Title: The Renewable Energy Renaissance and Why it's So Important for Our Future
Christopher Niezrecki, Ph.D., University of Massachusetts Lowell

There has been a considerable growth in renewable energy installations in the last two decades. In particular wind energy is one technology that is leading the charge and has the potential to radically change how electricity is generated not only in New England, but globally. This presentation will demistify the technology and its impact on the nation's future energy portfolio. The impacts of renewables on fossil fuels, our nation's energy consumption, wildlife, greenhouse gas emissions, public acceptance, and future directions will be presented and discussed.

Biography (Long):
Christopher Niezrecki is a Professor and Chair of the Department of Mechanical Engineering at the University of Massachusetts Lowell. He obtained dual BS degrees in mechanical and electrical engineering from the University of Connecticut in 1991. In 1992 he obtained a MS. degree in mechanical engineering from Virginia Tech and his Ph.D. in 1999 while working at the Center for Intelligent Materials Systems and Structures (CIMSS). He is currently the Co-Director of the Structural Dynamics and Acoustic Systems Laboratory (http://sdasl.uml.edu/), and leads the Center for Wind Energy at UMass Lowell (www.uml.edu/windenergy). Dr. Niezrecki 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 vibrations, acoustics, smart structures, controls, and renewable energy research for over 30 years, with more than 190 publications. He is the member of two separate conference executive committees pertaining to structural dynamics/smart structures/materials and serves as an Associate Editor of the Journal of Energy Resources Technology. Areas of current research include: renewable energy systems, wind turbine dynamics, monitoring, and inspection, structural dynamic and acoustic systems, smart structures, signal processing, structural health monitoring, optical sensing, and smart materials. Over the last several years, his research has focused on using optical sensing for non-contacting inspection and vibration measurement of wind turbines. He was a recipient of a 2010 National Renewable Energy Laboratory (NREL/National Wind Technology Center) Research Participant Program Fellowship, the 2018 Roy J. Zuckerberg Endowed Leadership Chair, a 2019 Donahue Sustainability Fellow, and in 2020 was selected as the UMass Lowell Distinguished University Professor. Funding for his research ($20M+) has been provided through grants from numerous federal and state agencies as well as industry sponsors. He is a member of the ASME, SPIE, and SEM.

Biography (Short):
Christopher Niezrecki is a Distinguished University Professor and Chair of the Department of Mechanical Engineering at the University of Massachusetts Lowell. He is currently the Co-Director of the Structural Dynamics and Acoustic Systems Laboratory (http://sdasl.uml.edu/), and leads the Center for Wind Energy at UMass Lowell (www.uml.edu/windenergy). Dr. Niezrecki 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 vibrations, acoustics,

smart structures, controls, and renewable energy research for over 30 years, with more than 190 publications. Areas of current research include: renewable energy systems, wind turbine dynamics, monitoring, and inspection, structural dynamic and acoustic systems, smart structures, signal processing, structural health monitoring, optical sensing, and smart materials. He was a recipient of a 2010 National Renewable Energy Laboratory (NREL/National Wind Technology Center) Research Participant Program Fellowship, the 2018 Roy J. Zuckerberg Endowed Leadership Chair, a 2019 Donahue Sustainability Fellow, and in 2020 was selected as the UMass Lowell Distinguished University Professor. Funding for his research ($20M+) has been provided through grants from numerous federal and state agencies as well as industry sponsors.

Research Interest:
Dr. Christopher Niezrecki's primary research includes renewable energy systems, wind turbine dynamics, monitoring, and inspection, structural dynamic and acoustic systems, smart structures, signal processing, structural health monitoring, and smart materials. His goals include expanding the global use of renewable energy, developing technologies that can impact the 1.1 billion people in the world who do not have access to electricity, and advancing sensing technologies to measure and monitor structural systems.

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