

TALL TOWER INVESTIGATIONS OF MISSOURI WINDS

Progress report 2 – January 18th, 2007

Tower Instrumentation

The two towers being used for the project funded by Kansas City Power and Light are both operational. The first in Miami, MO was set up on 30th June 2006 and the second, at Raytown (Kansas City), on 25th July 2006. Both have operated since those dates with data being collected. The Raytown tower has a working cellphone modem which is allowing us to automatically download data each day. The dial-up modem at the Miami tower is still proving troublesome, and I have one more technical fix to try.

Data

In the tables below are simple monthly means of wind speed recorded by each of the anemometers on each of the towers. For Miami we now have five complete months of data (December should also be complete but I have not had an opportunity to collect the data), while for Raytown we do have five complete months. There are a number of days missing due to the ice storm at the end of November 2006. This froze the instruments such that no data was produced. However, it is encouraging that the instruments returned to operational data once thawing occurred, and have produced good data since that time. As this report is prepared we have entered another period of freezing and data has not been recorded at the Raytown tower for six days. There is no practical solution to this problem, but it should be noted that frequency of freezing and the height at which it occurs is useful information in the planning of wind farm operation!

Miami	Mean wind speed (m/s)				
Height (m)	July	August	September	October	November*
67	5.3	5.2	5.2	6.3	6.4
68	5.0	5.0	5.3	6.2	5.7
96	6.0	5.8	5.8	7.1	7.2
97	5.7	5.6	5.8	6.9	6.5
114	6.3	6.1	6.0	7.4	7.5
115	6.5	6.3	6.4	7.8	7.2

Raytown	Mean wind speed (m/s)				
Height (m)	August	September	October	November*	December**
67	4.3	4.5	4.9	4.8	5.2
67	4.3	4.5	5.0	4.9	5.3
95	5.0	5.2	5.9	5.8	6.3
95	5.0	5.3	5.9	6.0	6.3
140	5.2	6.0	6.9	6.9	n/a
140	5.9	6.2	7.0	7.2	7.45

*Excluding 29 and 30 November icing

**Excluding 1 & 2 December icing and 11-13 December (data loss – to be recovered).

There are some issues regarding the measurement of wind direction at the Raytown site, as the observations do not appear correct. This is something we will be working to rectify.

More detailed data is available and further processing will be completed, along with in-depth comparisons with the wind map estimates, at a later date. Much of this will be posted on the website (see below).

Website

A project website has been established. This contains an overview of the project and its objectives, descriptions of each of the sites, access to the data collected, as well as links to other information about wind data for Missouri and general wind energy websites. More detailed products and analyses of the collected data will be posted when completed.

The website address is: <http://weather.missouri.edu/wind>, please check it out and let us know if there is material you would like to see added, removed or changed.