

Materials and Innovations for Large Blade Structures: Research Opportunities in Wind Energy Technology

Thomas D. Ashwill[§]

Sandia National Laboratories, Albuquerque, New Mexico 87185*

Abstract

The significant growth in wind turbine installations in the past few years has fueled new scenarios that envision even larger expansion of U.S. wind electricity generation from the current 1.5% to 20% by 2030. Such goals are achievable and would reduce carbon dioxide emissions and energy dependency on foreign sources. In conjunction with such growth are the enhanced opportunities for manufacturers, developers, and researchers to participate in this renewable energy sector. Ongoing research activities at the National Renewable Energy Laboratory and Sandia National Laboratories will continue to contribute to these opportunities. This paper focuses on describing the current research efforts at Sandia's wind energy department, which are primarily aimed at developing large rotors that are lighter, more reliable and produce more energy.

[§] Technical Staff, Wind Energy Dept., MS1124, Senior Member AIAA

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