

# WINDLETTER

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## SMALL TURBINE COLUMN:

### Residential Wind System Visibility

--Mick Sagrillo, Sagrillo Power & Light

In the May issue of the *Windletter*, this column addressed concerns about residential wind systems and aesthetics. Aesthetics is a very subjective consideration, with dramatic variations in opinion from person to person. However, as that column pointed out, there are guidelines that both potential wind system owners as well as zoning committees can take into consideration to minimize objections about a residential wind system on aesthetic grounds, realizing that you can never make everyone happy.

In other situations, a neighbor might object to a wind system because it is "too visible." The complaint, "I don't want to look at it," from a disgruntled neighbor often comes up at zoning hearings. While there are similarities to aesthetics, visibility is a different concern.

Wind turbines are always mounted on very tall towers. This is done intentionally to mitigate the effects of ground drag and turbulence caused by the local topography, trees and other vegetation, and the various buildings that clutter the typical rural landscape. Turbulence and ground drag greatly reduce the output of a wind turbine, while increasing the wear and tear on the machine, thereby decreasing life expectancy. Installing a wind system at or below the tree line is, therefore, unacceptable to performance as well as longevity. That being the case, seeing a wind turbine above the local tree line will be unavoidable.

Even so, residential wind systems are not that easy to pick out on the landscape, especially compared to other tall structures that we all live with. For example, water towers are highly visible, primarily because they are large, solid structures that are often painted to stand out and lettered for recognition, as well as lighted as required by government regulation due to their height.

Other examples of highly visible structures include cell towers, radio and TV transmitter towers, and utility transmission towers. These towers are often installed along road right-of-ways, making them difficult to avoid seeing. In most cases, vegetation is cleared from around the towers so they stand out even more. Additionally, in the case of utility towers, there are many of them marching in a row down the landscape.

Another group of highly visible structures that we live with is billboards. While shorter than telecommunications and utility towers, or water towers, most are lighted for added visibility. Billboards are probably the most obtrusive of all, since, without being obtrusive, they would not do the job they were meant to.

There are two features of tall structures that can make them visible, color (including lighting) and solidity. Any examination of the visibility of a residential wind system must look at both of these characteristics.

Towers come in two general categories: guyed and freestanding. Guyed towers, which look very lightweight, are fabricated using either a lattice structure or a pipe. This tower design can get by with

being so lightweight because it is kept upright by the guy cables, which are only a fraction of an inch across. Since the towers are lightweight and the guy cables nearly invisible from a few hundred feet away, guyed towers disappear quickly on the landscape with distance. People often comment that they can see a wind turbine seemingly floating in the air before they notice the guyed tower that it is mounted on. Freestanding towers are more substantial than guyed towers. Their structure is such that they taper from a rather large base at ground level to nearly a point where the wind turbine is mounted. They, too, are not readily noticed above the tree line.

Occasionally, a zoning committee will require that a residential wind turbine and tower be painted so that it will “blend into the environment.” In many instances, the designated color for both the turbine and tower is “forest green.” This requirement often turns out to be counterproductive, making the wind system even more visible than it would have been sporting its “factory colors.”

For example, the wind turbines themselves vary in color, depending on the manufacturer. However, regardless of whether they are black, white, gray, blue, or yellow, you can be assured that careful consideration went into the choice of color so that the machine blends in rather than jumps out garishly on the landscape. This is not the case with a green wind turbine.

Wind turbine towers are typically galvanized by the tower manufacturer. When shipped, they are a bright silver color, but soon weather to a muted gray, disappearing in the landscape by blending in with the background or against the sky.

Consideration has gone into both the tower and turbine to minimize their visual impact on the landscape. And, being relatively small in size relative to utility or telecommunications towers, water towers or billboards, they are less visible than people might expect. As a result, a residential wind system on its tower can be hard to pick out on the horizon, unless you know precisely where it is and are specifically looking for it.

While it may be difficult to try to reason with a neighbor who steadfastly opposes a residential wind turbine because they simply “don’t want to look at it,” this line of thought is hardly a valid reason to limit tower height to at or below the tree line, or to deny the building permit.

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[Editors Note: The opinions expressed in this column are those of the author and may not reflect those of AWEA staff or board.]