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Design of 9-Meter Carbon-Fiberglass Prototype Blades: CX-100 and TX-100 Final Project Report

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Abstract

TPI Composites, Inc. (TPI), Global Energy Concepts, LLC (GEC), and MDZ Consulting (MDZ) have collaborated on a project to design, manufacture, and test prototype carbon-fiberglass hybrid wind turbine blades of 9-m length. The project, funded by Sandia National Laboratories, involves prototype blades in both conventional (unidirectional spar fibers running along the blade span) and “adaptive” (carbon fibers in off-axis orientation to achieve bend-twist-coupling) configurations. After manufacture, laboratory testing is being conducted to determine the static and fatigue strength of the prototypes, in conjunction with field testing to evaluate the performance under operational conditions.