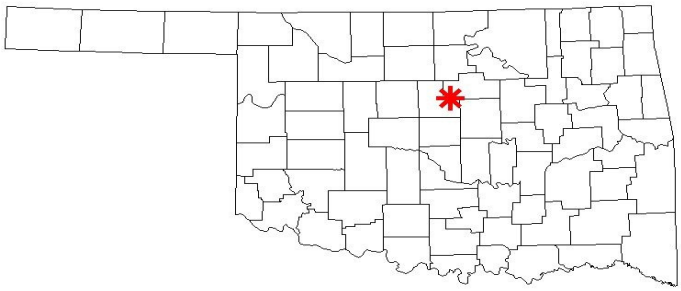
October 2004 Wind Summary
Langston University Regents Tower
Sensors at 25 and 50 m

Oklahoma Wind Power Initiative

Height	Average Wind Speed	Wind Power Density
25 m (82 ft)	3.62 m/s (8.10 mph)	62.7 W/m^2
50 m (164 ft)	5.11 m/s (11.43 mph)	136 W/m^2



BACKGROUND – On April 17, 2003, the Oklahoma Wind Power Initiative (OWPI) installed instruments on the Langston University Regents tower. The install work was funded by the National Renewable Energy Laboratory (NREL) and US DOE's Wind Powering America (WPA) program in cooperation with outreach efforts by the Community Based Renewable Energy Coalition (CBREC) and Langston University to promote development of renewable energy for communities of color.

SUMMARY – (Figure A) The average wind speeds for each hour, also known as diurnal wind speeds, are plotted for the month at 25 m and 50 m. The graph shows the variation in wind speeds throughout the day. Typically near the surface wind speeds increase during afternoon heating.

(Figure B) The wind rose shows the directional distribution of wind speeds and wind energy for the month at 50 meters. The winds were from the south and south-southeast 22.9% of the time and accounted for 39.7% of the wind energy.

(Figure C) The frequency distribution chart can be used in conjunction with a wind turbine power curve to estimate potential energy production. Categories or bins are labeled with the center point and have a width of 1 m/s. For example, the 5.5 m/s bin has a frequency of 17.3%, so wind speeds between 5 and 6 m/s occur 17.3% of the time.

Figure A.

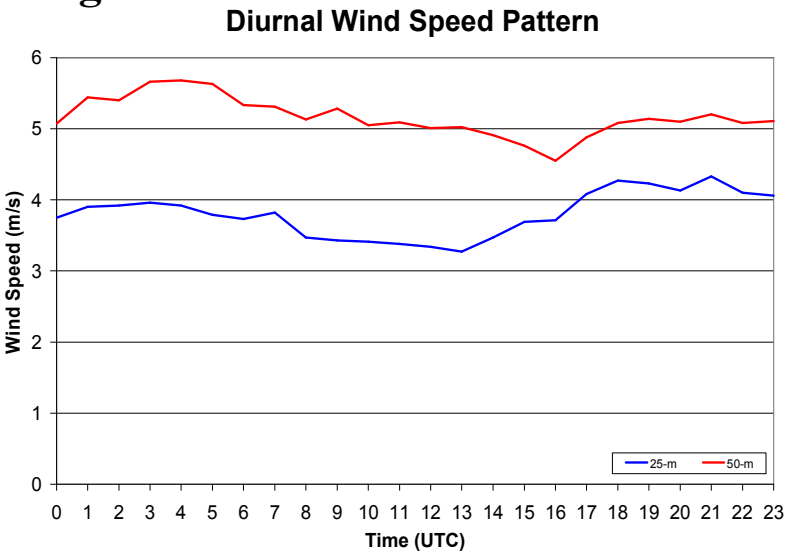


Figure B.

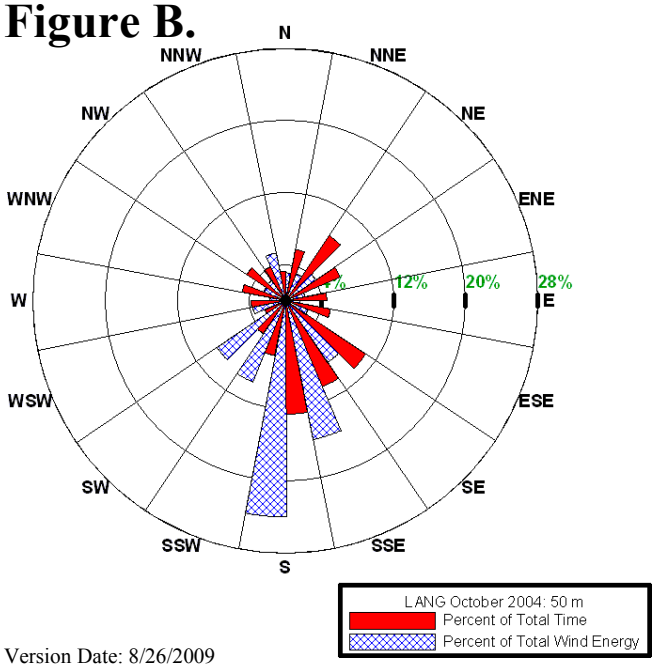
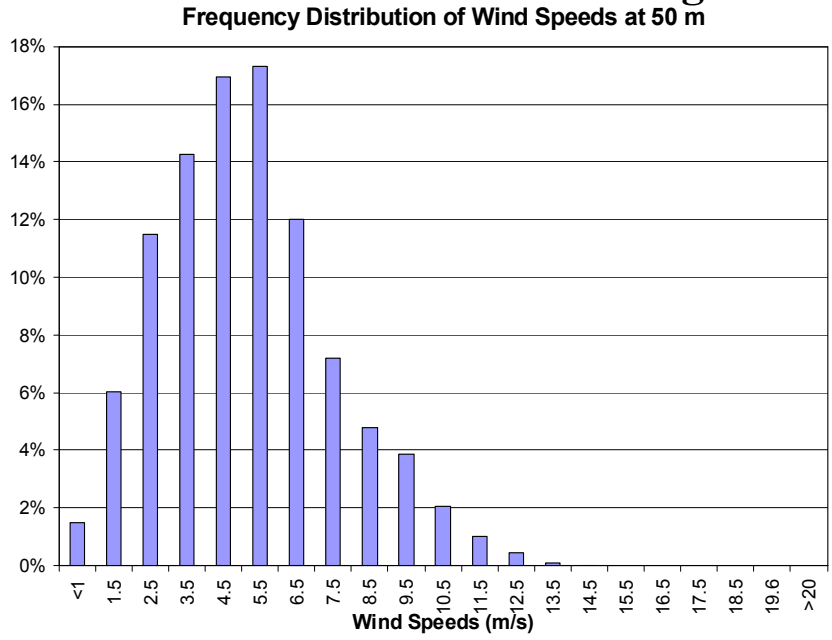


Figure C.



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