THE CITY OF COLUMBUS
MICHAEL B. COLEMAN, MAYOR

Residential Wind Turbine

FACT SHEET

March 2012

Wind power is a renewable source of electricity that has been used by utility companies, private businesses, and homeowners alike. Small scale wind turbine systems designed for residential applications can help homeowners meet or supplement their power needs through renewable energy. Installing a residential wind turbine requires some considerations, such as effective height for optimum wind; height and setback limitations; construction specifications for the foundation; and connection to the electrical grid. This Fact Sheet summarizes those considerations and requirements that homeowners should be aware of when seeking to install a residential wind turbine in the City of Columbus.

ZONING CODE CONSIDERATIONS

- In addition to specifying general land use, zoning codes have height districts that specify the maximum height that a building or structure can be constructed. Most properties in areas zoned as residential are classified in a height district limit of 35 feet. Properties for which no height limitation is specified are by default also classified in the 35 foot height district. Check the zoning map to verify the height limit for your property at http://gis.columbus.gov/oss/.

- A wind turbine is a structure and must conform to the 35 feet height limit in residential districts. For horizontal axis wind turbines, the maximum height is measured from the base to the highest reach of the blades.

- Section 3309.142, "Height district exceptions", allows a structure to exceed the limit if additional setback is provided. In a residential or apartment residential district, a structure may exceed 35 feet in height if 2 feet of additional setback is provided beyond the foundation of the structure for every one foot in excess of the height limit.

- Chapter 3332 "Residential Districts" and Chapter 3333 "Apartment Districts", specify the requirements for yards and setbacks in these residential districts. Call the Department of Building and Zoning Services to find a minimum setback requirement for your property at (614) 645-8637.

BUILDING CODE CONSIDERATIONS

- A permit is required for the foundation of the wind turbine as well as the electrical system. A design professional must seal the drawings for wind turbine foundations. Electrical drawings are required to be submitted for review and approval for the work being proposed.

- The 2006 Residential Code of Ohio applies until January 2013. Permit applications submitted after this date must comply with the 2011 Residential Code of Ohio.

- The foundation must be designed so the turbine can withstand wind speeds of 90mph with three-second, 110mph gusts.

ELECTRICITY CONSIDERATIONS

- Residents seeking to install a wind turbine must follow the National Electric Code (NEC) as currently adopted by the Residential Code of Ohio (RCO). NEC information for a particular system is frequently supplied by the wind turbine manufacturer.

- All regulated utilities are required to provide net metering (bi-directional) connections. Net metering allows excess energy produced by wind turbines during off-peak hours to be "sold" back to the grid.

  AEP customers can contact AEP to have them review their plans and coordinate the installation of distributed wind generation systems. More information on this, including AEP's Interconnection Brochure, is available on AEP's website at https://www.aepohio.com/save/renewable/Default.aspx.

- Customers who receive electricity from the City of Columbus Department of Public Utilities (CDPU) should contact CDPU at (614) 645-8276 before installing a residential wind turbine prior to installation to determine the requirements for wind turbines and the CDPU net metering capabilities.

ENERGY NEEDS AND CONSIDERATIONS

- The average residence requires about 5-15 kilowatts (kW) to power their home, only requiring the higher end of this range during short intervals during spikes in consumption such as using central air conditioning.

- Currently, many of the residential wind turbines on the market generate approximately 2-10 kW, with a 10 kW turbine measuring about 50-60 feet in height.

- The average residence can therefore effectively power most of their electrical needs with a wind turbine of 50 feet in height with the ability to produce 10 kW of energy. The ability to generate wind in any given location is highly dependent on many factors, however, such as wind speed, air density, and nearby turbulence-causing structures or tall trees.

  The U.S. Department of Energy's WindPowerAmerica.gov provides resources such as wind resource maps and wind potential estimates throughout the United States to help determine if a wind resource is adequate for a given location. Because smaller scale wind projects can vary significantly, it is also advised that those exploring installation of a residential wind turbine get a professional evaluation of their site's wind generating ability.

City of Columbus Contacts

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