Wind Power Resource Assessment
in Ohio and Puerto Rico:
A Motivational and Educational Tool

Juan Flores Lozada,
Departamento de Ingeniería Mecánica, Universidad de Puerto Rico, Recinto Universitario de
Mayagüez, Mayagüez, Puerto Rico

and

Carole Womeldorf, Ph.D.,
Department of Mechanical Engineering,
Ohio University, Athens, Ohio

Abstract

This paper presents an educational guide and example of a wind resource assessment process that can be readily performed by community members or undergraduates using spreadsheet calculations. New data representing wind speed and direction for locations in Ohio and Puerto Rico will be analyzed to enrich the current sparsely populated analysis of these regions. Comparisons will be made with available wind resource maps, specifically the NREL Wind Resource Atlas and AWS Truewind’s Wind Resource Explorer. The process and results will be documented here and in an educational web page. Though briefly summarized in this document, the web publication will explain the reasoning behind the various steps toward assessing a local resource: including proper installation of a wind monitoring system, siting suggestions, and data analysis. It will also introduce, both in Spanish and English, advantages and disadvantages occurring with wind power: specifically environmental concerns and benefits, the economics of small wind power, and wind resource availability. Information about the wind measurement apparatus (anemometers, wind vanes, and data acquisition), the assessment process (histograms, distributions and wind roses), wind turbines (models, mechanics, applications) and the different available wind resource software also will be explained and posted in the web page. The primary aim of this project is to encourage and facilitate access to the wind resource assessment process and to generate both interest and eventually new data by and from the general population in wind power.