

# CONSERVATION ADVISORY COUNCIL

## To the Town of Ancram

Jamie Purinton, Chair

David Dembo, Vice Chair

Andy Barnet

Choral Eddie

Joe Hoyt

Colleen Lutz

Erin Robertson

*The Conservation Advisory Council (CAC) provides information, tools, and advice for use in town planning; reviews land use proposals, and advises town government in the protection of our environment. The CAC conducts townwide natural resource inventories, reviews development proposals, and gathers and distributes information to town agencies, land use applicants, and the general public.*

(Adapted from Gretchen Stevens, CAC Hillsdale)

## Environmental Concerns, Standards and Model Language for Cell Towers, Wind Turbines, and Solar Panels

July 2010

### Cell Towers

#### Environmental Concerns

There are a number of potential concerns regarding the siting of cell phone towers. There is a threat to migratory birds, unknown effects of radiation on bees, and health effects of low-level electromagnetic radiation. There is also the physical danger of towers falling, or workers falling from towers. And damage to the environment during erection of towers. The Federal Telecommunications Act of 1996 prohibits communities from banning cell towers outright based on environmental concerns, but it does allow control over general placement, construction, and modification of towers. Towers must, however, comply with the Federal Communications Commission regulations concerning radio-frequency emissions.

#### Standards

The initial concern of the CAC regarding siting of cell towers had to do with the suggestion that the tower be sited on town land, specifically at the town hall or the fire station. Both locations would have meant the long-term exposure of numerous persons to emissions from the towers. With those locations no longer being considered, standards and zoning requirements regarding environmental effects should

deal with distances from wetlands and other sensitive environments, distances from inhabited dwellings, flight paths of migratory birds, amount tower exceeds the height of surrounding trees, lighting and its effects on wildlife, and any clear-cutting or excavation done on sensitive land (for example, steep slopes) during the building process.

Model Zoning Language (The following is taken from the “Town of Ancram, Local Law #1—Year 2000”)

- If the facility or tower site is in a wooded area, a vegetated buffer strip of undisturbed trees shall be retained for at least 50 feet in width around the entire perimeter of the facility site, except where the access drive is located.
- New towers, including masts, antenna and other accessory facilities, shall not exceed the minimum height necessary to provide adequate coverage for any personal wireless service facilities proposed for use on the tower, but in no event shall they be constructed to a height greater than 199 feet above the ground on which the tower is to be located.
- Unless required by the Federal Aviation Administration, no night lighting of towers, or the personal wireless service, or communication, facility, is permitted, except for manually operated emergency lights for use only when operating personnel are on site.
- No tower shall be located:
  - Closer than 750’ on a horizontal plane, to any structure, existing at the time of application, which is, or is able to be, occupied or habitable on the property of any school, public or private.
  - Closer than 750’ on a horizontal plane, to an existing dwelling unit, or day-care center, hospital, nursing home, church, synagogue or other place of worship.
  - Closer than 300’ on a horizontal plane to the nearest property line or 500’ to the nearest habitable structure.
  - Within any of the following prohibited areas:
    - DEC or federally regulated wetland
    - The habitat of any state-listed rare or endangered wildlife or rare plant species
    - Within 100’ horizontally from the boundary of any New York or DEC regulated wetland.
    - Within 100’ horizontally from the edge of any watercourse and/or water body. (It makes sense that the setback from any water body is at least the height of tower so that the tower can not fall into water.)



# Wind Turbines

## Environmental Concerns

Wind turbines offer both positive and negative impacts. To the extent they replace conventional fossil fuels with clean energy, their impacts are positive. But the facilities themselves present problems for ecologically sensitive areas, for bird and bat populations and other wildlife. This is especially the case for wind farms, as opposed to single family use.

There is a growing body of evidence suggesting that lights near and on towers can attract birds and bats particularly during poor weather. The United States Government Accountability Office report refers to a hypothesis that bats are attracted to insects that, in turn, are attracted by tower lighting. However, results of studies are not conclusive and recommendations on color (white or red) and flashing versus steady light are contradictory.

This discussion note is based on the directive in the Comprehensive Plan to “Exclude large commercial wind and solar operations as inconsistent with the rural character of the Community.”

## Standards

The guidelines of the U.S. Fish and Wildlife Service for siting wind turbines include the following recommendations:

- Avoid locations with known endangered species.
- Avoid known migration paths and areas where birds congregate or are conserved. (many songbirds migrate at night in broad fronts)
- Avoid areas near known bat hibernation, breeding, and migration corridors or in flight paths between colonies and feeding areas.
- Avoid areas and features that attract raptors and owls
- Avoid designated wildlife areas, wetlands, and wooded corridors, especially those oriented in the direction of migratory movement.
- Avoid using or degrading high value habitat areas and avoid habitat fragmentation.
- Minimize roads, fences and infrastructure associated with tower construction.
- Configure arrays to minimize mortality by grouping and orienting rows parallel to bird movement.

#### Lighting:

Tower lighting can be avoided altogether by not permitting tower heights that require FAA lighting (200 feet or more) and by prohibiting other on site lighting.

#### Tower height/turbine size:

The results of a long term (29 year) study in Florida showed that towers less than 300 feet high did not pose significant threats to migrating birds (*Notice of Inquiry Comment Review Avian/Communication Tower Collisions* prepared for the FCC, 2004). Note that the Comprehensive Plan includes ridgeline protection which should extend to wind and cell towers: "On these designated ridgelines, locate structures so rooflines do not extend above the existing tree line or ridge line. Use the NY State DEC guidelines for assessing and managing visual impact of development, and selective tree removal instead of clear cutting to the maximum extent."

#### Tower and turbine design:

According to the American Bird Conservancy, guy wires and lattice towers, which encourage perching and nesting, are associated with higher rates of bird mortality and should be prohibited. U.S. Fish and Wildlife Service recommends tubular towers with pointed tops with no exterior ladders or platforms.

#### Location of power lines:

Because birds are known to collide with electrical lines (GAO report), the American Bird Conservancy and the U.S. Fish and Wildlife Service recommend that power lines be installed underground (in accordance with best practice guidelines).

#### Operation during seasonal migrations:

Highest bird and bat mortality occurs during seasonal migrations. U.S. Fish and Wildlife Service suggests that turbines may need to be shut down during periods of high seasonal concentrations of birds. The same policy would be appropriate for migrating bats.

#### Construction process:

Construction activities should be organized and timed to minimize impacts on wildlife from noise, disruption of habitat, and the presence of vehicles and people.

### **Recommendations for Reducing Other Environmental Impacts**

#### Environmentally sensitive areas:

- Prohibit construction of towers within 100' of wetlands and other environmentally sensitive areas.

Erosion control and water quality:

- Integrate the overall construction design and activities to fit the physical features of the site. Avoid fragile or unstable sites and sites that require construction activities on steep slopes.
- Stage construction and stabilization activities to minimize the area and duration of disturbance.
- Identify control measures that will minimize erosion.
- Identify controls that will prevent off-site sedimentation.
- Time construction to minimize damage to vegetation.
- Keep construction of improved roads and auxiliary structures to a minimum.
- Reseed disturbed areas with native vegetation.

## Appendix to Wind Turbine Section

### American Wind Energy Association Model Zoning Ordinance for Small Wind Energy Systems (Modified for Blacksburg, Va.)

(This may be helpful to follow for language and topics that should be considered)

#### Section 3: Definitions

**Small Wind Energy System:** A wind energy conversion system consisting of a wind turbine, a tower, and associated control or conversion electronics, which has a rated capacity of not more than 100 kilowatts (kW) and which is intended to primarily reduce on-site consumption of utility power.

**Tower Height:** The height above grade of the fixed portion of the tower, excluding the wind turbine itself.

**Total Extended Height:** The height above grade to a blade tip at its highest point of travel.

#### Section 4: Permitted Use

Small wind energy systems shall be a permitted use in all zoning districts where structures of any sort are allowed; subject to the requirements of Section 5 below. Small wind energy systems not meeting the performance standards of Section 5 may be allowed by conditional use permit.

#### Section 5: Use Standards for Small Wind Electric Conversion System

**5.01. Setback:** The base of the tower shall be set back from all property lines, public right-of-ways, and public utility lines a distance equal to the total extended height. Turbines shall be allowed closer to a property line than its total extended height if the abutting property owner(s) grants written permission and the installation poses no interference with public utility lines or public road and rail right-of-ways.

**5.02. Tower Height:** So long as the total extended height meets sound and set-back requirements, there shall be no specific height limitation, except as imposed by Federal Aviation Administration regulations as stated in 5.07.

**5.03. Sound:** Sound produced by the turbine under normal operating conditions, as measured at the property line, shall not exceed the definition of nuisance noise. Sound levels, however, may be exceeded during short-term events out of anyone's control such as utility outages and/or severe wind storms.

**5.05. Requirement for Engineered Drawings:** Building permit applications for small wind energy systems shall be accompanied by standard drawings of the wind turbine structure and stamped engineered drawings of the tower, base, footings, and/or foundation as provided by the manufacturer. Wet stamps shall not be required.

**5.06. Soil Studies:** For standard soil conditions (not including gravel, sand, or muck), foundations developed by the wind turbine manufacturer shall be acceptable for turbine installations of 20kW or less and will not require project-specific soils studies or an engineer's wet stamp.

**5.07. Compliance with FAA Regulations:** No WEC shall be constructed, altered, or maintained so as to project above any of the imaginary airspace surfaces described in FAR Part 77 of the FAA guidance on airspace protection.

**5.08. Compliance with National Electric Code:** Building permit applications for small wind energy systems shall be accompanied by a line drawing of the electrical components, as supplied by the manufacturer, in sufficient detail to allow for a determination that the manner of installation conforms to the National Electrical Code.

**5.09. Utility Notification:** No small wind energy system shall be installed until evidence has been given that the utility company has been informed of the customer's intent to install an interconnected customer-owned generator. Off-grid systems shall be exempt from this requirement.

**5.10 Insurance:** Additional insurance beyond homeowners' coverage shall not be required.

**5.11. Abandonment:** If a wind turbine is inoperable for six consecutive months the owner shall be notified that they must, within six months of receiving the notice, restore their system to operating condition. If the owner(s) fails to restore their system to operating condition within the six-month time frame, then the owner shall be required, at his expense, to remove the wind turbine from the tower for safety reasons. The tower then would be subject to the Public Nuisance provisions of the zoning code.

**5.12. Signage:** All signs, other than the manufacturer's or installer's identification, appropriate warning signs, or owner identification on a wind generator, tower, building, or other structure associated with a small wind energy system visible from any public road shall be prohibited.



**5.13. Lighting:** No illumination of the turbine or tower shall be allowed unless required by the FAA.

**5.14. Access:** Any climbing foot pegs or rungs below 12 feet of a freestanding tower shall be removed to prevent unauthorized climbing. For lattice or guyed towers, sheets of metal or wood may be fastened to the bottom tower section such that it cannot readily be climbed.

## Solar Panels

### Environmental Concerns

Solar panels offer multiple environmental benefits by replacing fossil fuels with clean energy. Their negative environmental impacts are their manufacture, which is a chemical and energy-intensive process and the fact that current solar cells do not have a very long life span and are not easily disposed of in an environmentally responsible manner.

Placement concerns are the biggest issue in terms of planning, i.e. whether panels are installed on a building roof or free-standing poles; are part of a large scale installation, or for single family use. As with wind energy, if clear cutting of forest land is required, there is a negative environmental impact. There can also be problems with neighbors planting trees as visual screening from another neighbor's solar panels, diminishing the effectiveness of the panels, or not wanting to cut back trees that block sunlight from their neighbor's solar panels as the trees grow taller.

### Standards

As with wind turbines, the Comprehensive Plan directs that we **“Exclude large commercial wind and solar operations as inconsistent with the rural character of the Community.”** The following standards are based on such exclusion.

Standards should address size of solar panel facilities, if free standing and whether clear-cutting of trees is required to permit adequate sunlight reaching the panels or to install the panels on poles; distance from a neighbor's property where someone else's trees might interfere with sunlight getting to the panels; setbacks from wetlands, and other sensitive areas, including steep slopes.

### Model Zoning Language

No free-standing solar panels shall be erected:

- Within any of the following prohibited areas:
  - DEC or federally regulated wetland
  - The habitat of any state-listed rare or endangered wildlife or rare plant species
  - Within 100' horizontally from the boundary of any New York or DEC regulated wetland
  - Within 100' horizontally from the edge of any watercourse and/or water body.