



*The Leading Developer of Utility-Scale, Community-Owned Wind Farms.*

## Wind Turbine Facts

**SIZE:** Utility-scale wind turbines average approximately 2 megawatts of capacity. This means that one wind turbine is rated to supply enough energy to power 500-600 average sized homes.

**WHAT IS A MEGAWATT:** One megawatt equals 1,000 kilowatts.

**WHAT IS A GIGAWATT:** One gigawatt equals 1,000 megawatts.

**COST:** Wind turbines cost \$2 million dollars per megawatt to install. National Wind works with institutional investors to secure project financing for the cost of the wind turbines.

**HEIGHT:** Current wind turbines are typically 263 feet tall (80 meters) at the hub height (the center of the rotating blade). The blades add another 100 feet (30 meters). Total approximate height is 363 feet tall.

**LIFE SPAN:** We expect that today's turbines will have a life span of 20-30 years.

**NOISE:** Wind turbines are relatively quiet. Improved engineering and appropriate setback from homes mitigates noise issues. At the appropriate setback from homes, a wind turbine makes the sound equivalent of a common kitchen refrigerator.

**SHADOW FLICKER:** Shadow flicker is an excessive shadow produced by a wind turbine rotor on a sunny day. However, it is extremely rare in the United States for two reasons. First, due to the latitudes of most wind farm sites, the sun is usually not very low in the sky. Secondly, potential shadow flicker can be avoided by appropriate turbine setback from homes.

**WILDLIFE:** According to a report released by the National Academy of Sciences in May of 2007, 20,000-30,000 birds, less than one percent of a total of one billion, died as a result of colliding with wind energy facilities. One reason modern towers are solid tubes and not lattice towers, is to prevent birds from trying to nest on the turbines. We work with Fish and Wildlife officials early in the development process to help improve the compatibility of our projects with wildlife considerations.

**SETBACK FROM HOMES:** Typically wind turbines are placed 1000 to 1500 feet away from homes to meet the noise standard. The exact setback depends on the turbine model, the turbine layout, and other site specific conditions. Our wind assessment team works with landowners to appropriately place wind turbines.

**EFFECTS ON FARMING:** Wind turbines' affects on farming operations are minimal. Turbine foundations and the necessary access roads only use 1/2 acre of land. Farming and animal grazing can continue right up to the base of the turbines. We will cover the cost of any crop damage.

## A Modern Wind Turbine

Figure 2-3. A modern 1.5-MW wind turbine installed in a wind power plant

