

Abstract Submitted
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Preliminary Investigations of Wind Potential at Marietta College¹ WILLIAM VANCE, DENNIS KUHL, Marietta College — Marietta College received a grant to build a wind turbine on campus for educational purposes, as a demonstration of alternative energy production, and to promote new energy systems minors. We report on an investigation of the potential wind energy profile on Marietta College's campus and preliminary wind tunnel studies of variations in shroud design for a shrouded horizontal axis wind turbine. Anemometers were placed in three locations on the campus and wind velocity data was logged for several months. The data provides average wind speeds as well as prevailing wind directions. A wind tunnel was constructed to test shrouded wind turbines. A shrouded wind turbine with a diffuser and flange can maximize the wind speed through a turbine, thus maximizing its power output. This paper sets the stage for future projects to further develop the turbine models' geometry that will maximize power output.

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