale Wind Turbine
Jonathan Naughton, University of Wyoming
Wind tunnel experimental variability of aerodynamic loads for wind turbine blades
Luca Caracoglia, Northeastern University
Low-Cost Displacement Indicator for Wind Turbine Foundations
Raj Kumar Gondle, University of Massachusetts Lowell
Wind turbine blade leading edge erosion
Rebecca Barthelemy, Cornell University
Lidar Scanning of Induction Zone Wind Fields over Sloping Terrain
Turben Meekeman, DTU Wind Energy
The Effects of Wind Veer During the Morning and Evening Transition
Miguel Sanchez, University of Colorado Boulder
Characterization of turbulence under different stability conditions using lidar scanning data near the WIP 2 Physics site
Raj Rai, Pacific Northwest National Laboratory
Comparison of dynamic response and levelized cost of energy on three platform concepts for floating offshore wind turbine systems
Yuka Kikuchi, The University of Tokyo
Modeling Uncertainties of Wind Field Reconstruction Using Lidar
Weifei Hu, Zhejiang University
Comparing the Effect of Turbulence on Fatigue Load and Fatigue Life for Floating Wind Turbines
Weifei Hu, Zhejiang University

3:30PM-4:00PM

3:30PM-4:00PM  
PLENARY 3

5:45PM-6:30PM

5:45PM-6:30PM  
Free time: Poster Viewing, Campus Center 11th Floor: Marriott Center

6:30PM-8:00PM

6:30PM-8:00PM  
Registration and Continental Breakfast  
Room: Campus Center Auditorium

Jordan Shoesmith, PMO & Bid Development, Vineyard Wind – Developer Needs for Offshore R&D  
Derek Stilwell, Manager of Business Development, GE Offshore Wind – OEM Needs for Offshore R&D  
Walt Musial, Manager Offshore Wind, NREL – Reducing OSW cost through innovation
Bonnie Ram, Director of Strategic Partnerships, Center for Research in Wind, University of Delaware – “I don’t trust you: Effective Public Engagement”

Tuesday, October 15, 2019, continued
Wednesday, October 16, 2019

8:00AM-8:15AM
Continental breakfast
Room: Campus Center Auditorium

8:15AM-10:00AM
PLENARY 4
Moderator: Josh Paquette, Sandia National Laboratories
Mark Bolinger, Lawrence Berkeley National Laboratory
Steve Nolet, TPI Composites
Todd Griffith, University of Texas-Dallas

10:00AM-10:30AM

10:30AM-12:30PM
SESSION 5 (all rooms in Campus Center)

10:30AM-11:30AM
Turbine Technology - Room: 174
In-Blade Measurements of Cyclic Loading on Yawed Scaled Turbines with Trailing Edge Flap
Farid Samara, University of Waterloo

In-Blade Measurements of Cyclic Loading on Yawed Scaled Turbines with Trailing Edge Flap
Farid Samara, University of Waterloo

Initial Results from the Field Testing of the “Rotor as a Sensor” Concept
Carlo L. Bottasso, Technische Universität München

Best Practices for Simulating Wind Plant Wakes with WRF Wind Farm Parameterization
Jessica Tomaszewski, University of Colorado Boulder

Assessment of Wind Turbine Impact on Future Climate in GCM-Driven WRF Simulations
Tristan Shepherd, Cornell University

Assessing the stability of wind resource and operating conditions
E.C. Przyb, Cornell University

Machine Learning Approach towards short term forecasting of wind turbine power production
Kiran Bhaganagar, University of Texas, San Antonio

Short-Term Wind Forecasting using Statistical Models with a Fully Observable Wind Flow
Jordan Perr-Sauer, National Renewable Energy Laboratory

Development of Thermal Residual Stresses during Manufacture of Wind Turbine Blades
Mala Rosemeier, Fraunhofer Institute for Wind Energy Systems

12:30PM-1:30PM
Lunch/Closing Awards
Room: Campus Center Auditorium

POST CONFERENCE ACTIVITIES Wednesday 10/16 (Times and locations vary)

1:30PM-6:00PM
NAWEA Education Committee 1:30PM-2:00PM
NAWEA NSF IGE International 2:00PM-2:30PM
NAWEA NSF IGE WindU 2:30PM-3:00PM
Room: Campus Center 805

Grad Student mini-symposium 1:30PM-3:30PM
Room: Campus Center 165

IEA Task 31 Meeting 2:30PM-6:00PM
Room: Campus Center 165

NAWEA Organizational Meeting (open to the public) 1:30PM-3:30PM
Room: Campus Center 904

NAWEA NSF IGE IREDS 1:30PM-2:00PM
Room: Campus Center 805

NAWEA NSF IGE WindU 2:00PM-2:30PM
Room: Campus Center 805

Grad Student mini-symposium 1:30PM-3:30PM
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IEA Task 31 Meeting 2:30PM-6:00PM
Room: Campus Center 165

NAWEA Organizational Meeting (open to the public) 1:30PM-3:30PM
Room: Campus Center 904
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<tr>
<td>8:00AM-10:00AM</td>
<td>OpenFast Workshop</td>
<td>Campus Center 165</td>
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<tr>
<td>10:00AM-10:30AM</td>
<td>Break</td>
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<td>10:30PM-12:30PM</td>
<td>SOWFA/Nalu Wind Workshop</td>
<td>Campus Center 904</td>
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<td>US-UK Collaboration Meeting</td>
<td>Amherst Room, Campus Center 10th floor</td>
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<td>IEA Task 32 and 37 Meeting</td>
<td>Hadley Room, Campus Center 10th floor</td>
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**Friday 10/18: IEA Meeting info**

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<th>Time</th>
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