

SMART WIND CONSORTIUM LAUNCH

Albany, New York
October 15 - 16, 2014

NIST
National Institute of
Standards and Technology
U.S. Department of Commerce

Upcoming SMART Wind Events

SMART Wind: Mechanical Systems Subgroup Meeting

November 12-14, 2014
Denver/Boulder, CO

SMART Wind: Support Structures Subgroup Meeting

January 13-14, 2015
Denver/Golden, CO

SMART Wind: Composites Subgroup Meeting

February 16-18, 2015
Denver/Boulder, CO

Distributed Wind 2015 and SMART Wind: Electrical Systems Subgroup Meeting

March 24-27, 2015
Washington, DC

Distributed Wind 2016 and SMART Wind: Roadmap Prioritization Meeting

March, 2016 (Specific Dates TBD)
Washington, DC



www.distributedwind.org

Welcome to the Distributed Wind Energy Association Sustainable Manufacturing Advanced Research and Technology (SMART) Wind Launch Meeting

By joining us today, you are expressing an interest in being part of the SMART Wind Consortium, helping to develop a consensus-based Distributed Wind Technology Roadmap that identifies common distributed wind manufacturing gaps and barriers, prioritizes solutions to those gaps for today and for future scalability, and facilitates a rapid transfer of innovation into American-manufactured wind turbines. The Roadmap will lead the way to new market opportunities and more distributed wind applications, thereby maintaining U.S. global competitiveness and leadership.

SMART Wind project objectives include working to:

- Address major technological and related barriers that inhibit the growth of advanced distributed wind manufacturing by building an industry-based Consortium with a wide variety of stakeholders to reach consensus on advanced manufacturing opportunities.
- Connect more than 80 existing and new collaborators to form consensus on near-term (low and high cost) and mid-term plans needed to increase cost competitiveness through the use of advanced manufacturing techniques, as documented in the SMART Wind Roadmap.
- Accelerate university-based research to develop innovative technology solutions and facilitate deployment to support advanced U.S. manufacturing, increasing the number of American jobs throughout the distributed wind supply chain.
- Integrate National Institute of Standards and Technology (NIST) work with other federal and state government opportunities to unite strategies and complement the U.S. Department of Energy's (DOE's) distributed wind efforts.

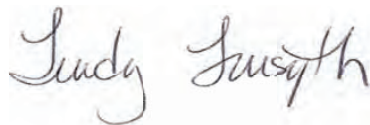
The objective of today's launch meeting is to provide Consortium members an opportunity to meet each other and new partners to help create the industry Roadmap. Introductions will include:

- An overview of the NIST Advanced Manufacturing Technology (AMTech) SMART Wind project and team;
- An overview of DWEA distributed wind manufacturers, their products, and their top-level barriers; and
- Presentations from existing DOE and new NIST government partners, academic experts, and research lab partners.

Today we begin working together in a new way, seeking partnering opportunities to help the distributed wind sector maintain its current tenuous global leadership position. We are planning a face-to-face meeting for each of the Consortium subgroups: mechanical systems, support structures, composites, and electrical systems. We welcome dialogue about this project and its objectives and partners, and we request guidance from the DWEA OEM SMART Wind Steering Group.

The Roadmap we create will be reviewed and scrutinized by potential government funders. We are confident that some of the actions cited in the Roadmap will be appropriate for federal government co-funding. Only by working together will we be able to identify those actions and create innovative approaches to meeting individual business goals and developing a stronger U.S. manufacturing base.

We look forward to working with all of you. You can learn more about the SMART Wind project at www.distributedwind.org/smart-wind-consortium.



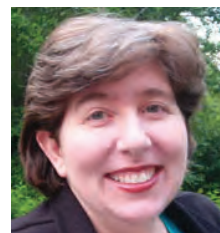
Trudy Forsyth



Heather Rhoads-Weaver



Jennifer Jenkins



Agenda

Wednesday, October 15

5:30 PM - **Welcome Reception**

7:30 PM Hosted presentations:

Daniel Valyou

Facility Manager, CECET Blade Test Facility, Clarkson University

Gary Kanaby

Director of Marketing and Sales, Wetzel Engineering Inc



OBJECTIVE

For distributed wind manufacturers, supply chain members, academic researchers and other Consortium participants to meet each other, to establish expected outcomes, and learn about NIST resources available. Identify opportunities, expertise and distributed wind knowledge.

Thursday, October 16

7:30 AM **Registration and Coffee**

8:00 AM **Self-Introductions by Consortium Participants**

What do you hope this project to accomplish? What are your areas of expertise?

Jennifer Jenkins - facilitator

Executive Director, Distributed Wind Energy Association

Heather Rhoads-Weaver - facilitator

Market, Policy & Development Consultant, eFormative Options LLC

8:30 AM **Welcome and Opening Remarks**

Dr. Tom Lettieri - U.S. Department of Commerce NIST Programs
in Manufacturing Innovation

Project Manager, AMTech Program, National Institute of Standards & Technology

Bret Barker - U.S. Department of Energy Distributed Wind Engagement

Distributed Wind Analyst, New West Technologies

9:00 AM **Manufacturing Related Federal Activities: Opportunities for Distributed Wind**

Ben Vickery

Senior Analyst, Manufacturing Futures Group, National Institute of Standards & Technology

Tom Bell

Project Director, Center for Economic Growth

Tara Rice - Rural Council "Made in Rural America" Initiative

Special Assistant, Office of the Secretary, U.S. Department of Agriculture

10:00 AM **Networking Break**

10:30 AM **Overview of Project Plans, Advisors & Core/Support Team Roles**

Expectations for Participants

Jennifer Jenkins

Executive Director, Distributed Wind Energy Association

Heather Rhoads-Weaver

Market, Policy & Development Consultant, eFormative Options LLC

11:00 AM **Overview of DWEA OEM Steering Group Members, Top-Level Manufacturing Gaps & Opportunities**

Technology, skill sets, tooling, facilities, vendor relationships, QA, etc.

Trudy Forsyth

Managing Director, Wind Advisors Team

Brent Summerville, PE

Principal Engineer and President, Summerville Wind & Sun

12:00 PM **Lunch: Informal Table Discussions by Subgroups**

Composites, Support Structures, Mechanical & Electrical Systems

Agenda

STEERING GROUP MEMBERS



Thursday, October 16 continued

1:00 PM

Identifying Steering Group Advisors and Subgroup Leaders

Mechanical:

Robert Preus

Technical Lead for Distributed Wind, National Renewable Energy Laboratory

Gary Harcourt

Manager and Co-owner, Great Rock Windpower

Commissioning Engineer, Endurance Windpower Inc.

Dr. Patrick Lemieux

Associate Professor of Mechanical Engineering, CalPoly

Composites:

Dr. Pier Marzocca

Associate Professor of Mechanical & Aeronautical Engineering, Clarkson University

Dr. Case van Dam

Department Chair, Mechanical & Aerospace Engineering, UC Davis

Paul Williamson

Director and Principal Coordinator, Maine Ocean and Wind Industry Initiative (MOWII)

Electrical:

Dr. Ruth Douglas Miller

Associate Professor of Electrical & Computer Engineering, Kansas State University

Dr. Wei Qiao

Associate Professor of Electrical Engineering

Director of Power and Energy Systems Laboratory, University of Nebraska-Lincoln

Dr. Rob Wills, PE

Principal Engineer, forENGics

Support

Structure:

Dr. Asad Esmaeily

Professor of Structural Engineering, Kansas State University

Dr. Rick Damiani

Senior Engineer, National Renewable Energy Laboratory

Roger Dixon

Owner, Skylands Renewable Energy

3:00 PM

Networking Break

3:30 PM

Latest Distributed Wind Research at U.S. DOE National Labs

Robert Preus, PE

Technical Lead for Distributed Wind, National Renewable Energy Laboratory

Joshua Paquette

Task Leader for Laboratory & Field Testing of Wind Turbine Blades, Sandia National Laboratories

Alice Orrell, PE

Energy Analyst, Pacific Northwest National Laboratory

4:30 PM

Other NIST AMTech Projects and Related Efforts

Dr. Christopher Niezrecki

Professor of Mechanical Engineering, University of Massachusetts Lowell

5:00 PM

Participant Closing Remarks: Next Steps

Roundtable: How do you see yourself contributing to this project?

5:30 PM

Adjourn

6:30 PM

DWEA OEM Steering Group Dinner

(Invitation only)

Bios

**Ruth Baranowski - Communications Director, Wind Advisors Team**

Ruth Baranowski serves as the secretary for the SMART Wind Consortium documenting meeting discussions and outcomes, and is the editor for the Roadmap. Her 11 years of experience working with the wind industry, including serving as the communications coordinator for the U.S. DOE's Wind Powering America initiative, provides a solid foundation for understanding key concepts and terminology. Ruth holds a BA in mass communications with a political science minor from Colorado State University-Pueblo and a MS in technical communications from the University of Colorado-Denver.

**Bret Barker - Distributed Wind Analyst, New West Technologies**

Bret Barker is a subject matter expert for distributed wind energy systems. His primary role is as a strategic planner, identifying opportunities to reduce the cost of wind energy from distributed systems and linking them to Program R&D priorities and investments. In addition, Bret provides management support for a portfolio of public investments in wind technology development, market acceleration, and outreach initiatives. Bret holds a BFA degree in Industrial Design from the Rhode Island School of Design.

**Tom Bell - Project Director, Center for Economic Growth**

Tom began his manufacturing career in 1973 with the U.S. Department of Army at the Watervliet Arsenal in upstate New York after completing studies in mechanical engineering. For 26 years, he served in various technical and management positions at the arsenal, including leading the production planning, tool design and quality planning groups. He also applied five years in the composites industry as both manufacturing support manager and director of continuous improvement with Vermont Composites Inc. Since joining the CEG, Tom has focused on the advancement of small to mid-size manufacturing companies in the Capital Region in conjunction with the National Institute of Standards and Technology Manufacturing Extension Partnership Lean Enterprise business development programs.

**Mary Childress - CPA**

Mary Childress, CPA provides financial advisement, accounting consultation and administrative oversight for DWEA. She ensures financial integrity with administrative systems that are consistent and reliable and works with the DWEA staff and subcontractors to develop effective financial processing, reporting and monitoring that complies with the federal grant requirements

**Dr. Rick Damiani - Senior Engineer, National Renewable Energy Laboratory**

Dr. Damiani has worked on wind turbine design and analysis for more than a decade. He has dedicated research in fluid-dynamics and renewable energy. His more than 20 published articles address various aspects of atmospheric flow patterns and energy extraction physics and engineering. He has worked on projects focusing on design optimization, power generation, composite blade design, wind turbine testing, offshore wind platform design and optimization, load analysis, structural dynamics and structural engineering. He holds a MS and PhD in aeronautical engineering from the Università di Pisa and a PhD in atmospheric science from the University of Wyoming.

**Roger Dixon - Owner, Skylands Renewable Energy**

Roger Dixon is the Owner of Skylands Renewable Energy and has been involved with the evolution of wind energy for 38 years. He is a charter member of the NJ Small Wind Working Group (NJSWWG), chairing the NJSWWG Highlands Committee, Economics Committee and the Small Wind Model Zoning Ordinance and Siting Committee. He has also been a participant in the New Jersey Board of Public Utilities (NJ BPU) Renewable Energy committee meetings and sat on the NJ BPU Solar Alternative Compliance Payment/Alternative Compliance Payment Advisory Committee representing small wind developers. He also sits on the On-Site Wind Stakeholders Committee that helped to develop the New York State Energy Research and Development Authority On-Site Wind Incentive Program for 2010-2015. He was a member of the North American Board of Certified Energy Practitioners (NABCEP) Exam Committee, helping to write the Small Wind Installer Certification Exam. He also sat on the Job Task Analysis Committee for the NABCEP Wind Site Assessor Exam and was a member of the NABCEP Small Wind Entry Level Exam Committee.

**Dr. Asad Esmaeily - Professor of Structural Engineering, Kansas State University**

Dr. Esmaeily's research at KSU focuses on smart bridge systems, feature-based structural damage detection, and analytical performance of confined concrete models with a goal of preserving and advancing the nation's transportation infrastructure. He is a Professional Civil Engineer in California, and holds Master's degrees in electrical and structural engineering, as well as a PhD in civil engineering.

For more in depth bios of SMART Wind Consortium participants, visit
www.distributedwind.org/staff-category/smartwindlaunch/



Trudy Forsyth - Managing Director, Wind Advisors Team

Trudy Forsyth has worked in the wind technology field for over 20 years. She led the DOE/NREL small and distributed wind program for 18 years where she led efforts between staff at the NREL's National Wind Technology Center to help design new U.S. small wind turbines, test prototypes and commercial turbines to standards, co-develop international and national standards, and develop distributed wind marketing and education materials. She worked closely with DOE program managers to develop multi-year strategies and implement program objectives. She is currently the president of the SWCC board, past president for Women of Wind Energy and a DWEA board member. She holds a BS and MS in mechanical engineering.



Matthew Gagne - Development Consultant & Market Analyst, eFormative Options

Matthew has worked in the wind energy industry since 2006 with both utility and distributed wind applications. He has a diverse skill set, including data analysis, GIS analysis, and technical writing. He has worked on market analysis for multiple distributed wind market report for the Department of Energy and AWEA. He has also helped develop the Distributed Wind Policy Comparison Tool in conjunction with the Pacific Northwest National Laboratory. He holds a BA in journalism with an emphasis in statistics and geography.



Gary Harcourt - Manager and Co-owner, Great Rock Windpower/Commissioning Engineer, Endurance Windpower Inc.

With Great Rock Windpower, Gary Harcourt helped install and helps maintain a small fleet of turbines in Massachusetts. Gary also travels for Endurance Windpower Inc. as a commissioning engineer training installers and technicians throughout North America and Europe. Serving on the NABCEP small wind exam committee, he helped craft the first installer certification exam (he was certified as a NABCEP Level III small wind installer). He currently serves on the DWEA Planning and Zoning committee and is a board member for the Small Wind Certification Council.



Jennifer Jenkins - Executive Director, Distributed Wind Energy Association

Jennifer Jenkins has more than 10 years experience in the wind industry, including her tenure at Southwest Windpower in their Government Affairs department. She was an integral part of the team that successfully sought passage of the Federal 30% tax credit for small wind systems. In her current role as Executive Director of DWEA, Jennifer works directly with members, stakeholders, and policy makers to find opportunities to grow the distributed wind market. She earned a BS in environmental science with an emphasis on policy and public administration from Northern Arizona University.



Gary Kanaby - Director of Marketing and Sales, Wetzel Engineering Inc

Gary has been involved in the wind blade manufacturing and service business for the last decade. He previously served as director of sales for wind energy at Molded Fiber Glass Companies (MFG Wind and MFG Energy Services), growing their service business more than 300%. Prior to that he helped Knight & Carver grow a startup wind blade division to \$18M in annual sales over a 3-year period. He is an active member of AWEA and currently serves on the Operations & Maintenance, Research & Development, and Public Affairs committees. He has a BA in English and social science education from Wayne State University.



Christine Larsen - Business Assistant, Distributed Wind Energy Association

Christine manages event coordination and logistics for DWEA. She has two degrees from the University of Colorado at Boulder in News-Editorial Journalism and Chinese History and Language with a certificate in Digital Communications. She currently lives in Durango, Colorado and has previously lived in Asia, Hawaii and multiple other areas of the United States.



Dr. Patrick Lemieux - Associate Professor of Mechanical Engineering, California Polytechnic State University

Dr. Lemieux is a specialist in thermo-fluid mechanics, energy, and aviation issues. His research focuses on fire and explosion investigation techniques, as well as fundamental issues involving heat transfer, thermodynamics, instabilities, and fluid systems. Other areas of research include alternative energy and energy distribution systems.



Dr. Tom Lettieri - Project Manager, AMTech Program, National Institute of Standards and Technology

Dr. Thomas R. Lettieri manages a broad portfolio of technology consortia for the NIST AMTech Program. From 2008-2014, he was a project manager in the NIST Technology Innovation Program (TIP), where he managed a portfolio of projects focused primarily on photonics and optics technologies, as applied to the areas of civil infrastructure and advanced manufacturing. Before TIP, Dr. Lettieri was with the Advanced Technology Program (ATP) at NIST, managing a portfolio of optics/photonics R&D projects conducted by U.S. companies. From 1978 to 1993, Dr. Lettieri was a laboratory scientist at NIST/NBS, working mainly in the fields of optical metrology, precision engineering, particle measurement, and thermophysics. Dr. Lettieri received his PhD and MS in optics from the University of Rochester, a Masters in general administration and BS in Anthropology from the University of Maryland (UC), and a BS in Electrical Engineering from the University of Miami.

For more in depth bios of SMART Wind Consortium participants, visit www.distributedwind.org/staff-category/smartwindlaunch/

Bios



Dr. Pier Marzocca - Associate Professor of Mechanical and Aeronautical Engineering, Clarkson University

Dr. Pier Marzocca has been working in the field of aerospace engineering since 1996 and specializes in multi-physics modeling and characterization of advanced materials and structures, dealing with the interactions among advanced structures and fluids, magnetic, electric, and thermal fields. Professor Marzocca is the Director of the Clarkson University Blade Test Facility, established as part of the Center for Evaluation of Clean Energy Technologies (CECET), an Intertek Company, with funding from the NYSERDA to support and grow New York based wind market activities through performance testing, research and certification of wind turbine systems.



Dr. Ruth Douglas Miller - Associate Professor of Electrical and Computer Engineering, Kansas State University

Dr. Douglas Miller directs KSU's Wind Application Center, which runs the state's Wind for Schools program and the High Plains Small Wind Test Center in partnership with Colby Community College. Under a grant from DOE/NREL the Center is testing two small turbines for certification under the AWEA Small Wind Standard. Ruth is a member of IEEE, Tau Beta Pi and Eta Kappa Nu, and has more than 25 academic publications. She earned her doctorate and Masters at the University of Rochester and her bachelors degree at Lafayette College.



Dr. Christopher Niezrecki - Professor of Mechanical Engineering, University of Massachusetts Lowell

Dr. Niezrecki is the Co-Director of the Structural Dynamics and Acoustic Systems Laboratory, and leads the Center for Wind Energy at UML. He is also the Director of the NSF-Industry/University Cooperative Research Center for Wind Energy Science Technology and Research (WindSTAR). He has been directly involved in mechanical design, smart structures, noise and vibration control research for more than 20 years. He is the member of three separate conference executive committees pertaining to structural dynamics/smart structures. During the last several years, his research has focused on using optical digital image correlation for non-contacting inspection and vibration measurement of wind turbine blades/rotating structures. He obtained dual BS degrees in mechanical and electrical engineering from the University of Connecticut, a MS degree in mechanical engineering from Virginia Tech, and his PhD while working at the Center for Intelligent Materials Systems and Structures.



Alice Orrell, PE - Energy Analyst, Pacific Northwest National Laboratory

Alice Orrell performs renewable energy assessments and wind power project development support for Department of Defense clients and distributed wind market research and analysis for Department of Energy. Alice is a Professional Engineer in the state of Washington, has a BSME from University of Vermont, and a MBA from University of Washington. She is an active member of the Society of Women Engineers and Women of Wind Energy.



Joshua Paquette - Task Leader for Laboratory and Field Testing of Wind Turbine Blades, Sandia National Laboratories

Joshua has worked in the Wind Energy Technologies and Water Power Technologies Departments for five years on wind blade structural modeling and testing, as well as marine hydrokinetic blade design and modeling. He holds a Bachelors degree in mechanical engineering from Kansas State University, and a Masters degree in engineering mechanics from the University of Texas at Austin.



Robert Preus, PE - Technical Lead for Distributed Wind, National Renewable Energy Laboratory

Robert was the founder of Advanced Renewable Technology, which provided training, engineering, and certification support in small wind manufacturers. He has 27 years of experience in wind energy. He led the successful development of 2.5 kW to 300 kW wind generators. He has extensive experience in design of wind energy systems. He has trained many dealers in the installation of distributed wind systems and served on the committees that developed NABCEP installer certification task list, applicant experience requirements and the exam writing. He was the co chair of the group that wrote a section for small wind in the NEC.



Dr. Wei Qiao - Associate Professor of Electrical Engineering, Director of Power and Energy Systems Laboratory, University of Nebraska-Lincoln

Dr. Wei Qiao has been the principal investigator of wind energy research projects funded by the Department of Energy, the National Science Foundation, the Department of Transportation, and the industry. He is a world-renowned expert in control, condition monitoring, and grid integration of wind energy conversion systems. He has published two book chapters, 140 refereed journal and conference proceeding papers, and has seven U.S./international patents pending. Dr. Wei Qiao received his PhD degree from Georgia Institute of Technology and his Masters and Bachelor's degrees from Zhejiang University, China.



Heather Rhoads-Weaver - Market, Policy & Development Consultant, eFormative Options LLC

Heather is the founder of eFormative Options LLC, providing market and policy analysis, project and organizational development, and stakeholder communications focused on forming and advancing sustainable endeavors. Heather is the elected Secretary for DWEA's Board of Directors and serves as DWEA's State Policy Director. She also serves as a subcontractor to the Clean Energy States Alliance compiling the NARUC Energy Zones policy inventory, drawing on experience developing other policy analysis dashboard tools and managing complex datasets. Other current and recent clients include the Pacific Northwest National Laboratory, Minnesota Renewable Energy Society under the state's Department of Commerce, and the Small Wind Certification Council. She holds an M.S. from the University of Northern Iowa and a B.A. from Wesleyan University.



Tara Rice - Special Assistant, Office of the Secretary, U.S. Department of Agriculture

Tara Rice is a Special Assistant in the Office of the Secretary at the US Department of Agriculture. She assists the Secretary in his role as Chair of the White House Rural Council and in this capacity coordinates rural policy matters across federal departments and with state and local partners. The White House Rural Council has a portfolio of more than 20 policy initiatives ranging from renewable energy, to rural manufacturing, to rural and health and education. Tara previously served in USDA's Rural Development Mission Area where she led work to develop a data-driven approach for strategic targeting of federal investments to areas of greatest need. She is a graduate of Yale Law School and a fifth generation Montanan from a ranch near Choteau, Montana. She was a Fulbright Scholar conducting economic research in the Republic of Trinidad and Tobago and prior to that worked in northern China developing an English language textbook for use in rural schools.



Kurt Sahl - Communications and Development Consultant, eFormative Options

Kurt spent 25 years working in science and technology instruction, research and consulting, most recently at the University of Washington Center for Teaching and Learning. During his doctoral studies, Kurt co-authored articles about computers and teacher cognition and a book for teachers about online learning. He received his BS in entomology from the University of Idaho and his Masters of Education in educational communications and technology from the University of Washington.



Brent Summerville, PE - Principal Engineer and President, Summerville Wind & Sun

Brent is a licensed Professional Engineer in North Carolina. After working as a manufacturing engineer for a decade, he started his career in renewable energy at Appalachian State University by designing, installing, troubleshooting and providing training on renewable energy projects. He gained extensive experience testing small wind turbines while serving as the manager of the ASU Small Wind Research & Demonstration Site on Beech Mountain. Brent is currently contracted as the Technical Director of the Small Wind Certification Council and Technical Co-Lead for the DWEA SMART Consortium project. He has a BS in Mechanical Engineering from North Carolina State University and a Masters in Appropriate Technology from Appalachian State University.



Daniel Valyou - Facility Manager, CECET Blade Test Facility, Clarkson University

Daniel served 11 years in the U.S. Army as a rotorcraft avionics, electrical, and weapons system technician, and retired from the U.S. Army as a Sergeant and combat veteran of Iraq and Kosovo. He earned his BS and MS in aeronautical engineering at Clarkson University and is working toward his PhD in mechanical engineering at the same institution.



Dr. Case van Dam - Department Chair, Mechanical and Aerospace Engineering, University of California Davis

Dr. van Dam is actively involved in a variety of projects including wind tunnel testing of airfoils, wings, and wind energy conversion systems; computational fluid dynamic analysis of airfoils, wings, aircraft, and rotors; and full-scale aerodynamic testing of various systems. research on active control of the aerodynamic loads acting on wind turbine blades. He holds a BS in aerospace engineering from the Delft University of Technology, the Netherlands, a MS aerospace engineering from the University of Kansas and the Delft University of Technology, Doctor of Engineering in aerospace engineering from the University of Kansas.



Ben Vickery - Senior Analyst, Manufacturing Futures Group, National Institute of Standards and Technology

Ben served for more than two years as Product Line Manager for Lean Enterprise at NIST MEP and managed the development and rollout of a number of Lean products and services. Mr. Vickery also worked for four years as a Program Manager at the Modernization Forum, where he co-wrote Smaller Manufacturers: Building a Stronger America. Prior to that, he spent three years as a Policy Analyst at the Southern Growth Policies Board/Southern Technology Council, where he co-wrote Information Tools for Industry. He received an MS in public policy and a BS in history, technology and society from the Georgia Institute of Technology.



Paul Williamson - Director and Principal Coordinator, Maine Ocean and Wind Industry Initiative (MOWII)

Paul has been working as a workforce and economic development specialist in Maine since 2006. Much of that work began with the boat building and advanced materials industries, and then broadened to include a variety of manufacturing and fabricating industries. MOWII is a collaborative effort between leading wind industry partners, industry associations, state entities, and the University of Maine to promote the growth and organization of the wind & ocean industry supply chain in Maine. MOWII serves the onshore and offshore wind industries as well as the ocean energy supply chain development needs.



Dr. Rob Wills, PE - Principal Engineer, forENGics

Dr. Robert Wills is a Professional Engineer in electrical, mechanical and HVAC engineering. Dr. Wills participates in many codes and standards committees, including UL6142 - Small Wind Turbine Systems and IEEE 1547 - Utility Interconnection. Dr. Wills is a principle member of the National Electrical Code Code Making Panel 4, representing the American Wind Energy Association. CMP4 is responsible for Solar, Fuel cell and Wind Articles (690, 692 & 694), and Interconnected Systems (705).

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