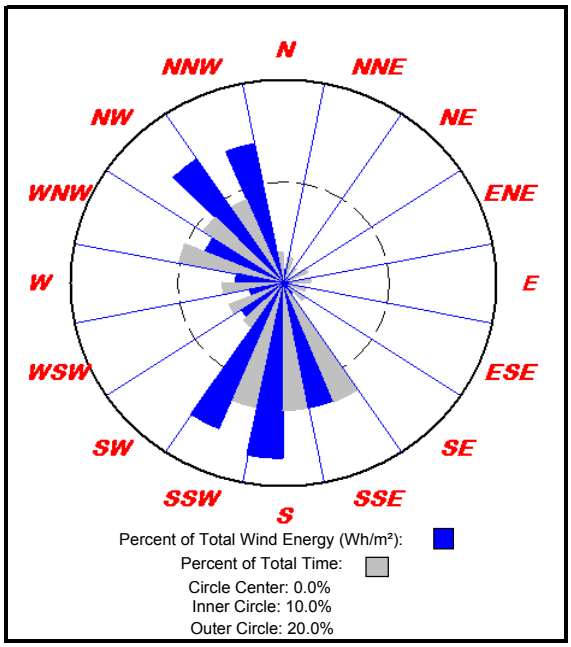
NYSERDA Sustainable Market Development For Small Wind Energy (#6443)
Summary of Performance Statistics
Alfred University, NY
October 15 - December 31, 2003

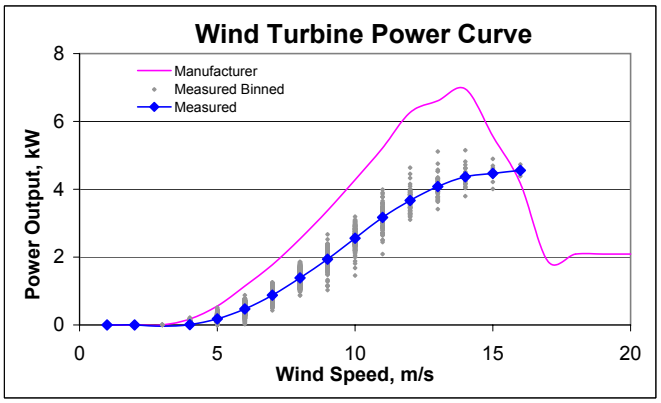
Site Information

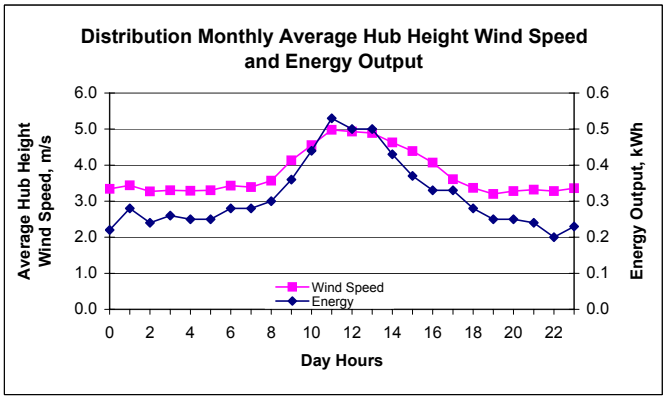
Project: Sustainable Market Development for Small Wind Energy
Site: Alfred State College Farm, Alfred NY
Turbine: Bergey Excel-S
Rated Capacity / Speed: 10 kW / 31 mph
Turbine Hub Height: 100 ft (30 m)
Rotor Diameter: 23 ft
Date Turbine Commissioned: October 15, 2003
Data Sampling Interval: 1 second
Data Averaging Interval: 10 minutes

Performance Statistics

	Quarterly	*Cumulative*
Total Hours in Quarter	2,208	2,208
Total Hours in Operation	2,031	2,031
Wind System Availability, %:	88%	88%
DAS Availability, %:	100%	100%
Total Wind System Energy, kWh:	709	709
Average Hub Height Wind Speed, m/s:	4.1	4.1
Average Temperature, C °:	3.6	3.6
Capacity Factor, %:	3.5%	3.5%
Turbulence Intensity	28.0%	28.0%







Calibration of Instruments

Instrument	Manufacturer	Model	Date
Anemometer, 24 m	NRG Systems	Max. 40H	Feb-03
Anemometer, 12 m	NRG Systems	Max. 40H	N/A
Power Transducer	Ohio Semitronics	PC5-059A	N/A
Voltage Transducer	Ohio Semitronics	VT-240A	N/A
Data Logger	Campbell Scientific	CR10X	Mar-03
Temperature Sensor	Campbell Scientific	107	N/A

Unusual Occurrence Report

Turbine was down from October 2 - 15 due to blow fuse
15 m anemometer failed prior to reporting period and will be replaced during the six month inspection

Notes

"Power Curve" and "Distribution of Quarterly Average Hub Height Wind Speed and Energy Output": 24 m wind speed data is adjusted to 30 m (100ft) hub height using an estimated shear value of .20.
"Power Curve": Manufacturer curve was calculated using the Bergey Windpower WinCad Turbine Performance Model for the Excel-S at site measured conditions for the quarter.