

NYSERDA Sustainable Market Development For Small Wind Energy (#6443)

Summary of Performance Statistics

Apple Pond Farm, NY

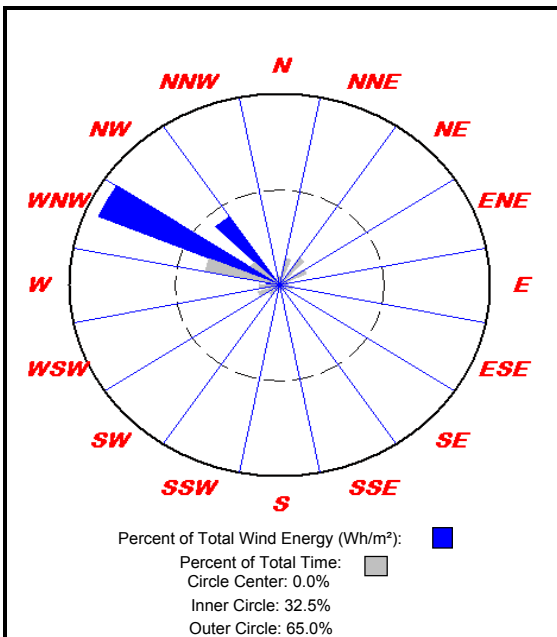
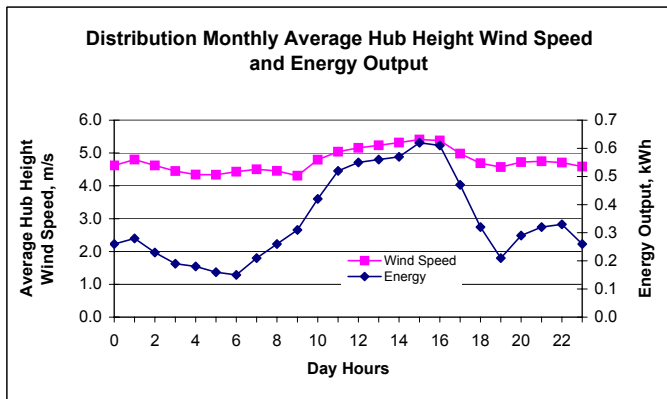
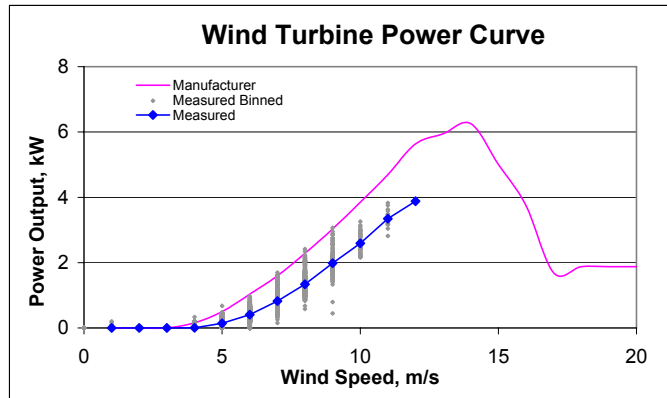
April 1 - May 14, 2004

Site Information

Project: Sustainable Market Development for Small Wind Energy
Site: Apple Pond Farming Center, Callicoon Center, NY
Turbine: Bergey Excel-S
Rated Capacity / Speed: 10 kW / 31 mph
Turbine Hub Height: 120 ft (37 m)
Rotor Diameter: 23 ft
Date Turbine Commissioned: June 5, 2003
Data Sampling Interval: 1 second
Data Averaging Interval: 10 minutes

Performance Statistics

	Quarterly	Cumulative
Total Hours in Quarter	1,042	8,300
Total Hours in Operation	1,042	8,300
Wind System Availability, %:	100%	100%
DAS Availability, %:	100%	100%
Total Wind System Energy, kWh:	359	2,044
Average Hub Height Wind Speed, m/s:	3.7	3.1
Average Temperature, C °:	9.2	8.5
Capacity Factor, %:	3.4%	2.3%
Turbulence Intensity	34.0%	36.7%



Calibration of Instruments

Instrument	Manufacturer	Model	Date
Anemometer, 30 m	NRG Systems	Max. 40H	Feb-03
Anemometer, 15 m	NRG Systems	Max. 40H	NA
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

The Apple Pond Data logger was removed on June 25, 2004.
The data logger stopped recording data on May 14, 2004 due to an unknown reason.
During equipment removal AWS noted that the data acquisition system had been altered since installation. This alteration could explain the loss of data.

Notes

"Power Curve" and "Distribution of Quarterly Average Hub Height Wind Speed and Energy Output": 30 m wind speed data is adjusted to 37 m (120 ft) hub height using the 30/15 m shear.
"Power Curve": Manufacturer curve was calculated using the Bergey Windpower WinCad Turbine Performance Model for the Excel-S at measured site conditions for the quarter.