



Washtenaw County

Economic Development and Energy Department

Washtenaw Wind Project Final Report – Executive Summary

In July 2007, the Board allocated \$ 86,000 to perform a wind feasibility study in Washtenaw County. The County formed a partnership with Chrysler Group to reduce the County's cost of installing an 80 meter wind anemometer and provided the test site at their proving grounds bringing total County cost to \$42,000.

Thirteen months of raw data was collected during the period of June 2008 to June 2009 and the consultant has provided the Year End Wind Data Report. In addition to wind data, the consultant provided an investment grade assessment for four turbine/tower types of wind generators (three at 80 meters and one at 100 meters). No assessment of 30 meters turbines was performed as wind speeds at lower elevations differ significantly based on topography and ground cover.

This data and report will be provided to the Chrysler Group, LLC, the University of Michigan Department of Atmospheric, Oceanic, and Space Sciences, the City of Ann Arbor, the Michigan Department of Energy, Labor and Economic Growth, the Michigan Wind Working Group (in which multiple developers and other wind energy professionals participate) and to institutions and general public.

The investment grade report and the monthly data, year-end report and quarterly reports have been posted to the project website:

http://www.ewashtenaw.org/government/departments/planning_environment/planning/wind_power/Wind%20Data%20and%20Reports

Some of the major findings of the report are presented below:

- The wind data shows an average wind speed of 11.5 mph (5.0 m/s) at 78.6 meters high, which is the typical hub height for a utility scale wind turbine. According to the American Wind Energy Association (AWEA), utility-scale wind power plants require minimum wind speeds of 13.4 mph (6.0 m/s) to be financially viable. The consultant concluded that the wind resource would likely not support the development of a utility scale wind farm.
- The consultant also estimated the average wind speed at 100 meters to be 13.4 mph (6.0 m/s) and at 30 meters to be 7.9 mph (3.5 m/s). These estimates were calculated using a shear calculation between anemometers located at different elevations on the met tower.
- The consultant believes that 100 meter installations may be marginally financially viable at the utility scale level and are likely not financially viable at the community wind level

without subsidy. Community wind projects are defined as locally-owned, commercial scale wind project that optimize local benefits. Utility scale level wind projects are typically defined as wind farms that the company or person that develops the wind farm can then sell the power on the grid through transmission lines that are located in close proximity. A utility scale farm usually involves wind turbines that are 300 kilowatts (kW) or greater.

- The likelihood of attracting or developing such a project in the next three years is unlikely due to market disruption caused by the financial crisis, lack of clarity in federal and state grant programs, and most importantly the functional availability of 100 meter tower fabrication for North American delivery. These towers are available in Europe and elsewhere, however, they have yet to become available in North America for delivery in the near future (before 2011).
- The three 80 meter turbines have the potential to produce between 5,292 kilowatt-hours of electricity (KWh) and 7,301 KWh of electricity and the 100 meter turbine has the potential to produce 11,189 KWh of energy. Based on average a household consumption of 29.2 KWh/day, the models have the following output:
 - GE 1.5 MW turbine would provide enough power to supply 181 homes with electricity.
 - Suzlon 2.1 MW turbine would provide enough power to supply approximately 230 homes with electricity.
 - Vestas V90 1.8 MW turbine at about 80 meters would provide enough power to supply approximately 250 homes with electricity.
 - Vestas V90 1.8 MW turbine at 100 meters would provide enough power to supply approximately 383 homes with electricity.
- The consultant further recommends that changes in technology and construction costs for wind turbines be tracked, especially 100 meter turbines, as this could positively impact the viability of our area for commercial development.

If you would like any additional information or detail, please contact me at vanderworpa@ewashtenaw.org.