

**Model Municipal Ordinance for
Utility-Scale Wind Energy Conversion Systems (U-SWECS)**

Prepared by the Tompkins County Environmental Management Council

Adopted September 14, 2005

1. Purpose

The purpose of this Section is to provide the necessary regulations for the establishment of Utility-Scale Wind Energy Conversion Systems (U-SWECS). These regulations are intended to encourage wind energy development in the locations and circumstances under which the use may be established without detriment to the public health, safety, and welfare.

2. Applicability

The provisions of this Section are applicable to those districts that allow Utility-Scale Wind Energy Conversion Systems (U-SWECS).

3. Definitions

FAA shall mean the Federal Aviation Administration.

Total Height shall mean, when referring to a Utility-Scale Wind Energy Conversion System (U-SWECS), the distance measured from grade to the uppermost extension of any blade, or the maximum height reached by any part of the U-SWECS.

Wind Energy Conversion Systems (WECS) shall mean any device that converts wind energy into electricity through the use of a wind turbine generator, and includes the turbine, blade, tower, base, and pad transformer, if any.

Utility-Scale Wind Energy Conversion Systems (U-SWECS) shall mean any WECS having one of the following:

1. a rated capacity of 500 kilowatts or greater;
2. 200 feet or greater in height; or
3. the purpose of such energy generated is intended for commercial sale.

4. Regulatory Framework

Zoning (Option 1) U-SWECS may only be constructed in areas that are zoned [insert permitted zoning] on the official zoning map for the [insert Town/Village/City].

Zoning (Option 2) U-SWECS may only be constructed in areas that are zoned [insert permitted zoning] and within areas designated as a Wind Energy Facility Overlay District, as designated on the official zoning map for the [insert Town/Village/City].

5. Application Requirements

For all proposed U-SWECS the applicant shall provide the following to the Board:

1. The applicant's and property owner's name, address, phone number, and signature.
2. A detailed plot and development plan drawn to scale clearly showing the following:
 - a. Physical dimensions of the property, existing structures, and proposed structures,
 - b. Location of all existing and proposed structures,

- c. Location of all electrical lines and facilities,
 - d. Existing topography,
 - e. Setbacks,
 - f. Methods of traffic circulation,
 - g. Ingress and egress identifying the following factors:
 - i. Location and description of nearest publicly maintained road,
 - ii. Description of access route from nearest public road including:
 - 1. Road surface material stating the type and amount of surface cover,
 - 2. Width, length of access route, and location of ingress and egress,
 - 3. Dust control procedures,
 - 4. A road maintenance program or schedule.
3. A location map to scale of all dwellings, structures, and electric lines and facilities within one-half (½) mile of the boundary of the property upon which the U-SWECS are to be located.
 4. Reference to any easements necessary for the proposed use of the land.
 5. Standard drawings of the structural components of the U-SWECS, including structures, pole or tower, base, footings, guy lines where required, and guy line anchor bases. The drawings shall include the distance of these components from all property lines.
 6. Height of any structure over thirty-five (35) feet within a five hundred (500) foot radius of the proposed U-SWECS.
 7. Specific information on the type, size, height, rotor material, rated power output, performance, safety and noise characteristics of each U-SWECS model, tower, and electrical transmission equipment.
 8. Hazard prevention plan addressing the following features: safe electrical wiring between turbines, fire prevention plan, landscape plan to avoid fire spreading, list of any hazardous fluid and certification of containment of fluids.
 9. Written certification from a structural engineer that the foundation and tower (tower with the rotor and rotor-related equipment) conform with good engineering practices and comply with the appropriate provisions of the Building Code, and that the tower and rotor-related equipment are compatible.
 10. Written certification from an electrical engineer that the electrical system conforms with good engineering practices and complies with the appropriate provisions of the Building Code.
 11. Written certification from a mechanical engineer that the rotor overspeed control system has been designed for the proposed use on the proposed site and conforms to good engineering practices and complies with the appropriate provisions of the Building Code.
 12. Copy of written notification to the FAA and approvals received.
 13. Copy of written notification to the operator of any microwave communications link that is located within a ____ (specify)-mile radius of the U-SWECS.
 14. Copy of written notification to each property owner within ½ mile of the proposed U-SWECS.
 15. Utility interconnection data and copy of written notification to the utility company requesting the proposed interconnection.
 16. Proof of liability insurance that will cover installation and operation.
 17. Sign plan detailing sign dimensions, content, and locations.

18. Landscape and vegetation plan, including site grading, proposed removal of vegetation, landscape design, and open areas.
19. Completed Environmental Assessment Form.
20. A description of proposed uses, including hours of operation, number of employees, and type and volume of traffic expected to be generated.

Additional information as deemed necessary by the Board if more than three residences are located within a quarter mile of the proposed U-SWECS facility or if there is a potential for significant environmental impacts, which may include, but is not limited to, the following:

1. Information sufficient to determine that the applicant has applied for and received approvals required by the FAA, and other approvals and/or permits required by relevant state and federal agencies.
2. Visual impact demonstrations including before and after photo-simulations and elevation drawings showing the height, design, color, night lighting, and location of the proposed facility as viewed from neighboring areas.
3. Noise impact analysis.
4. Avian impact analysis.
5. Shadow flicker model.
6. Proof of bond or fund equal to the reasonable cost of removing the wind turbine/anemometer and all accessory structures and returning the site to its original condition.
7. Any other information that would enable the Board to review the project.

6. General Standards

The following standards apply to the review and approval of U-SWECS. A special use permit is required for all U-SWECS consisting of wind turbine generators, transmission lines, and accessory buildings and structures. To issue a special use permit, the Board must find that the following general standards are met:

6.1 Visual Appearance and Design

1. U-SWECS shall be either painted a non-reflective, neutral color or appropriate material designed to blend the U-SWECS with surrounding landscape.
2. All U-SWECS on the same site shall blend with the background environment to the maximum extent practicable and should be uniform in style and color.
3. The applicant shall use low profile and unobtrusive building designs for on-site buildings to minimize industrial character of projects in rural or remote areas.

6.2 Lighting

U-SWECS shall not be artificially lighted, except as required by FAA. If lighting is required, it shall be steady, not strobed, and at the lowest intensity allowable by the FAA.

6.3 Signs

No advertising shall be allowed except for reasonable identification of the manufacturer or operator of the wind energy facility. Educational signs and displays on wind energy may also be allowed in appropriate locations.

6.4 Landscaping

1. Applicant shall minimize disruption of natural environment, retain existing vegetation and native plant species to the maximum extent feasible, and replant with native vegetation if existing vegetation is disturbed during construction.
2. Landscaping may be required to screen U-SWECS from adjacent properties or public view and/or to provide a backdrop to camouflage the facilities. Additional trees and other vegetation shall be planted and maintained around the facility, in the vicinity of the project site, and along access roads in appropriate situations where such vegetation is deemed necessary to provide screening of U-SWECS structures and related access roads.

6.5 Power Lines

Electrical controls and control wiring and power lines shall be wireless or not above ground except where wind farm collector wiring is brought together for connection to the transmission or distribution network, adjacent to that network.

6.6 Scenic Resources

U-SWECS shall not be allowed in a location that would substantially detract or block the view of a locally designated scenic viewshed.

6.7 Wildlife and Plant Resources

The facility shall not have a significant adverse effect on endangered or threatened wildlife or plant species or their critical habitats, including either migratory or resident avian and bat populations.

6.8 Access Roads

The applicant shall minimize the number and width of access roads, minimize cut and fill on sloping terrain, and use natural terrain where feasible.

6.9 Setbacks

1. Inhabited structures: Each U-SWECS shall be set back from the nearest inhabited structures by 1.25 times its Total Height at all times.
2. Property lines: Each U-SWECS shall be set back from adjoining property lines by 2 times its Total Height at all times, unless the applicant receives written consent or a land lease/wind access easement from affected neighbor(s).
3. Public roads: Each U-SWECS shall be set back from the nearest public road a distance of no less than 1.25 times its Total Height.
4. Communication and electrical lines: Each U-SWECS shall be set back from the nearest existing above-ground public electric power line or telephone line a distance of no less than 1.1 times its Total Height.
5. Designated scenic roads/highways: Each U-SWECS shall be set back from a state or locally-designated scenic highway or road a distance of no less than 2 times its Total Height.

6.10 Noise

1. U-SWECS shall be located with relation to property lines so that the level of noise produced during wind turbine operation shall not exceed fifty-five (55) dBA, measured at the boundaries of all of the abutting parcels.

2. In the event audible noise due to U-SWECS operations contains a steady pure tone, such as a whine, screech, or hum, the standards for audible noise set forth in section 6.10.1 shall be reduced to fifty (50) dBA. A pure tone is defined to exist if the one-third (1/3) octave band sound pressure level in the band, including the tone, exceeds the arithmetic average of the sound pressure levels of the two (2) contiguous one-third (1/3) octave bands by five (5) dBA for center frequencies of five hundred (500) Hz and above, by eight (8) dBA for center frequencies between one hundred and sixty (160) Hz and four hundred (400) Hz, or by fifteen (15) dBA for center frequencies less than or equal to one hundred and twenty-five (125) Hz.

6.11 Safety

1. The applicant shall clearly post emergency number, contact information and emergency procedures in a visible location.
2. All towers shall not be climbable from the ground to fifteen (15) feet above ground and all access doors to towers and equipment shall be lockable.
3. Fencing or other appropriate measures may be required to prevent unauthorized access to the U-SWECS.
4. All guy wires or other supports shall be clearly marked.
5. All blades shall have a minimum blade clearance no lower than thirty (30) feet above ground.

6.12 Signal Interference

The applicant shall minimize or mitigate interference with electromagnetic communications, such as television, microwave, navigational, or radio signals, caused by any U-SWECS. U-SWECS construction or operation may not interfere with existing emergency communications systems.

6.13 Inoperation/Reclamation

The U-SWECS shall be deemed inoperable after 12 months of inoperation. The owner shall restore site to original condition and foundation shall be removed up to 5 feet below final grade and vegetation restored within 120 days. A bond or other appropriate form of security may be required to cover the cost of removal and site restoration.

6.14 Federal and State Requirements

The U-SWECS shall meet or exceed any standards and regulations of the FAA and any other agency of the state or federal government with the authority to regulate U-SWECS or other tall structures in effect at the time the special use permit is approved.