Wind Resource Temporal Variability Report

Diurnal and monthly variability of wind resources based on data from the NREL Wind Toolkit

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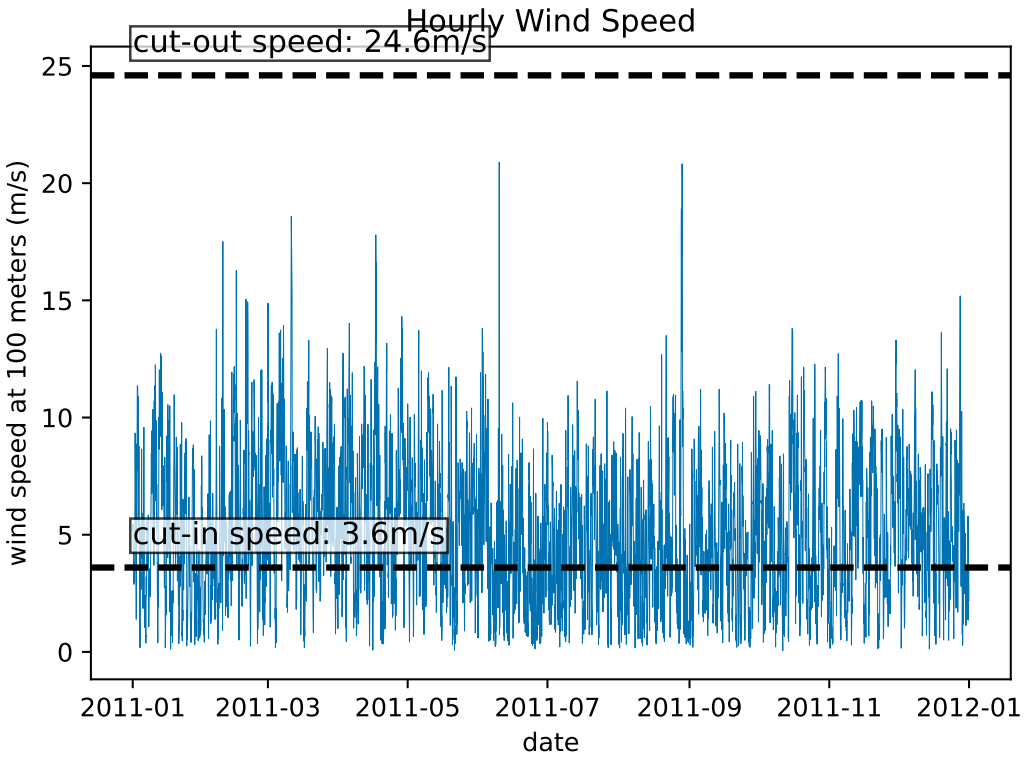
Introduction

This report provides an overview of wind resources for Umass Amherst from 2011-01-01 to 2012-01-01. This analysis is based on the wind speed at 100 meters dataset within the National Renewable Energy Laboratory (NREL) Wind Integration National Dataset (WIND) Toolkit.

Analysis

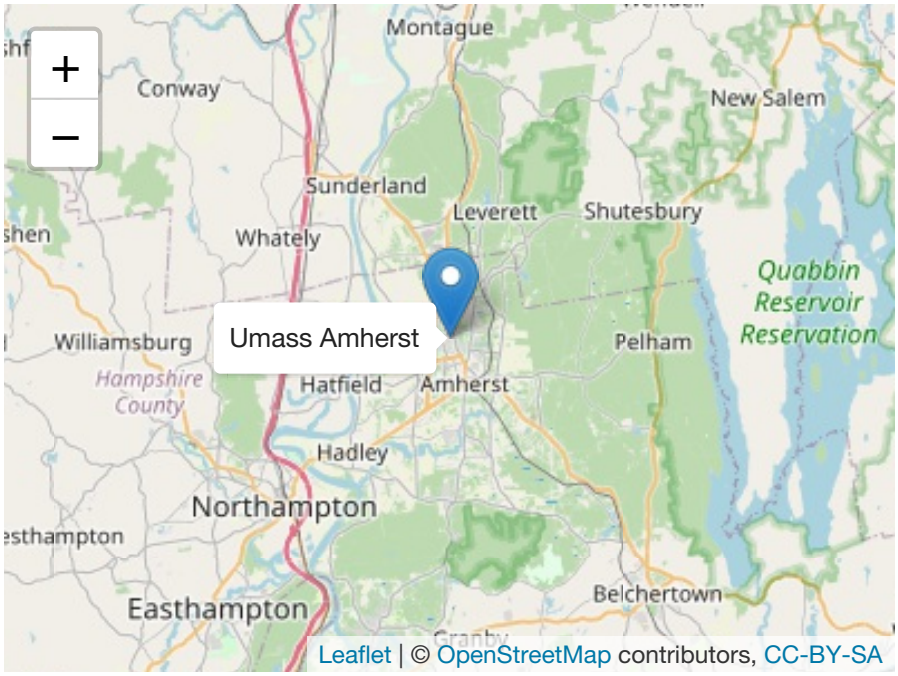
The graph below shows hourly wind speed for Umass Amherst and the selected time range. Wind speed values are show in relation to the specified turbine cut-in and cut-out speeds.



The annual average wind speed for Umass Amherst was 5.16 m/s. This is BELOW the value of 5.8 m/s recommended by the U.S. Energy Information Administration. Wind speed was below the cut-in speed of 3.6 m/s for 3,028 hours. Therefore, wind turbines could not operate 34.57 percent of the time due to lack of wind. Wind speed exceeded the cut-out speed of 24.6 m/s for 0 hours. Therefore, wind turbines could not operate 0 percent of the time due to stong wind. Between 2011-01-01 to 2012-01-01, wind speeds at this location were within the acceptable operating range of 3.6 m/s to 24.6 m/s for 5,732 hours. Therefore, turbines could operate 65.43 percent of the time.

Site Map

The map below shows the location of Umass Amherst.



Citations

Draxl, C., B.M. Hodge, A. Clifton, and J. McCaa. 2015. Overview and Meteorological Validation of the Wind Integration National Dataset Toolkit (Technical Report, NREL/TP-5000-61740). Golden, CO: National Renewable Energy Laboratory.

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