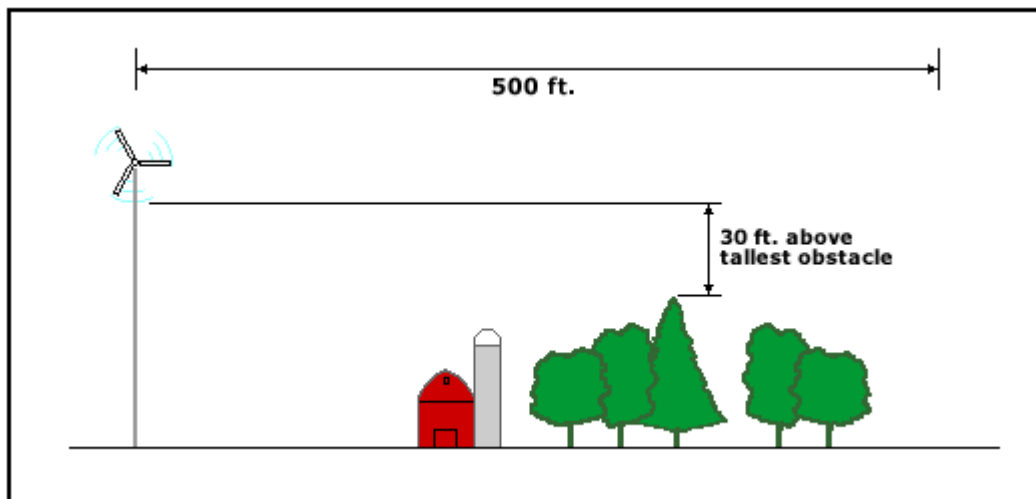


Before you install a wind turbine on your property, we recommend that you get a Wind Site Assessment. A certified site assessor can visit your property and give you more information about wind energy systems in general, and can also look at turbine siting issues at your specific site. A site assessment, along with additional input from the wind system dealer/installer involved with your project, will help you to determine the best potential locations for a wind turbine on your property.

### **Tower Height**

In general, wind turbines should be sited well above trees, buildings, and other obstacles. When the wind flows over an obstacle like a building or a tree, the wind is slowed down and turbulent air is created, and if a wind turbine is located in this zone of turbulence, the result will be poor energy production and increased wear and tear on the turbine. One way to get above the zone of turbulence is to put the wind turbine on a tall tower.



The above image is an illustration of a simple rule-of-thumb that is often used to specify a minimum tower height for a residential-sized wind turbine. The rule-of-thumb is to make sure that the tower is tall enough so that the entire turbine rotor is at least 30 feet above the tallest obstacle within 500 feet of the tower. Because trees grow and towers don't, make sure to consider the growth of trees over the lifetime of the wind turbine (typically 20 - 30 years between major rebuilds) as well.

### **Clear vs. Forested Areas**

In general, open fields are better than forested areas for wind turbines, simply because there are fewer obstacles to slow the wind and create turbulence. If your property is almost completely wooded, you will probably have more difficulty finding a suitable site for a wind turbine than you will if your property consists mostly of open farm fields or prairie.

### **High Ground, Gentle Topography**

The highest elevations in any given area tend to have the highest average wind speeds. If the area within a few miles of your property is fairly flat or gently rolling in topography, chances are that the highest ground in the area will have the highest wind speeds, and chances are that the highest ground on your property may be your best wind site (especially if the high ground is also open). In rugged topography, things get much more complicated. If you live in an area with very hilly and complex

terrain, it will be harder to predict the effect that the surrounding topography will have on the average wind speeds on your property, without actually doing some wind monitoring at your site. Wind monitoring is usually not considered cost-effective for residential-sized turbines. Very hilly terrain can also produce gusty winds and turbulence, which will tend to reduce turbine output and cause more wear on the turbine.

### **Exposure to Prevailing Winds**

In different parts of Wisconsin, the typical patterns of prevailing winds will be somewhat different. In southern Wisconsin, wind speed and direction data generally shows that the strongest winds over the course of the year tend to come out of the section of the compass between south and northwest. As we move into central and northern Wisconsin, the patterns of prevailing winds are not as consistent, and we start to see more winds from the southeast, as well as other directions. Other than your own experience at your site, another interesting reference that might give you a better idea of the strongest prevailing wind directions at your site is the Final Report from the Wisconsin Wind Resource Assessment Program (WRAP), which can be downloaded from the Wind Maps and Data section of our website. Once you have an idea of where the prevailing winds come from at your property, look for the best view, or "exposure", to the strongest prevailing wind directions.

### **Minimum Setbacks**

Local zoning usually stipulates that there should be a minimum setback for a wind turbine, equal to the height of the tower plus the blade length of the turbine. This minimum setback would typically apply to all property lines, road rights-of-way, and overhead power lines. In some cases it may be possible to get a variance on this setback. For instance, it may be possible to site a turbine within the tower-height-plus-blade-length distance of a property line, if you can get permission from your local zoning authorities and also from the owner of the neighboring property.