

14. Permitting

New York State recently adopted the Power New York Act, which includes Article X, legislation establishing a state-level process for permitting electrical generation facilities of 25 MW and larger capacity. Under Article X, utility scale wind farms are now sited and permitted by a state siting commission, rather than by local municipalities. However, the state siting commission may defer to local ordinances, or it may overrule local requirements it considers to place an unreasonable burden on the applicant; so it remains incumbent upon municipalities to establish zoning and/or planning ordinances that balance wind energy's clean electricity generation potential with the public health, safety, welfare concerns that may be involved. Furthermore, residential scale wind turbines, and wind farms of less than 25 MW, will still fall under local municipal control. This section is intended to provide local officials with the information and tools needed to create meaningful and reasonable zoning and planning documents for wind energy facilities.

14.1. Local Ordinance Options and Examples

Effective wind ordinance standards should address several objectives, including: ensuring public safety, expressing local preferences, identifying and minimizing on- and off-site impacts, promoting good land use practice, informing and involving the public and providing legal defensibility. Clear and reasonable standards provide fairness for towns, wind developers and the public, and make it less likely that local standards will be overruled in the siting and permitting process. For small wind farms and residential scale turbines, clear standards can help make for a smooth and expeditious review process.

Local Review Options

A town does not have to employ zoning to develop and adopt a wind energy ordinance, although it is preferable as it better assures that the town will get the type of development it wants. There are a variety of ways in which towns can review and allow for wind energy facilities:

- As an outright permitted use
- With a special use permit
- Subject to site plan review
- As an accessory use
- Based on a use variance

In most cases, towns will probably want to use a combination of the special use permit and/or site plan review.

Zoning for Wind

A town that uses zoning and has an up-to-date comprehensive plan that addresses the wind energy resource is in an excellent position to proactively identify key wind energy areas that could be developed. The existing zoning for these areas could then be amended to allow wind energy facilities. The areas suitable for wind energy facilities are sometimes located within parts of multiple zones rather than primarily in one or two zones. In these cases, it might make sense to create a wind energy overlay zone for application to these areas. An overlay would apply special wind energy review standards to proposed wind energy uses (in cases where proposed turbines are subject to local review), in addition to the standards that apply to the underlying zone. Careful attention to potential visual, environmental,

and heritage impacts in defining the overlay area can greatly mitigate or even eliminate these issues when wind energy facilities are proposed. The overlay zone should be shown on the town's zoning map and could be an incentive to attract wind developers to the town. Zoning can play a critical role in keeping wind development in areas with compatible uses.

For more information on comprehensive plans, please refer to Section 11: Comprehensive Planning.

Setbacks and Other Zoning Considerations

Many concerns associated with safety, noise and aesthetics can be addressed by placing distance between wind turbines and people, property lines, roads and certain environmental areas or scenic or historic landscapes.

Although there is no consensus on appropriate distances or types of setbacks, there are several common themes that appear in a number of wind energy regulations that various communities have adopted. Most local government requirements include setbacks for the distance between the wind turbine and residences/other buildings, property lines and roads. Property lines should always be part of the setback formula in order to provide consistency and not endanger future uses on adjacent parcels. A few communities have also defined setbacks from railroads, above-ground transmission lines and other specific uses.

The most common way to define a setback distance is in terms of a multiple of the turbine height.

Another option is to specify a fixed distance; however, this may create a need for ongoing updates of the code as manufacturers develop taller wind turbines. A combination of a fixed distance and a multiple of the turbine height can also be used. In general, setbacks should be at least as great as the height of the turbine. When specifying the structure height, it is important to define whether the height is considered the top of the tower or the highest point reached by the rotor blade.

More information regarding setbacks, including example setbacks used in operational projects, is provided in Section 8.2: Public Health and Safety.

Some communities provide that setbacks may be reduced when doing so would enhance aesthetic, noise or safety considerations. Turbines are often exempt from property line setbacks if the adjacent property contains a wind turbine from the same plant or the adjacent property is a participant in the project through a land lease and/or wind access agreement. This is an important consideration since turbine layouts and plant infrastructure can result in many parcels of land being utilized for one project. Communities may also provide that setbacks can be reduced at will by landowners.

Communities may adopt noise regulations that apply to wind facilities. These can also involve the use of setbacks. Noise impacts may be measured at the property line or at the location of the affected uses – residences and certain other public uses. Use of property lines in determining setbacks assures that future uses of unbuilt adjacent parcels will not be exposed to unreasonable noise impacts.

When establishing setbacks, the intended protective effect must be balanced with economic considerations for wind projects. For instance, very large setbacks could be viewed as providing maximum mitigation of adverse noise, visual and environmental impacts. However, very large setbacks could render a large portion of a proposed site unusable for wind turbines, reducing the overall number of turbines that could be accommodated and rendering the project unfeasible. Since ordinance provisions considered "unreasonable" can be overruled by the state siting commission, municipalities should strive to create setbacks that fit within a range established by common practice of other New York State municipalities.

Height restrictions are a part of most zoning ordinances and can also have an adverse, though unintended, impact on wind turbine installations. Many local height restrictions do make exceptions for church spires, silos, cell towers and similar uses. Since the wind resource generally improves with height,

in areas where wind energy facilities are to be permitted, height exceptions should similarly include wind turbines.

Some communities specify a minimum height for the blade tips above ground level. Minimum limits are driven by safety concerns and typically range from 15 to 30 feet. Because today's commercial wind turbines are typically installed on towers of at least 200 feet, minimum levels above ground are unlikely to be an issue. Small turbines are installed on lower towers, but their rotors are also smaller, so these limits should also not be an issue.

For a discussion of appropriate review standards for environmental and cultural impacts, see Section 10: Other Environmental Impacts.

14.2. Role of Government Agencies

Most wind energy projects in New York are no longer subject to permitting by municipal authorities; however, some smaller systems still fall under local review, including local permitting and the SEQR process. Yet those involved in land use decisions at the local level sometimes feel unprepared to conduct such a review.

Many municipalities lack planning staff and most municipal planning and zoning boards have had relatively little exposure to wind energy technology. This discussion is intended to help fill this information gap and assist local governments in their decision-making. Finally, this section summarizes the areas where interaction with other state and federal agencies may occur. Note that most of this section will apply only to residential wind turbines and wind farm proposals of less than 25 MW capacity.

Local Review Options

In general, land use regulations are intended to guide future growth and development by ensuring that sufficient land is available for a variety of uses, adjacent uses are compatible, and a reasonable transition area exists between areas of different usage. As such, they can be an important element in addressing what, if any, wind energy development will be allowed in a municipality.

Municipalities wishing to allow or promote wind development must carefully consider what land areas would be best suited for wind energy development and make sure that this use is allowed in those areas. Municipalities must try to strike a balance between developing a responsible review process and imposing undue burdens on the developer. While it is important to be thorough and comprehensive, it is equally important to conduct a process within a reasonable time frame.

Local regulations that may apply to proposed wind energy facilities include building permits, special use permits, site plan review, and zoning. The use of any one or more of these regulations varies widely across the state.

According to a 2008 survey by the state Legislative Commission on Rural Resources, 78% of New York municipalities use zoning. However, zoning use is 100% in cities, and lower in towns and villages, where development pressures are not generally an issue. Many of the more remote, rural parts of the state, where good wind energy potential may exist, do not use zoning. Wind energy projects located on land that is not subject to zoning may only require a building permit and, possibly, site plan review. This simplified approach, while perhaps adequate for small wind projects, may not be adequate to ensure compatibility with surrounding uses, especially for larger projects.

Where zoning is in use, many municipalities have not yet added wind energy as an allowed use in their ordinances. Such non-listed uses are usually considered prohibited uses and may only be permitted through utilizing the use variance process. Because the statutory use variance criteria are difficult to

meet and the process is cumbersome, this is a less-than-ideal approach to evaluating and regulating wind energy facilities.

Updating Land Use Regulations

Land use regulations, including zoning, should be periodically updated to allow municipalities to address new uses, such as wind energy facilities. Local land use regulations must be in accordance with an adopted comprehensive plan. For this reason, many communities update their comprehensive plan and zoning ordinance in a parallel process.

As municipalities evaluate and update their land use regulations with respect to wind projects, they should consider what type of review should be used for wind proposals that fall under local review. There are a variety of review options, as follows:

- Permitted use
- Special use permit
- Site plan review
- Accessory use
- Use variance
- Overlay Zone

Depending on the process that municipalities use, the reviewing body may be the local enforcement officer, the planning board, the zoning board of appeals, the local legislative body, or some combination of these. It is useful here to review the purpose of each of these options.

Permitted Use

Permitted uses in a zoning ordinance law are those that the municipality feels should be allowed in a particular zone under all circumstances, though they may be made subject to specific conditions that would be reviewed as part of a ministerial decision by the municipality's enforcement officer. Municipalities may, for instance, choose to make small wind energy facilities permitted uses in remote, rural areas where there is little potential of adverse impacts to nearby properties.

Special Use Permit

Special use permits are employed when the use is believed to be generally appropriate for a particular zone, though perhaps not in all circumstances or as proposed, and are subject to either general or specific conditions to ensure compatibility with and/or minimal impacts on nearby uses. Special use permits are normally issued by the planning board or zoning board of appeals as part of a discretionary review process involving a public hearing. Special use permits can be issued only where zoning is used.

Site Plan Review

Site plan review is a process that is used to ensure that the permitted use is designed, constructed, and laid out in an appropriate way. Site plan review can be used with or without zoning because the proposed use of the property is not an issue. This is a good supplementary tool to use in the evaluation of wind projects. Site plan review is normally performed by the planning board or zoning board of appeals. Where site plan review and special use permits are both used, it is preferable for wind projects to be evaluated by a single reviewing body.

Accessory Use

Accessory uses are secondary to a principal use on the same property. A single wind turbine that is primarily used to supply electricity to a residence or a farm, for instance, might be considered an accessory use. Municipalities can amend the definition of accessory use in their zoning to include small wind projects.

Use Variance

Use variances can permit uses that are not listed as allowed in a particular zone. Use variances may be issued by the zoning board of appeals as part of a quasi-judicial review process involving a public hearing. This process exists to handle the unanticipated exception to the rule. Use variance may only be issued if the applicant meets strict statutory tests. The burden of proof of the appropriateness of the use rests on the applicant. It is preferable to allow the use in appropriate zones and to establish a meaningful but not overly cumbersome review process than to rely on the use variance process to allow wind energy facilities.

Overlay Zone

Part of any update of land use regulations should include an update of the zoning map. Such an update presents municipalities with the opportunity to create a wind energy overlay zone that can be used as a way to attract wind energy developers to the community, if desired. Wind energy facilities can also be added as an allowed use in various existing zones in the municipality. The different options in this area are discussed further in the *Wind Energy Model Ordinance Options* section of the Appendix.

Meaningful and Fair Review

Once municipalities choose an approach to reviewing and permitting wind energy facilities, they should consider what the substance of that review will be. A different set of review standards may be appropriate for commercial wind energy facilities as opposed to a small turbine for residential or farm use. Nevertheless, permitting considerations will likely include most or all of the following issues:

- Public health and safety
- Siting and installation
- Setbacks from residences, roads, and property lines
- Nuisance impacts: sound, electromagnetic/microwave interference
- Environmental impacts: avian, soil erosion
- Visual impacts

The level of detail required to address these issues in a permitting strategy will vary depending on project location, existing land uses, community concerns, local environmental issues, and other factors. Municipalities should encourage those submitting applications to schedule a pre-application conference to meet with municipality staff to discuss the proposed project in general terms and to clarify the application requirements.

The conference should be informal. However, the applicant should be encouraged to bring preliminary materials to the conference to inform staff (and/or a review board member) of siting information. The general purpose of the pre-application conference is:

- To find out, on an informal basis, what the applicant has in mind
- To explain the municipality's standards and procedures
- To provide the applicant with the application form and list of items to be submitted.

Straight-forward discussion early on can help reduce the time and expense involved in the approval process.

Coordinating the Review with Others

Any proposed special use permit or site plan for a proposed development project that is within 500 feet of a municipal boundary, a county or state park, road, stream, public building, or a farm operation located in an agricultural district, may need to be referred to the county planning agency (or regional planning agency if there is no county agency) for its input (Section 239-m of the General Municipal Law). County referral is also usually required of any comprehensive plan or zoning ordinance amendments to accommodate wind projects.

Building Codes

Recent changes to the state building code specify that wind turbines fall outside the review responsibilities of local code enforcement officers. However, related facilities, such as access roads and operations and maintenance buildings, may still require review by local inspectors. The local utility receiving energy from the wind plant is responsible for inspection and acceptance of the turbine equipment, collection system, substation, and interconnection.

A link to the Administration and Enforcement of the Uniform Fire Prevention and Building Code and the Energy Conservation Construction Code (Uniform Code) is provided in the additional resources section. Local governments may also have their own building code.

Interactions with State and Federal Agencies

Local jurisdictions may interact with state and federal agencies when conducting the environmental review for a wind energy project. Some of the state and federal agencies that may become involved in the review of a wind energy project include those listed in Table 11. This sample information is provided from the large-scale, commercial wind energy project located near Prattsburgh, New York. Note that when this project was permitted, local municipalities were responsible for permitting all wind farm proposals; at this writing, the state siting commission is responsible for all facilities of 25 MW and greater capacity. In permitting smaller wind development proposals, fewer state and federal agencies may be involved.

An involved agency typically has some form of discretionary authority relating to a specific aspect of a proposed action (e.g., the granting of a required permit). An interested agency lacks this discretionary authority but still chooses to participate in the review process because of specific expertise and/or concerns.

Table 11 - Agency Involvement in the Prattsburgh Wind Farm

Agency

Involvement in WindFarm Prattsburgh environmental review process

NYS Department of

Environmental Conservation

Interested agency; may be Involved agency if NYSDEC permits are required (e.g., state regulated wetlands or stream permits); has broad responsibilities to consider impact of projects on natural resources, including birds, bats and their habitats.

NYS Department of Agriculture
and Markets

Interested agency; focus on ensuring that soils and farming operations are not adversely affected by construction activities

NYS Public Service Commission

Interested agency; oversees issues relating to energy interconnection and transmission

NYS Office of Parks, Recreation and Historic Preservation

Interested agency; state administrators of National Historic Preservation Act

U.S. Fish and Wildlife Service

Interested agency; focus on ensuring that no adverse impacts occur to sensitive wildlife habitat or species; has responsibilities under Migratory Bird Act and Threatened and Endangered Species Act.

USDA Animal Plant Health

Inspection Service

Interested agency; responsible for plant protection and quarantine program

U.S. Army Corps of Engineers

Interested agency; likely to issue permits in compliance with Section 404 of the Federal Clean Water Act

Federal Aviation Administration

Interested agency; provides obstruction lighting recommendations to minimize aviation risks

Source: <http://www.prattsburghwind.com>

NYS Department of Environmental Conservation (DEC)

The NYSDEC may become involved in project approval if land that will be affected by the project falls into its jurisdiction under the federal Clean Air and Clean Water Acts. Issues related to streams or wetlands represent one of the most common ways in which the NYSDEC could become involved.

The DEC does not issue a specific permit for wind projects. Rather, permits may be required for specific actions taken in the construction of the wind project.

For example, a permit would be required if the project involved filling of a section of a state regulated wetland or disturbance to the bed or banks of a state regulated stream. For a typical wind project, the following permits may be required:

*Freshwater Wetlands Permit (Part 663)*⁴¹

This permit program was created in light of the legislature's intent to preserve, protect, and conserve freshwater wetlands and to regulate development so as to preserve their beneficial qualities. A permit would be required for regulated activities involving freshwater wetlands that appear on the New York State wetlands maps.

Generally, the permits are limited to wetlands 12.4 acres or greater in size, though smaller wetlands of unusual significance may be included. Regulated activities include the following:

- filling, draining or excavating, grading, and dredging;
- constructing buildings, roadways, septic systems, bulkheads, dikes, dams, and docks;
- clear-cutting timber and other vegetation in a wetland or its 100 foot adjacent area.

While it is not likely that a turbine itself would be located in a wetland, it is possible that an access road or electrical interconnections between turbines, the substation, and the electrical grid may involve disturbances to a wetland. The applicant's plans are required to show the freshwater wetlands boundary (if any) and the source of information providing that boundary.

In determining whether to issue a permit, the following factors must be considered:

- wetland class
- effect of the project on wetland functions and benefits
- possible alternatives outside of the wetland or adjacent area and,
- loss or degradation to the wetland cannot be more than insubstantial

Use and Protection of Waters Permit (Part 608)⁴²

This permit program was created in view of the legislature's intent to minimize the disturbance of streams and water bodies and so prevent unreasonable erosion of soil, increased turbidity, loss of fish and aquatic wildlife or habitat destruction. This permit may be required if construction of access roads or electrical interconnections (turbine construction more rarely) involve disturbance to a stream (classified c(t) or above) or if excavation or placement of fill occurs in any of the "navigable waters of the state or in wetlands that are adjacent to and contiguous at any point to any of the navigable waters of the state, and that are inundated at mean high water level or tide."

The applicant must show that the proposal: 1) is reasonable and necessary 2) will not endanger the health, safety and welfare of the people of the State of New York 3) will not cause unreasonable, uncontrolled, or unnecessary damage to the natural resources of the state including soil, forests, water, fish, and aquatic and related environment.

Federal Clean Water Act (Section 401) Certificate⁴³

This certificate program was created consistent with the legislative intent to ensure that federal agencies issue permits without violating the state's water quality standards or impairing designated uses.

⁴¹ Statutory Authority provided by NYS Environmental Conservation Law (ECL), Article 24. Applicable regulations found in 6NYCRR Parts 663.

⁴² Statutory Authority provided by NYS Environmental Conservation Law (ECL), Article 15, Title 5. Applicable regulations are found in 6NYCRR Part 608.

⁴³ Statutory Authority provided by NYS Federal Clean Water Act, Section 401. Applicable regulations are found in 6NYCRR Part 608.

The Section 404 federal permit process, and corresponding state certification under Section 401, regulates the discharge of dredged or fill materials to the waters of the United States (to include wetlands). The State must issue a Section 401 water quality certificate before a Federal agency can approve a Section 404 permit.

The certificate verifies that the federally approved action is in compliance with State water quality standards or designated use of the water body.

The burden of proof is on the applicant.

Unlike the Freshwater Wetland permit, this permit and corresponding certificate are necessary for the discharge of dredged or fill material to wetlands smaller than 12.4 acres in size.

Stormwater Discharge Permit

For a wind energy project, the amount of land disturbed during construction depends on the size and number of turbines, existing infrastructure (e.g., roads and transmission), and topography.

Temporary disturbances caused by construction are approximately one acre per megawatt (MW); this estimate accommodates a construction lay-down area at each turbine location, access roads, underground transmission line, substation, and construction vehicle parking. Permanent disturbances caused by construction activities average 0.5 acres/MW.

Under Phase II of EPA's stormwater rules, construction activities that commenced on or after March 10, 2003 and that disturb one or more acres of land must be authorized by a stormwater discharge permit.

On January 8, 2003, the NYSDEC issued one of the most progressive discharge permits in the nation for such authorizations.

The permit NYSDEC issued is the SPDES General Permit For Stormwater Discharges from Construction Activity (GP-02-01). To obtain coverage under the general permit, the operator of a construction activity must file a completed Notice of Intent (NOI) with the DEC. Submitting an NOI is an affirmation that a stormwater pollution prevention plan (SWPPP) has been prepared for the site and will be implemented prior to the commencement of construction commences. Coverage under the general permit can begin either five (5) or sixty (60) business days after receipt of the NOI to by the DEC.

All stormwater pollution prevention plans include provisions for erosion and sediment controls. For construction activities that meet either Condition A, B or C described below, the operator shall develop a full SWPPP which includes water quantity and water quality controls (post-construction stormwater control practices), in addition to the erosion and sediment controls.

Condition A - Construction site or post construction runoff discharging a pollutant of concern to either impaired water identified on NYSDEC's 303(d) list or a TMDL watershed for which pollutants in stormwater have been identified as a source of the impairment.

Condition B - Construction site runoff from Phase 1 construction activities (construction activities disturbing five (5) or more acres).

Condition C - Construction site runoff from construction activity disturbing between one (1) and five (5) acres of land during the course of the project, exclusive of the construction of single family residences and construction activities at agricultural properties.

The detailed components of a stormwater pollution prevention plan are set forth in the New York State Stormwater Management Design Manual. Please note that many SWPPPS have unnecessarily included model runs that increase the volume but not the value of the SWPPP.

Possible Roles of the DEC in the SEQR Process

An agency can participate in a SEQR review as either an Involved Agency or as an Interested Agency. An Involved Agency is an agency that has or will have a discretionary decision to make regarding some aspect of the action. A discretionary decision would include reviewing a permit application or a certification request. An Interested Agency lacks a discretionary authority but still wishes to participate in the review process because of its specific expertise or concerns about the activity. Being an Involved Agency, particularly if designated the Lead Agency (the agency principally responsible for carrying out, funding or approving an action), gives an agency greater legal leverage in directing the conduct of the SEQR process than if it is an Interested Agency.

Even if the DEC is not an Involved Agency, it will fully participate in the environmental review of the proposal to ensure that resource issues of statewide concern are identified and assessed in the environmental review process conducted under SEQR. The DEC's interests would include assessing the projects possible impact to state wildlife such as bats, raptors (hawks and eagles, for example), migratory waterfowl, and migratory songbirds and their habitats. If impacts were disclosed, the DEC would also identify ways that the impacts could be avoided or reduced.

Note that for wind farms of 25 MW and larger capacity, the state-level permitting process will supersede SEQR.

NYS Department of Agriculture and Markets (Ag & Markets)

Villages, municipalities, and cities in New York State have broad ability to enact land use rules and regulations; however, these powers must be in accordance with the policy and goals of *Article AA-25 of the Agricultural and Markets Law*. This law prevents unreasonable restrictions by local government rules on land use within agricultural districts unless it can be demonstrated that public health or safety is

threatened. The purpose of the law is to encourage development and improvement of agricultural land for production of food and other agricultural products. DAM has created a document specifically focused on wind energy to facilitate the review process. A link to the *Guidelines for Agricultural Mitigation for Windpower Projects* is available in Additional Resources.

NYS Public Service Commission

The Public Service Commission is responsible for overseeing issues related to energy interconnection and transmission, including the siting of facilities under Article VII of the Public Service Law (PSL). It must also approve the construction of wind energy facilities with generating capacity over 80 megawatts, pursuant to PSL Section 68.

New York State Office of Parks, Recreation, and Historic Preservation

This Office may require consultation if there are visual impacts involving historic structures or locations. For more information on this Office and the tools it has available to developers and municipality decision-makers please see the *Other Potential Environmental Impacts* section of this Toolkit.

US Fish & Wildlife Service

If a proposed project site includes or is adjacent to sensitive plant or wildlife habitat, the USF&WS can perform a threatened and endangered species review. The review identifies any threatened or endangered species located in or near the proposed project area and determines the likely level of impact. A positive species finding would trigger the National Environmental Policy Act's requirement for an assessment of the need for an Environmental Impact Statement; this process could be coordinated with the SEQR process.

Adirondack Park Agency (APA)

If a proposed project site is within the Adirondack Park, the project may need to meet additional APA requirements. The APA administers the Adirondack Park Agency Act (Executive Law, article 27), the Freshwater Wetlands Act (Environmental Conservation Law, article 24) on state lands within the park and the Wind Scenic and Recreational Rivers System Act (Environmental Conservation Law, article 15, title 27) for private lands within the park borders.

USDA – Animal Plant Health Inspection Service

The Animal Plant Health Inspection Service of the USDA may be called upon to help assess the vulnerability of the project area's ecosystem to invasive pests and pathogens.

Army Corps of Engineers

The Army Corps of Engineers (COE) may become involved in a project, if any portion of the project (e.g., access road, distribution line) crosses a water body subject to COE jurisdiction such as streams flowing into navigable waters. The COE may also become involved in offshore wind energy projects in the Great Lakes and the Atlantic Ocean. Its level of involvement could range from expert review to mitigation plan suggestions to permit issuance.

The Bureau of Ocean Energy Management, Regulation and EnforcementThe Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) will grant leases, easements, and rights-of-way for offshore wind farms. Note that this federal Bureau regulates ocean wind development proposals, not offshore wind developments located in lakes.

Federal Aviation Administration (FAA)

The majority of utility scale wind energy facilities are subject to the FAA's review for safety lighting. The FAA requires lighting on any structure taller than 200 feet. Projects located near airports or military facilities or in aviation corridors may require additional review, even if they fall below the 200 foot threshold.

FAA lighting varies significantly from project to project because the FAA only recently adopted a national standard for lighting utility-scale wind turbines. Some lighting scenarios include lighting every other turbine or bracketing the project (i.e., lighting the turbines at just the corners of the project, the outermost ring of turbines, or the turbines at the end of rows).

To create a national standard, the FAA along with the national Department of Energy (DOE), the American Wind Energy Association (AWEA), and participating projects, started a study in 1999 to determine the most effective and efficient technique for lighting wind turbine projects. This study combined airborne evaluations of select project sites as well as model simulation to test the recommended guidelines. Some of the proposed recommendations tested at the Blue Canyon Wind project in Oklahoma included the following:

- Half mile separation unless bracketing used,
- Red strobe (L864) required,
- White strobe (L865) depending on location,
- Synchronize all lights,
- Omit daylight illumination,
- Light must extend above highest point of the nacelle, and
- White/off-white towers preferred.

The final report was issued in February of 2007. The final standards issued by the FAA include, but are not limited to, the following guidelines:

- Not all wind turbine units need to be lighted. Definition of the periphery of the installation is essential
- Obstruction lights within a group of wind turbines should have unlighted separations or gaps of no more than ½ mile
- All flashing lighting should be synchronized
- Nighttime wind turbine obstruction lighting should consist of the preferred FAA L-864 aviation flashing red lights
- Daytime lighting of wind turbine farms is not required, as long as the turbine structures are painted in a bright white color or light off-white color most often found on wind turbines.

Table 12 lists the types of aviation lighting installed for some of New York's existing wind projects.

Table 12 - Examples of Aviation Lighting at New York Wind Power Projects

Madison Fenner Wethersfield Maple Ridge

Flash Pattern

FPM – Flashes per

Minute

40 FPM - Day

20-40 FPM - Night

40 FPM - Day

20-40 FPM - Night

40 FPM - Day

20-40 FPM - Night

20-40 FPM

Day and Night

Turbines Lit 7 of 7 (100%) 20 of 20 (100%) 10 of 10 (100%) 55 of 195 (28%)

Brightness

Medium intensity

(white)

Obstruction light

(red)

Medium intensity

(white) Obstruction

light (red)

Medium intensity

(white) Obstruction

light (red)

Obstruction light

(red,flashing)

Lights per Turbine

1 white (all

turbines, day) 2

red (all turbines,

night)

1 white (7 turbines,

day)

2 red (all turbines,

night)

1 white (3 turbines,

day)

2 red (all turbines,

night)

1 red

(55 turbines, day

& night)

FAA Light Type

L-865 (day)

L-864 (night)

L-865\L-864 (7

turbines)

L-864 (13 turbines)

L-865\L-864 (3

turbines)

L-864 (7 turbines)

L-864 (55

turbines)

Source: AWS Truwind, LLC

Although the FAA's determination of how to light a wind power project is not an open process like an environmental review, municipalities might be able to offer their lighting preference for a wind project in their local area. However, aviation safety will be a priority.

14.3. Overview of the SEQR Process

New York's State Environmental Quality Review Act (SEQR) requires the consideration of environmental factors early in the planning stages of any actions that are directly undertaken, funded or approved by local, regional, and state agencies. SEQR is both a procedural and substantive law. The law requires certain procedures or steps to be followed in the environmental review. It also requires that agencies base decisions or conclusions on substantive information developed in the environmental review of a project. The review process may result in an agency requiring project modifications or even project denial if the potential adverse impacts cannot be mitigated or avoided. Another component of SEQR is the requirement to consider alternatives in the review process.

Note that SEQR no longer applies to proposed wind farms of 25 MW capacity or greater, as these projects are now permitted through a state-level process that includes a prescribed environmental review.

Classify the Action: Type I, Type II, Unlisted

Actions under SEQR are listed as Type I, Type II, or Unlisted. The classification of an action is important in determining the procedures to be followed. Type I actions are those projects that are more likely to require the preparation of an Environmental Impact Statement (EIS) than unlisted actions. The criteria for classifying actions as Type I can be found in DEC's regulations at Title 6 of the Compilation of Codes, Rules and Regulations of the state of New York (6 NYCRR) § 617.4. Type II actions are those actions that have been determined not to have a significant impact or are otherwise precluded from environmental review under the Environmental Conservation Law (ECL) Article 8. Type II actions are not subject to review under SEQR, and a list of these actions can be found in 6 NYCRR 617.5. All actions that are not Type I or Type II are considered Unlisted actions. However, an involved agency has the discretion to treat an Unlisted action as a Type I action.

Examples of Type I actions include any project over 100 feet above ground level in a locality without zoning regulations pertaining to height, as well as any project that involves the physical alteration of 10 acres. This would include not only alteration from turbine construction but also lay down areas, access roads, transmission lines, and any electrical substation improvements. If a project is in an agricultural district, the threshold for physical alteration is only 2.5 acres. To date, most of the commercial wind projects have exceeded these thresholds and have been classified as Type I actions. As described below, Type I actions require certain procedures to be followed, but do not always require the preparation of an Environmental Impact Statement.

For Type I actions, SEQR requires that a project sponsor complete the Full Environmental Assessment Form (Full EAF). The Full EAF requires the project sponsor to provide more information regarding a project than the Short Environmental Assessment Form. If a wind developer submits an application to a local municipality for a commercial wind project and a state or local agency determines that a project is a Type I action, then the Full EAF should be included with the application or a request should be made to have one submitted. The project sponsor may also choose to supplement the Full EAF with any studies or analyses related to the particular project. SEQR also requires that a coordinated environmental review be conducted. This means that all involved agencies (agencies with discretion to approve, fund, or undertake an action) cooperate to produce one integrated environmental review. It also allows interested agencies (agencies with concerns but without jurisdiction) to participate in the review.

Lead Agency

SEQR requires that one of the involved agencies lead the environmental review. This agency is referred to as the Lead Agency and has numerous responsibilities in the coordinated environmental review. Typically, the lead agency is selected based on whether the anticipated impacts are primarily of statewide, regional or local significance. If impacts are generally local in nature, then either an agency at the town or county level should assume the role of lead agency. For this reason, the local municipalities have generally assumed the role of lead agency. In some cases, municipalities have assumed lead agency by default because no other agency had jurisdiction. The Commissioner of the New York State Department of Environmental Conservation (DEC) resolves any disputes regarding who serves as lead agency.

Determination of Significance

Once a lead agency has been established, a determination of significance must be made. For Type I actions, the determination of significance is a declaration made by the lead agency regarding the potential for a project to have significant impacts on the environment. A negative declaration indicates the project will have minimal impacts, while a positive declaration indicates the potential for significant adverse environmental impacts. A negative declaration ends the SEQR process. A positive declaration requires the preparation of an EIS.

A lead agency needs to understand the term “significance.” Although a subjective term, significance is measured by the magnitude (severity) and importance (relation to its setting) of the impacts. The bigger or more severe the impact, the more a detailed analysis is required. The importance of the impact will depend on the setting and the local community values. A lead agency should consider whether the impacts are short or long term. A lead agency should note that a determination of significance is not the point at which to weigh the social and economic impacts of a project. A threshold determination should only be based on whether the project is likely to have significant impacts.

For wind projects the potential environmental impacts can include, but may not be limited to, visual, sound, birds, bats, water quality (wetlands, stream, stormwater runoff), historic preservation, agricultural, and community character. Some of these may be related to construction and will be short term impacts. Others will be related to the operation of the wind energy project and can be long term impacts. In either case, these potential impacts need to be carefully considered.

The threshold for requiring an EIS is not based on the number of turbines but on the potential for significant adverse impacts. Therefore, projects utilizing a small number of turbines are not exempt from performing an EIS unless a negative declaration is made.

If a lead agency decides to complete a negative declaration, it must consider all relevant impacts, not just those impacts within its jurisdiction. The lead agency’s decision must document, in writing, the reasons for the decision. The negative declaration must contain a reasoned elaboration of why the project will not have significant impacts on the environment. The negative declaration must also be based on information obtained before the lead agency at the time of the decision. It may not be based on future studies or conditions to be imposed by the lead agency.

Even for wind projects involving a small number of turbines, the potential impacts make it difficult to write a negative declaration based on the information provided in the Full EAF and application alone. In most cases where a lead agency has issued a negative declaration for a wind project the project sponsor has supplemented the Full EAF with studies and analyses. This additional information is what allows the lead agency to make a reasoned elaboration regarding the project impacts and why they are not significant.

EIS Process

If the lead agency believes significant potential impacts may occur due to the proposed project, SEQR requires the lead agency to issue a positive declaration and require the preparation of an EIS. Procedurally, the EIS process adds additional steps to the process, but the results are a more thorough environmental analysis.

The EIS process also provides formal opportunities for public participation throughout the process. They include scoping of the Draft EIS and a 30 day public comment period on the Draft EIS. These provide opportunities for the public and other agencies to provide input into the review process, resulting in a review with a broader perspective. It also increases the likelihood that the project will be consistent with community values. Although not required, a SEQR hearing also provides another opportunity for public participation in the process.¹

Another important component of the EIS process is the requirement to look at alternatives. For the wind projects that have been the subject of an EIS thus far, the range of alternatives that were reviewed include different turbine locations, a reduction in the number of turbines, and the no action alternative. (SEQR requires the review of the no action alternative in an EIS.)

An EIS does not have to address every possible impact. The process is set up for the lead agency to identify those potentially significant adverse impacts. The EIS should focus on those impacts.

Through the scoping process the lead agency can limit the issues to be addressed in the EIS.

The preparation of a findings statement concludes the EIS process. A findings statement indicates that all requirements of SEQR have been met. Similar to the negative declaration, SEQR requires that the findings statement provide a reasoned elaboration why a project should be approved or denied. The findings statement is the time for an involved agency to weigh the potential adverse environmental impacts against the needs and benefits of the project. All involved agencies must issue their own findings statement.

SEQR Fees

Local communities that consider becoming a lead agency should be aware of the option of SEQR fees. In short, the SEQR fee provision allows a lead agency to require the project sponsor to provide money to assist in the SEQR review of the project. Many lead agencies have been reluctant to explore this option due to possible resistance they might receive from project sponsors. In fact, some project sponsors are willing to explore the option because it will, in most cases, expedite the review process. The other misconception is that the project sponsor provides for the consulting services, thereby biasing the review. To avoid this scenario, the project sponsors have the option to establish a fund to allow the lead agency to hire their own consultants. The consultant would then report directly to the lead agency and not the project sponsor.

14.4. Additional Resources

- **Local Planning and Regulatory Strategies for Development of Wind Projects**

NYS Department of Environmental Conservation - Stormwater
(www.dec.state.ny.us/water/stormwater)

¹ For projects of 25 MW capacity or greater, the state-level permitting process also includes opportunities for public participation.

Comment [t1]: URL to be added

- Environmental Protection Agency – Stormwater (www.epa.gov/npdes/stormwater)
- Administration and Enforcement of the Uniform Fire Prevention and Building Code and the Energy Conservation Construction Code (Uniform Code). (<http://www.dos.state.ny.us/CODE/LS-CODES.HTML>)
- New York Department of Environmental Conservation – Freshwater Wetlands Permits (<http://www.dec.ny.gov/permits/6058.html>)
- New York Department of Environmental Conservation – Use of Protected Waters Permits (<http://www.dec.ny.gov/permits/6042.html>)
- New York State Stormwater Management Design Manual (<http://www.dec.ny.gov/chemical/29072.html>)
- New York Standards and Specifications for Erosion and Sediment Control (Blue Book) (<http://www.dec.state.ny.us/website/dow/toolbox/bluebook/bluebook.html>)
- New York Department of Environmental Conservation – SEQR Permits (<http://www.dec.ny.gov/permits/357.html>)
- NYS DAM - Guidelines for Agricultural Mitigation for Windpower Projects (<http://www.agmkt.state.ny.us/AP/agsservices/constructWind.html>)
- FAA Advisory Circular – Obstruction Marking and Lighting (http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/b993dcdcf37fcdc486257251005c4e21)

APPENDIX B

NOTICE

This report was prepared by Pace Energy and Climate Center and Pace Land Use Law Center in the course of performing work contracted for and sponsored by the New York State Energy Research and Development Authority (hereafter “NYSERDA”). The opinions expressed in this report do not necessarily reflect those of NYSERDA or the State of New York, and reference to any specific product, service, process, or method does not constitute an implied or expressed recommendation or endorsement of it. Further, NYSERDA, the State of New York, and the contractor make no warranties or representations, expressed or implied, as to the fitness for particular purpose or merchantability of any product, apparatus, or service, or the usefulness, completeness, or accuracy of any processes, methods, or other information contained, described, disclosed, or referred to in this report. NYSERDA, the State of New York, and the contractor make no representation that the use of any product, apparatus, process, method, or other information will not infringe privately owned rights and will assume no liability for any loss, injury, or damage resulting from, or occurring in connection with, the use of information contained, described, disclosed, or referred to in this report.

Wind Energy Model Ordinance Options

The following text is adopted from “Local Planning and Regulatory Strategies for Development of Wind Projects.” The complete text may be found on the NYSERDA website and on the website of the New York Wind Education Collaborative, at www.pace.edu/school-of-law/nywec.

INTRODUCTION:

With the advent of newer, more efficient technologies, government incentives, and a push for renewable energy sources, wind energy is a consideration on residential, commercial and industrial levels. Although New York State recently adopted legislation establishing a state-level process for permitting wind development proposals of 25 MW and greater capacity (Article X), it remains incumbent upon municipalities to establish zoning and/or planning ordinances that balance wind energy’s clean electricity generation potential with public health, safety, and welfare concerns. Since Article X empowers the state Siting Commission to overrule local ordinances considered to place an unreasonable burden upon applicants, it is more crucial than ever that municipalities craft ordinances that strike this balance.

There is not a simple one-size-fits-all formula for developing such ordinances; however, the framework below is organized into a ten-step process a municipality can follow to plan for and regulate wind development within the community. The ten steps are as follows:

- Step I: Policy Resolution or Mayoral (Supervisor's) Proclamation
- Step II: Adopt Task Force and Authorize Studies
- Step III: Adopt A Moratorium, if Called for, To Allow Time for Planning and Adopting New Regulations
- Step IV: Decide Whether the Comprehensive Plan Must be Amended
- Step V: Adopt a Comprehensive Plan Wind Development Component
- Step VI: Develop Generic Environmental Impact Statement to Streamline Review Process
- Step VII: Training Program for Local Staff and Planning Board
- Step VIII: Intermunicipal Land Use Agreement Option
- Step IX: Leveraging State and Federal Technical Assistance and Grants
- Step X: Adopt Local Wind Legislation

Several samples of language for each step have been provided. These samples are from existing ordinances used by towns across New York State and other states. Samples are included that are relevant to communities with and without zoning. Note that the source documents for these ordinances were written prior to the adoption of Article X, meaning that some of the language will need to be revised to reflect changes in the applicability of the ordinances.

About Article X

Article X provides “fast track” review for siting of energy generating facilities of 25 megawatts or greater capacity.² Article X sets a one-year time frame for review and action on a completed application. Review is conducted by a siting board composed of state agency commissioners and public members. The siting board determines compliance with state and local laws. The new Article X provides an intervenor fund of up to \$750,000 for municipalities and local parties. This fund has application fees deposited into an intervenor account, to be used to defray expenses incurred by municipal and local parties, including expert witnesses, consultants, administrative, and legal fees (except for litigation). State and local agencies may not issue permits concerning the construction or operation of any facility covered by the bill.³ Article X authorizes the siting board to override “overly burdensome” local laws. Thus, it is important to prepare a wind legislation that is not unreasonable or too restrictive.

² Article X will be effective when the New York State Department of Environmental Conservation (DEC) promulgates regulations addressing environmental justice issues and impacts of air quality.

³ State air pollution construction/operating permits and water discharge permits will still be required because they are delegated programs under the Clean Air and Clean Water Acts.

STEP I: POLICY RESOLUTION OR MAYORAL (SUPERVISOR'S) PROCLAMATION

The local executive branch or legislature can set the stage for wind development planning and regulation through resolutions, policy statements, or executive orders. Municipalities can use these policy tools to initiate local action and assign responsibility to local boards and officers. Policy statements acknowledge certain facts and create the foundation for a strategic blueprint for municipal-wide wind development. For example, local government can use a policy statement to declare that wind energy is an abundant, renewable and nonpolluting energy resource, to state its intention to proceed with certain specified actions, to establish plans to seek loans and/or grants for wind development planning, or to direct staff to consider the installation of wind energy systems on municipal buildings or sites. Additionally, a policy statement can set the stage for further action by creating a Task Force to conduct studies, research, and lay out goals for wind development.

STEP II: ADOPT TASK FORCE AND AUTHORIZE STUDIES

To further the policy declaration, a locality can create a Task Force and charge it with determining the type of wind energy development that is practical, sustainable and consistent with the existing character of the municipality. The Task Force may commission a wind energy study, hire consultants, or commission a citizen survey to identify the critical issues facing the community. The Task Force can explore the legal, technical, environmental and economic aspects of wind energy systems, analyze the adequacy of current local laws and programs, and make recommendations regarding amendment of the comprehensive plan and zoning laws. Task Force members should represent all interested stakeholders, and the Task Force should involve community members throughout its process. Additionally, municipalities may wish to consider using their Conservation Advisory Council to assist with their wind power initiatives.

STEP III: ADOPT A MORATORIUM, IF CALLED FOR, TO ALLOW TIME FOR PLANNING AND ADOPTING NEW REGULATIONS

If the study phase reveals insufficient existing land use regulations and the municipality concludes that it must implement wind development measures, it may adopt a moratorium that suspends the

right of developers and land owners to obtain development approvals and building permits while the community prepares a plan and its implementing regulations. The moratorium provides time for the community to rethink existing land use plans and local laws and to adopt smarter approaches that better manage wind development. While a moratorium does not require environmental review under the State Environmental Quality Review Act, it may be subject to review by a county or regional planning board prior to adoption if it affects adjacent municipalities or county facilities.

Note that under the recently-adopted Article X, proposed wind farms of 25 MW and greater capacity are permitted and sited by in a “fast track” state process that is supposed to conclude within a year of the submission of a complete application; therefore, it is unlikely that proposed projects applying to the state Siting Commission would be delayed due to a municipal moratorium.

A moratorium is one of the most extreme land use actions that a municipality can take because it suspends completely the rights of owners to use their property in specified ways. Due to the severity of the action, it is advisable to support moratorium adoption with findings that confirm the necessity of this action and reference the following points:

- The conditions that mandate the imposition of a moratorium;
- Hard evidence documenting the necessity of the moratorium;
- The lack of available alternatives less burdensome on property rights;
- An explanation of why existing land use plans and ordinances are not adequate; and
- The serious and urgent nature of the circumstances.

When adopting a moratorium, the municipality should explain how it will manage the circumstances that necessitated the moratorium. The strategy should reference:

- The local bodies responsible for taking any actions;
- Any studies and professional work the municipality will conduct;
- Resources that are available to complete such studies;
- What plans and remedial measures the municipality will consider; and
- Deadlines for various steps in the mitigation process.

The more specific a moratorium is in this regard, the more likely a court will find it reasonable if challenged. If the municipality finds it needs to extend the moratorium, reasons must be given for any extensions.

STEP IV: DECIDE WHETHER THE COMPREHENSIVE PLAN MUST BE AMENDED

Steps I and II allow the community to build political and factual support for a wind development initiative, and help the community decide whether it should amend its comprehensive plan. If a community decides to pursue wind development further, it should use its Task Force to prepare comprehensive plan revisions. The moratorium in Step III gives municipalities time to adopt a comprehensive plan amendment and implementing regulations.

STEP V: ADOPT A COMPREHENSIVE PLAN WIND DEVELOPMENT COMPONENT

A comprehensive plan is a written document that identifies the goals, objectives, and devices for the “immediate and long-range protection, enhancement, growth and development” of the community. In New York, all local land use regulations must conform to the community’s comprehensive plan. There are no required components of a comprehensive plan, but it should be structured to meet the needs of the particular community and area involved.

After completing Steps I through III, a municipality can adopt a wind development component of its comprehensive plan. A wind development component with a high level of detail allows the plan to serve as the basis for certain regulatory approaches discussed below. The wind development component may be prepared by the Task Force or by the local legislature, planning board, or a different specially constituted panel including at least one member of the planning board. After the plan undergoes the state environmental review process (SEQRA),⁴ the community must submit it to the county or regional planning board for review and comment. Following this review, the local legislature adopts the component.

⁴ New York’s State Environmental Quality Review Act (SEQRA) requires local agencies, when reviewing development projects, adopting plans, and establishing programs, to prepare an environmental impact statement for actions that may have a significant adverse impact on the environment. SEQRA requires such agencies to use all practicable means to minimize or avoid adverse environmental effects.

Communities creating a wind development component for their comprehensive plan should organize this information into five sections: background information, goals, objectives, strategies, and an implementation plan. These are defined as follows:

- Background information: Relevant data and community opinion, and critical planning issues.
- Goals: Broad statements of ideal future conditions.
- Objectives: Statements of attainable, quantifiable, intermediate-term achievements that help accomplish each goal.
- Strategies: A set of actions the community will undertake to accomplish each objective.
- Implementation plan: Recommendations for how to implement the plan's strategies.

STEP VI: DEVELOP GENERIC ENVIRONMENTAL IMPACT STATEMENT TO STREAMLINE REVIEW PROCESS

After completing the planning process, a community may decide to adopt a local wind law. Adopting a local wind law is considered an "action" under the State Environmental Quality Review Act (SEQRA), which requires that an environmental review of the action be completed before the action is taken. The local legislative body contemplating adoption of a wind law is considered, under SEQRA, the lead agency and has responsibility for conducting the environmental review.

A municipality may also prepare a Generic Environmental Impact Statement (GEIS) on the impact of adopting a local law such as a wind energy systems law. A GEIS allows the lead agency to identify potential problems in advance of permitting individual projects. A GEIS presents a one-time opportunity to study the environmental needs of an action and to save future applicants the cost of duplicating those studies. If a GEIS is performed adequately, future applicants for permits may be excused from completing costly environmental impact reviews and enjoy expedited processing. Future applicants must study only unique impacts of their projects or matters the GEIS did not fully consider. This allows for a more efficient and cost-effective review of the environmental consequences of future development projects such as wind farms or small scale facilities that will apply for permits prior to construction.

A municipality may charge a portion of its cost in preparing a GEIS to developers of later projects as development applications are submitted (*see* NYCRR § 617.13(a)). The municipality can require

subsequent projects to pay a fee to the community to cover their proportionate share of GEIS costs attributable to each project.

STEP VII: TRAINING PROGRAM FOR LOCAL STAFF AND PLANNING BOARD

The technical aspects of wind development projects can challenge the capabilities of local, volunteer decision makers. If communities adopt local wind laws as described in Step X, a new set of complicated responsibilities will be added to the existing responsibilities of planning board members. Local land use decision makers must understand the scope of their responsibility and authority under law, and must be armed with land and resource protection tools, as well as consensus building and decision-making techniques. It is important to involve board members in the formulation of these new standards, procedures, and techniques and to ensure they are trained in their use.

STEP VIII: INTERMUNICIPAL LAND USE AGREEMENT OPTION

In New York, municipalities can partner with adjacent communities in the following ways:

- Adopt compatible policies, plan components and zone provisions with adjacent communities.⁵
- Create intermunicipal Task Forces to address mutual problems and concerns.
- Perform intermunicipal studies, research, outreach, and education.
- Share the costs of studies and plan preparation.
- Conduct a multi community citizen education program.
- Conduct intermunicipal training for local boards and land use leaders.
 - One day or extensive training programs
- Utilize intermunicipal cooperation as method of securing state and federal funds.
- Utilize intermunicipal cooperation for cost sharing, development of BMPs, regulatory drafting, and consultants.
- Establish joint board or boards to review applications regarding any specially designated area applications.
 - Delegate lead agency status to a single board under SEQRA.

⁵ Town Law § 284, Village Law §7-741, and General City Law § 20-g.

- Allow local boards to comment on what the operative board is doing.
- Provide alternative dispute resolution procedures to settle disagreements.

STEP IX: LEVERAGING STATE AND FEDERAL TECHNICAL ASSISTANCE AND GRANTS

Conducting studies, engaging in a public participation process, and planning can be costly initiatives. A municipality may charge its Task Force or other relevant board or staff with monitoring state and federal technical assistance and grants, and apply for such assistance and funding when available.

Municipalities wishing to encourage wind development, especially residential or small industrial or farm-scale projects, may direct developers to available resources. There are several federal, state, and local grant programs and incentives available. New York State Energy and Research Development Authority (NYSERDA) (www.powernaturally.org) and U.S. Department of Energy (<http://www.eere.energy.gov/greenpower>) offer incentive programs. In addition, information and resources can be found on the American Wind Energy Association website (<http://www.awea.org/>) and New York Public Service Commission website (<http://www.dps.state.ny.us/>).

STEP X: ADOPT LOCAL WIND LEGISLATION

Once a community completes the planning process, it can adopt appropriate local legislation. A municipality should consider a number of provisions to ensure the goals and concerns identified in the previous steps are sufficiently addressed.

The following sample provisions may be useful in crafting a local ordinance. It is important when reviewing these provisions to be mindful that all predate Article X of the New York Public Service Law. Many of the following provisions will need to be revised to reflect the new, reduced scope of municipal responsibilities with regard to electrical generating facilities under Article X.

Sample Provisions:

CATEGORY: PURPOSE

Description: *Most municipalities include a purpose statement in the preamble of a new wind ordinance. Generally, purpose statements offer a broad assessment of the municipality's intent, and can provide a broad comment about the regulatory scheme and the type of wind energy systems that the community supports, as well as its interests in promoting public health, safety and general welfare.*

Sample Provisions:

TOWN OF GENEVA, NEW YORK, WIND ENERGY FACILITIES

The purpose of these regulations is to provide for the construction and operation of wind energy facilities in the Town of Geneva, subject to reasonable conditions that will protect the public health, safety and welfare.⁶

TOWN OF WAWAYANDA, NEW YORK, WIND ENERGY CONVERSION SYSTEMS REGULATIONS

The Town of Wawayanda recognizes that wind energy is a potentially abundant, renewable and nonpolluting energy resource of the Town and that the conversion of wind energy to electricity could reduce dependence on nonrenewable energy resources and decrease air and water pollution that result from the use of conventional energy sources.

The purpose of these regulations for wind energy conversion systems (WECS) is to ensure that development of these facilities will have a minimal impact on adjacent properties and to protect the health, safety and welfare of residents of the Town.⁷

AWEA MODEL SMALL WIND MODEL ORDINANCE

It is the purpose of this regulation to promote the safe, effective and efficient use of small wind energy systems installed to reduce the on-site consumption of utility supplied electricity.⁸

⁶ GENEVA, N.Y., TOWN CODE § 163-1 (2007).

⁷ WAWAYANDA, N.Y., TOWN CODE § 195-42(A) (2009).

⁸ AWEA MODEL SMALL WIND MODEL ORDINANCE § 1, <http://www.awea.org/smallwind/documents/modelzo.html>.

TOWN OF GUILFORD, CONNECTICUT, WIND ENERGY SYSTEM ZONING ORDINANCE

Purpose. Wind energy is an abundant, renewable, and nonpolluting energy resource. It is the purpose of this regulation to promote the safe, effective and efficient use of wind energy systems subject to reasonable conditions that will protect the public health, safety and welfare.⁹

CATEGORY: FINDINGS

***Description:** Findings statements occur in the preamble to an ordinance and generally offer insight into the municipality's motivation for passing the ordinance, as well as further information about its purpose. In some cases findings statements cover a community's natural features and other special operating or siting considerations. Sometimes, courts and citizens use this language to resolve an ambiguity found in other language within the ordinance.*

Sample Provisions:

TOWN OF POMPEY, NEW YORK, SMALL WIND ENERGY CONVERSION SYSTEMS

Findings. The Town Board of the Town of Pompey finds and declares that:

- (1) Wind energy is an abundant, renewable and nonpolluting energy resource of the Town, and its conversion to electricity will reduce our dependence on nonrenewable energy sources, which, in turn, will decrease air and water pollution resulting from the use of conventional energy sources.
- (2) The generation of electricity from properly sited wind turbines can be cost effective, and, in many cases, existing power distribution systems can be used to transmit electricity from wind-generating stations to utilities.
- (3) Regulations on the siting and installation of wind turbines are necessary to protect the health and safety of neighboring property owners and the general public and to preserve the natural resources and aesthetics of the community.
- (4) If not properly sited, small WECS can present potentially significant and aesthetic impacts. The aesthetics of the community is a key issue and must play a

⁹ TOWN OF GUILFORD, CONN., AMENDMENT TO THE ZONING CODE REGARDING WIND ENERGY SYSTEMS § 273-88(A) (2008), http://www.windct.org/documents/TownofGuilfordCTWindEnergySystems12-17-08_2_.pdf.

significant role in the siting of proposed facilities. Town landowners are encouraged to engage adjacent property owners in the siting of proposed facilities.

(5) If not properly sited, small WECS may present a risk to bird and bat populations.

(6) If not properly sited, small WECS may present risks to the property values of adjoining property owners.

(7) Small WECS may constitute a source of noise which may be disruptive to the public.¹⁰

TOWN OF POTSDAM, NEW YORK, WIND ENERGY FACILITIES

The Town Board of the Town of Potsdam, finds and declares that: A. Wind energy is an abundant, renewable and nonpolluting energy resource of the Town and its conversion to electricity may reduce dependence on nonrenewable energy sources and decrease the air and water pollution that results from the use of conventional energy sources. B. The generation of electricity from properly sited wind turbines, including small systems, can be cost-effective, and in many cases existing power distribution systems can be used to transmit electricity from wind-generating stations to utilities or other users, or on-site consumption can be reduced. C. Regulation of the siting and installation of wind turbines is necessary for the purpose of protecting the health, safety, and welfare of neighboring property owners and the general public. D. Wind energy facilities may represent significant potential aesthetic impacts because of their large size, lighting, and shadow flicker effects. E. If not properly regulated, installation of wind energy facilities can create drainage problems through erosion and lack of sediment control for facility and access road sites, and harm farmlands through improper construction methods. F. Wind energy facilities may present a risk to birds, bats, and other creatures if not properly sited. G. If not properly sited, wind energy facilities may adversely affect the property values of adjoining property owners. H. Wind energy facilities may be significant sources of noise, which, if unregulated, can negatively impact the quiet enjoyment of properties in the vicinity. I. Construction of wind energy facilities can create traffic problems and damage local roads. J. Wind energy facilities can cause electromagnetic interference issues with various types of communications. K. Site plans will be reviewed and acted upon by the Town Planning Board.¹¹

GEORGIA MODEL WIND ORDINANCE FOR ENERGY FACILITIES

¹⁰ POMPEY, N.Y., TOWN CODE § 165-15(C) (2010).

¹¹ POTSDAM, N.Y., TOWN CODE § 108-4 (2008).

WHEREAS, the _____ [county or municipality] acknowledges that it is in the regional public interest to produce electricity in a manner that serves the needs of the community minimizing potentially negative impacts; and

WHEREAS, the _____ [county or municipality] recognizes and accepts its responsibility to implement and promote electricity production practices that protect _____ [county or municipality] natural and built environment; and

WHEREAS, the _____ [county or municipality] finds that responsible wind power is a growing national and existing international 'infinitely renewable' source of power with multiple levels of facility design possibilities; and

WHEREAS, the _____ [county or municipality] has existing wind resources and therefore has the responsibility to include wind power possibilities in its vision of energy sources; and

WHEREAS, the _____ [county or municipality] finds that responsible and educational wind power construction can result in significant cost savings and or revenue to the _____ [county or municipality] over the life of the project as well as significant benefits to the future health and well-being of our citizens.¹²

CATEGORY: PERMITTING PROCESS

Description: *The process that project developers must undergo to obtain permission from the local government to build a wind turbine (if they are not included under the Article X provisions) varies from locality to locality. Often, this process is integrated into a municipality's existing project review and approval process. In some localities, wind turbines are "permitted uses" in some or all areas and zones, subject only to meeting certain height, set-back, and other requirements; in others, required special use permits increase procedural requirements. Additionally, permitting requirements may vary depending on the size and number of wind energy systems proposed. Some municipalities also develop*

¹² GEORGIA WIND WORKING GROUP, MODEL WIND ORDINANCE FOR ENERGY FACILITIES (2010), http://www.gawwg.org/images/GA_Model_Wind_Ordinance_March_2010.pdf.

wind overlay zones that include special standards for wind energy development that apply in addition to standards in the underlying zone.

Ordinances also vary in terms of what activities trigger re-permitting or permit modification. In addition to local requirements, the permitting process generally includes county, state, federal and other regulations. These requirements often are detailed in relevant sections of the local law as they pertain to wind, interconnection and other specific features.

Note: A municipality is not required to employ zoning to develop and adopt a wind energy law. For example, municipalities without zoning can regulate wind energy facilities through a permitting process or site plan review.

Sample Provisions:

TOWN OF GENEVA, NEW YORK, WIND ENERGY FACILITIES

Wind energy facilities shall be permitted within the Town of Geneva in the following locations:

A. On properties that are:

- (1) Zoned A Agricultural; and
- (2) Located west of County Road 6, south of Hastings Road, east of the Town of Geneva/Seneca line and north of the Ontario County/Yates County line.

B. On properties that are:

- (1) Zoned I-1 Industrial; and
- (2) Located east of Route 14N, south of the Phelps/Geneva Town line, west of Pre-Emption Street and north of the City of Geneva/Town of Geneva line.¹³

TOWN OF HAMBURG, NEW YORK, COMMERCIAL WIND ENERGY CONVERSION SYSTEMS

The placement, construction, and major modification of all commercial WECS within the boundaries of the Town of Hamburg shall be permitted only by special use

¹³ GENEVA, N.Y., TOWN CODE § 163-5 (2007).

permit in the M-3 Zoning District upon concurrent site plan approval issued by the Town of Hamburg Planning Board as provided herein, after SEQR review, with the Town of Hamburg Planning Board designated as lead agency, and upon issuance of a building permit, and shall be subject to all provisions of this article.¹⁴

TOWN OF PERINTON, NEW YORK, WIND ENERGY CONVERSION

A. SWECD [Small Wind Energy Conversion Device] may be constructed and operated within all zoning districts, with a special use permit from the Town Board, site plan approval from the Planning Board and a building permit.

B. An MWECD [Medium Wind Energy Conversion Device] may be permitted within nonresidential districts or within RT 1-2-5, RT 2-5 and Residential Sensitive districts with a special use permit from the Town Board, site plan approval from the Planning Board and a building permit.

C. An LWECD [Large Wind Energy Conversion Device] may be permitted in Industrial, RT 1-2-5, RT 2-5 and Residential Sensitive districts, with a special use permit from the Town Board, site plan approval from the Planning Board and a building permit.

D. No WECFs shall be located within a Limited Development District.

E. No WECD shall be installed in any location along the major axis of an existing microwave communications link where its operation has a likely potential to produce electromagnetic interference in the link's operation.

F. No WECD shall be installed in any location where its proximity to existing fixed broadcast, retransmission or reception antenna (including residential reception antenna) for radio, television, wireless phone or other wireless communication systems would produce electromagnetic interference with signal transmission or reception.

G. WECDs with a maximum component height greater than 400 feet above the ground surface shall not be permitted in any zoning district.¹⁵

TOWN OF POTSDAM, NEW YORK, WIND ENERGY FACILITIES

A. No wind energy facility shall be constructed, reconstructed, modified, or operated in the Town of Potsdam, except in compliance with this chapter.

¹⁴ HAMBURG, N.Y., TOWN CODE § 280-343(A) (2007).

¹⁵ PERINTON, N.Y., TOWN CODE § 204-1 (2010).

B. No WECS shall be constructed, reconstructed, modified, or operated in the Town of Potsdam, except pursuant to a special use permit issued pursuant to this chapter.

C. No special use permit shall be issued for construction, reconstruction, modification or operation of a WECS in the Town of Potsdam, until all other permits as may be required (e.g., FAA, DEC, etc.) have been issued and evidence of same provided to the Town of Potsdam Planning Board.

D. No wind measurement tower shall be constructed, reconstructed, modified, or operated in the Town of Potsdam, except pursuant to a special use permit issued pursuant to this chapter.

E. No small wind energy conversion system shall be constructed, reconstructed, modified, or operated in the Town of Potsdam, except pursuant to a special use permit issued pursuant to this chapter.¹⁶

Applicability. . .

Wind energy facilities may be either principal or accessory uses. A different existing use or an existing structure on the same site shall not preclude the installation of a wind energy facility or a part of such facility on such site. Wind energy facilities constructed and installed in accordance with this chapter shall not be deemed expansions of a nonconforming use or structure.¹⁷

Creation of Wind Overlay Zoning.

A. Wind Overlay Zones shall be created by the Town Board to delineate those areas in the Town of Potsdam that are appropriate for the development of wind energy conversion systems (WECS) and related infrastructure, electrical lines and substations, access roads and accessory structures.

B. The Town Board shall refer development of Wind Overlay Zones to the Town Planning Board. The Town Planning Board shall hold public meetings, after public notice, at which the Planning Board shall consider the landscape and topography of the Town, current land uses and future development patterns, natural resources, unique or sensitive environments, the local existence of wildlife and plant species, viewsheds, zoning districts, residents' opinions, and other pertinent information. . .

¹⁶ POTSDAM, N.Y., TOWN CODE §§ 108-5(A) – (E) (2008).

¹⁷ POTSDAM, N.Y., TOWN CODE §§ 108-7(C) (2008).

G. Once a Wind Overlay Zone has been created, new WECSs or accessory structures or facilities may be added in that zone by grant of a special use permit pursuant to the requirements of this article.¹⁸

TOWN OF WAWAYANDA, NEW YORK, WIND ENERGY CONVERSION SYSTEMS REGULATIONS

Prior to construction of any WECS, the applicant must first obtain a special use permit and site plan approval from the Town of Wawayanda Planning Board and, thereafter, a building permit from the Building Inspector/Code Enforcement Officer.

Applicants for the proposed development of a WECS facility shall submit with the application a plan showing the information required for site plan approval, as set forth in the Town's Zoning Code. Editor's Note: See § 195-68, Application and site plan required. In addition, the plan must contain (either on the plan itself or as a separate submission) information as described herein.¹⁹

Statutory authority; applicability. . .

B. Site plan review shall be required for all special use permits, new nonresidential uses, nonagricultural changes of use, additions or alterations to above-stated uses and such other uses as the Town Board may from time to time designate by local law, unless specifically exempt by § 195-4.²⁰

Preliminary site plan.

An applicant for a special use permit may submit a preliminary site plan for review and advice by the Planning Board. Such a preliminary site plan should provide locations and dimensions of the proposed use in relation to the property boundaries and adjacent uses. It should also indicate all accesses and improvements, both existing and proposed, and any site features which could have a bearing on the project, including the general topography and existing ground cover. This preliminary plan shall be used by the Planning Board as a basis for advising the applicant regarding information it shall require on the site plan before it conducts a public hearing or takes any action with respect to the plan. The Planning Board shall give no approval or disapproval regarding any preliminary site plan but may use it to schedule a public hearing if sufficient data is available; determine if any

¹⁸ POTSDAM, N.Y., TOWN CODE §§ 108-(A)-(B), (G) (2008).

¹⁹ WAWAYANDA N.Y., TOWN CODE § 195-42(C) (2009).

²⁰ WAWAYANDA N.Y., TOWN CODE § 195-66(B) (2009).

provisions of this article should be waived; or begin its review of the application under the New York State Environmental Quality Review Act (SEQR).²¹

Application and site plan required.

The Planning Board shall be under no obligation to schedule a public hearing or take any action with respect to a special use permit application until a complete formal application has been made on forms provided by the Board and a detailed site plan providing the following information has been submitted. . .²²

Waivers.

The Town of Wawayanda Planning Board shall, pursuant to § 274-a(5) of the Town Law, have the right to waive, when reasonable, any of the requirements of this article for the approval, approval with modifications, or disapproval of special use permits and site plans submitted for approval. . .²³

CATEGORY: BUILDING LIMITATIONS/RESTRICTIONS

***Description:** Every wind ordinance contains at least some guidance for the size, location, appearance, and other features with which permitted wind energy systems should comply. More than any other legal provision (apart from straight-forward zoning restrictions), the limitations a locality places on the physical dimensions, location, and noisiness of a wind turbine have a profound effect on the location and type of wind development in a community. Note that it is not advisable to set prohibitive restrictions on utility scale turbines, such as limiting all turbines to less than 100 feet in height, as this is likely to be viewed as unreasonable, and overruled by the state Siting Commission.*

A. Tower Height Limitations

Tower height limits may be influenced by surrounding topography and development density. However, municipalities must also recognize that stronger winds exist at greater altitudes, and that it is not reasonable to expect wind developers to erect turbines that do not reflect this reality. In general, industrial or commercial wind farms rely on newer, taller wind turbines to extract the

²¹ WAWAYANDA N.Y., TOWN CODE § 195-67 (2009).

²² WAWAYANDA N.Y., TOWN CODE § 195-68 (2009).

²³ WAWAYANDA N.Y., TOWN CODE § 195-69 (2009).

maximum amount of energy from higher-altitude winds at 213 to 328 feet.²⁴ By contrast, small-scale, residential-size wind turbines are generally between 60 and 100 feet in height. A locality can apply height limits by zoning district or by lot size or acreage; in some instances, municipalities will provide no height limitation, except as imposed by the Federal Aviation Administration.

Sample Provisions:

TOWN OF HAMBURG, NEW YORK, COMMERCIAL WIND ENERGY CONVERSION SYSTEMS

Maximum overall height. The maximum overall height of any commercial WECS shall be 500 feet, consistent with Federal Aviation Administration (FAA) regulations. The maximum height shall be measured from the ground elevation to the top of the tip of the blade in the vertical position.²⁵

TOWN OF PERINTON, NEW YORK, WIND ENERGY CONVERSION

SMALL WIND ENERGY CONVERSION DEVICE (SWECD)

A WECD which has a rated capacity of not more than 10 kW, is not more than 65 feet in total height from the ground surface to the maximum height of any component of the system, and is intended to primarily reduce on-site consumption of utility power.

MEDIUM WIND ENERGY CONVERSION DEVICE (MWECD)

A WECD which can have a rated capacity more than 10 kW, but is not more than 200 feet in total height from the ground surface to the maximum height of any component of the system, and which is intended to primarily reduce on-site consumption of utility power.

LARGE WIND ENERGY CONVERSION DEVICE (LWECD)

²⁴ GE Power and Water, *Class 1.5-77 Wind Turbine: Fact Sheet*, GENERAL ELECTRIC COMPANY (2011), http://www.ge-energy.com/content/multimedia/_files/downloads/GEA18126A_1.5-77Class%201%20Wind%20Turbine_r1.pdf; GE Power and Water, *1.6-82.5 Wind Turbine: Fact Sheet*, GENERAL ELECTRIC COMPANY (2011), http://www.ge-energy.com/content/multimedia/_files/downloads/GEA18112B_1.6-82.5%20Wind%20Turbine_r1.pdf; GE Power and Water, *1.6-100 Wind Turbine: Fact Sheet*, GENERAL ELECTRIC COMPANY (2011), http://www.ge-energy.com/content/multimedia/_files/downloads/GEA18178C_1.6-100%20Wind%20Turbine_r1.pdf.
²⁵ HAMBURG, N.Y., TOWN CODE § 280-343(C)(3) (2007).

A WECD which primarily generates power on-site to be transferred to a transmission system for distribution to offsite customers or for sale to a distribution company. The definition of LWECD shall also include WECDs erected and used for private use if the maximum height of any system component is greater than 200 feet from the ground surface²⁶

GEORGIA MODEL WIND ORDINANCE FOR ENERGY FACILITIES

Turbine Height Restrictions are not included because they will be determined in the public hearing approval process.²⁷

KITTITAS COUNTY, WASHINGTON, SMALL WIND ENERGY SYSTEMS ORDINANCE

TABLE 5.3²⁸

LOT SIZE	# TOWERS	POLE TYPE	TOTAL HEIGHT	SETBACKS
INSIDE [Urban Growth Area] UGA (minimum 1 acre)	1	MONOPOLE	MAX 75'	1.2 x HEIGHT
1-3 ACRES OUTSIDE UGA	1	MONOPOLE	MAX 75'	1.2 x HEIGHT
3-5 ACRES OUTSIDE UGA	1	MONOPOLE, GUYED, LATTICE	MAX 100'	1.2 x HEIGHT
>5 ACRES OUTSIDE UGA	1	MONOPOLE, GUYED, LATTICE	MAX 120'	1.2 x HEIGHT

CITY OF ROYAL OAK, MICHIGAN, WIND AND SOLAR ENERGY SYSTEMS

Height. (a) The total system height of a ground-mounted or freestanding wind energy system shall not exceed twice the maximum permitted height for principal

²⁶ PERINTON, N.Y., TOWN CODE § 204-2 (2010).

²⁷ GEORGIA WIND WORKING GROUP, MODEL WIND ORDINANCE FOR ENERGY FACILITIES § 5 (2010), http://www.gawwg.org/images/GA_Model_Wind_Ordinance_March_2010.pdf.

²⁸ KITTITAS COUNTY, WASH., CODE TITLE 17, ZONING 17.61A - 17.61B (2009) (considering urban growth areas).

structures on a site within or adjacent to any residential or mixed-use zoning districts, or 100 feet on any other site that is not adjacent to any residential or mixed-use zoning district. The total system height shall include the height above grade of the fixed portion of the tower to the center of the rotor hub, including the turbine and the highest vertical extension of any blades and rotors.

(b) The height of roof-mounted wind energy systems are subject to the required standards in § 770-21, Application of Zoning District Regulations, Subsection D, Application of height regulations, Subsection (3), Exceptions.²⁹

To reduce the impact on adjacent properties and public rights-of-way, all roof structures shall be effectively screened and setback from the building edge a distance equal to its height or a distance as determined necessary by the Zoning Administrator. No such structure shall exceed by more than 15 feet above the height limit of the district in which it is located.³⁰

B. Setback Requirements

Setback requirements are often used to protect public infrastructure and habitable structures within the “arc of fall” of a wind energy system. Setbacks are important primarily for safety reasons (i.e., to avoid damage from falling turbines, blades or ice throw), although municipalities also use them to minimize nuisance from noise, protect natural resources, and preserve neighbors’ abilities to develop their own property in the future. Localities can specify setbacks in terms of a ratio of the tower height, a set distance from a specified location, or both. Municipal ordinances generally will require that a turbine be set back at least as far as the height of the structure (including the length of the extended blades). Some municipalities will permit neighboring or adjacent landowners to waive the setback requirement for wind energy systems. Typically, municipal wind ordinances require setbacks between 1.1 and 1.5 times total height from any public road or public railroad, habitable structure, transmission lines and property lines, with waiver provisions with respect to private roads and driveways. Communities should be aware that larger setback requirements can limit the number of turbines it is possible to site within the municipality, and could lead to a proposed wind farm being unable to site the number of turbines needed to achieve economic viability. In cases where the project is permitted by the state Siting Commission, this could be considered unreasonably restrictive.

Sample Provisions:

²⁹ ROYAL OAK, MICH., ZONING ORDINANCE §§ 770-54(C)(2)(a)-(b) (2007).

³⁰ ROYAL OAK, MICH., ZONING ORDINANCE § 770-21(D)(3) (2007).

TOWN OF GENEVA, NEW YORK, WIND ENERGY FACILITIES

Setbacks.

A. Occupied buildings.

(1) Wind turbines shall be set back from the nearest occupied building a distance not less than the normal setback requirements for that zoning classification or 1.25 times the turbine height, whichever is greater. The setback distance shall be measured from the center of the wind turbine base to the nearest point on the foundation of the occupied building.

(2) Wind turbines shall be set back from the nearest occupied building located on a nonparticipating landowner's property a distance of not less than two times the turbine height, as measured from the center of the wind turbine base to the nearest point on the foundation of the occupied building.

B. Property lines. All wind turbines shall be set back from the nearest property line a distance of not less than the normal setback requirements for that zoning classification or 1.25 times the turbine height, whichever is greater. The setback distance shall be measured to the center of the wind turbine base.

C. Public roads. All wind turbines shall be set back from the nearest public road a distance of not less than 1.25 times the turbine height, as measured from the right-of-way line of the nearest public road to the center of the wind turbine base.³¹

TOWN OF HAMBURG, NEW YORK, COMMERCIAL WIND ENERGY CONVERSION SYSTEMS

Setbacks: any commercial WECS shall adhere to the following setbacks:

(a) From all property lines:

(1) A minimum 1 1/2 times the total height of the commercial WECS from any property line, excluding adjoining lot lines of project participants.

(b) From residential zoning districts:

³¹ GENEVA, N.Y., TOWN CODE §§ 163-9(A)-(C) (2007).

(1) A minimum 1,000 feet from any residential district boundary line (R-1, R-2, R-3, R-4, RA, and RE).

(c) From structures:

(1) A minimum 1 1/2 times the total height of the commercial WECS from any building; and

(2) A minimum of 1,500 feet from any dwelling, regardless of the zoning district in which the dwelling exists.

(d) From public roads and public railroads:

(1) A minimum 1 1/2 times the total height of the commercial WECS from any public road or public railroad;

(2) Where the lot line abuts a public right-of-way, the setbacks specified above shall be measured from the center line of such right-of-way; and

(3) The required setbacks shall not apply to private roads, private driveways, or private railroads.

(e) From aboveground transmission lines greater than 12 kilovolts:

(1) A minimum 1 1/2 times the total height of the commercial WECS from any aboveground transmission line greater than 12 kilovolts.³²

CAMPBELL COUNTY, WYOMING, WIND ORDINANCE

All WECS Towers shall be set back at least one-quarter mile from any Primary Structure. The distance for the above setback shall be measured from the point of the Primary Structure foundation closest to the WECS Tower to the center of the WECS Tower foundation. The owner of the Primary Structure may waive this setback requirement; but in no case shall a WECS Tower be located closer to a Primary Structure than 1.10 times the WECS Tower Height.³³

TOWN OF CHARLESTOWN, RHODE ISLAND, WIND ENERGY FACILITIES

³² HAMBURG, N.Y., TOWN CODE § 280-343(C)(2) (2007).

³³ CAMPBELL COUNTY, WYO., CODE § D(7)(a) (2010), <http://www.ccgov.net/commissioners/documents/Wind%20Regulations.pdf>.

Setbacks. There shall be a minimum setback between the foundation of the turbine and all property lines that is equal to 3 times the total height of the turbine. This requirement may be waived if the applicant can secure an easement over the abutting property that otherwise meets this minimum required setback, subject to the following limitations:

(a) The property subject to the easement is not divided by a public road within a distance that is equal to 1.25 times the total height of the turbine, as measured from the foundation; and

(b) There are no habitable structures on the property subject to the easement within a distance that is equal to 1.25 times the total height of the wind turbine, as measured from the foundation. In addition, there shall be a restriction on said property that prevents the construction of a habitable structure within said distance while the wind turbine is in place.³⁴

C. Ground Clearance

Municipal wind ordinances typically include minimum ground clearance requirements, which are usually measured from the lowest point of the blade arc to the ground or highest structure. Ground clearance requirements can range from 10 to 100 feet, depending on wind energy system size, but most municipalities require between 15 and 30 feet of ground clearance. In addition to general ground clearance requirements, some municipalities require that ground or blade clearance be set in relation to the highest existing structure, tree canopy, or vegetation, while others require horizontal and vertical clearances.

Sample Provisions:

TOWN OF HAMBURG, NEW YORK, COMMERCIAL WIND ENERGY CONVERSION

GROUND CLEARANCE. The blade tip of any wind turbine shall, at its lowest point, have ground clearance of not less than 50 feet.³⁵

TOWN OF POMPEY, NEW YORK, SMALL WIND ENERGY CONVERSION SYSTEMS

³⁴ CHARLESTOWN R.I., TOWN CODE § 218-37 - D(4)(h) (2011).

³⁵ HAMBURG, N.Y. TOWN CODE §280-343 (C)(9)(e) (2007).

GROUND CLEARANCE. The minimum distance between the ground and any exposed, moving part of the rotor blade apparatus shall be 15 feet, measured at the lowest point of the rotor blade arc.³⁶

TOWN OF POTSDAM, NEW YORK, WIND ENERGY FACILITIES

The minimum distance between the ground and any part of the rotor or blade system shall be 35 feet.³⁷

D. Lot Size Requirements

Generally, municipalities will include lot size requirements in a wind ordinance in order to limit the number of turbines on a certain site. Some municipalities design lot size requirements to limit turbine size by increasing the minimum lot size requirement as turbine height and generation capacity increase. Other municipalities restrict the number of turbines allowed on a certain lot size, and many choose not to include a lot size requirement in the wind ordinance at all. Minimum lot size requirements generally range from 1,000 square feet for small (often roof-mounted units) to one turbine per ten acres in more restrictive ordinances. Overly strict minimum lot size requirements may preclude projects that could be installed safely without harm or nuisance to neighboring land users; they may also be overruled by the state Siting Commission if they are deemed to be unreasonably restrictive. Although minimum lot size requirements may help to minimize safety and nuisance concerns, setbacks and sound level limits can often achieve the same results.

Sample Provisions:

TOWN OF NAPLES, NEW YORK, RESIDENTIAL WIND TURBINES

Wind turbine density. One wind turbine is permitted per parcel.³⁸

Location on lot. Wind turbine location is not restricted to rear or side yards on a lot. The Planning Board shall address the specific location on the lot during site plan review.³⁹

³⁶ POMPEY, N.Y. TOWN CODE §165-15 (E)(3)(a) (2010).

³⁷ POTSDAM, N.Y. TOWN CODE §108-12(D) (2008).

³⁸ NAPLES, N.Y., TOWN CODE § 132-42.1 (B)(2) (2006).

³⁹ NAPLES, N.Y., TOWN CODE § 132-42.1 (B)(8) (2006).

TOWN OF WAWAYANDA, NEW YORK, WIND ENERGY CONVERSION SYSTEMS REGULATIONS

Regulations for residential WECS and commercial WECS. The purpose of this section is to provide standards for small wind energy conversion systems designed for home, farm and small commercial use on the same parcel and that are primarily used to reduce consumption of utility power at that location. Applications for approval of residential WECS and commercial WECS must adhere to the following standards: The minimum lot size is two acres."⁴⁰

JEFFERSON COUNTY, IDAHO, WIND ENERGY ORDINANCE

Large Wind Energy System or Wind Energy Facilities shall be permitted in an Agricultural Forty Zone (Ag-40) on parcels of land that contain forty (40) acres or more subject to the following requirements. . . .⁴¹

Small Wind Energy Systems shall be a permitted use in all zoning districts with parcels containing one-half (1/2) acre or larger subject to the following:

1. One Small wind energy system may be installed for the first half (1/2) acre and one for each additional two (2) acres per parcel.⁴²

CITY OF KENAI, ALASKA, WIND ORDINANCE

Lot and Zoning Requirements. Wind energy systems shall be allowed as secondary uses on lots that are a minimum of 20,000 square feet. Any deviation from the lot size restriction may be approved through the issuance of a conditional use permit.⁴³

E. Noise Limits

To mitigate potential noise impacts, some wind ordinances mandate that the noise produced may not constitute a nuisance under local law. Others provide an absolute decibel cap, while still others

⁴⁰ WAWAYANDA, N.Y., TOWN CODE § 195-42 (D)(1) (2009).

⁴¹ JEFFERSON COUNTY ORDINANCE NUMBER 08-09, § 5(A) (2008), http://www.co.jefferson.id.us/use_images/planning_zoning/WIndmillOrd.pdf.

⁴² JEFFERSON COUNTY ORDINANCE NUMBER 08-09, § 5(B), B(1) (2008) http://www.co.jefferson.id.us/use_images/planning_zoning/WIndmillOrd.pdf

⁴³ KENAI, ALASKA CITY CODE 14.20.235 (b)(1) (2009).

limit the dBA increase over the ambient noise level at adjacent property lines. These standards generally restrict noise increases over 50-60 dBA at neighboring inhabited dwellings, but some municipalities apply stricter standards in residential neighborhoods, and some set different standards for daytime and nighttime hours. Additionally, most ordinances allow wind systems to exceed these levels during short-term storm events, and some allow property owners to waive the noise limits. Both developers and local planners cite noise restrictions as a potentially important barrier to wind development. In many instances, ordinances require sound and impact studies during the application and project design process.

Sample Provisions:

TOWN OF GENEVA, NEW YORK, WIND ENERGY FACILITIES

Audible sound from a wind energy facility shall not exceed 50 dBA, as measured at the exterior of any occupied building on a nonparticipating landowner's property. Methods for measuring and reporting acoustic emissions from wind turbines and the wind energy facility shall be equal to or exceed the minimum standards for precision described in AWEA Standard 2.1 - 1989, titled "Procedures for the Measurement and Reporting of Acoustic Emissions from wind turbine Generation Systems Volume I: First Tier."⁴⁴

TOWN OF HAMBURG, NEW YORK, COMMERCIAL WIND ENERGY CONVERSION SYSTEMS

Noise requirements. The applicant shall adhere to the following noise requirements:

(a) Compliance with noise regulations required. A commercial WECS permit shall not be granted unless the applicant demonstrates that the proposed project complies with all noise regulations.

(b) Noise study required. The applicant shall submit a noise study based on the requirements set out herein. The Planning Board shall determine the adequacy of the noise study and, if necessary, may require further submissions. The noise study shall consider the following:

- [1] Low frequency noise;
- [2] Infrasound noise;
- [3] Pure tone; and

⁴⁴ GENEVA, N.Y., TOWN CODE § 163-13(A) (2007).

[4] Repetitive/impulsive sound.

(c) Noise setbacks. The Planning Board may impose a noise setback that exceeds the other setbacks set out in this article if it deems that such greater setbacks are necessary to protect the public health, safety, and welfare of the community.

(d) Audible noise standard. The audible noise resulting from the operation of any commercial WECS shall not be created which causes the noise level at the boundary of the proposed project site to exceed that of the mean twenty-four-hour dBA operating noise that currently exists for more than five minutes out of any one-hour time period.

(e) Operations: low frequency noise. A commercial WECS shall not be operated so that impulsive sound below 20 Hz adversely affects the habitability or use of any dwelling unit, hospital, school, library, nursing home, or other sensitive noise receptor.

(f) Noise complaint and investigation process required. The applicant shall submit a noise complaint and investigation process. The Planning Board shall determine the adequacy of the noise complaint and investigation process.⁴⁵

TOWN OF PERINTON, NEW YORK, WIND ENERGY CONVERSION

G. Noise.

(1) The sound pressure level generated by a WECD shall not exceed a six A-weighted decibel (dBA) increase over ambient noise level measured at the adjacent property lines. Ambient noise shall be measured as the lowest LEQ(60) dBA observed over a twenty-four-hour period, during which windspeed is below the cut-in speed of the proposed WECD. Multiple sets of twenty-four-hour measurements may be combined to obtain a set of twenty-four-hour measurements for which the wind speed is below the WECD cut-in speed, provided that the lowest ambient noise level of the data set is picked for each individual hour.

(2) The WECD operating sound pressure level used for comparison to the ambient noise level shall be the maximum sound pressure level generated by the WECD.

(3) For MWECDs and LWECDs, independent measurements and certification shall be provided before and after construction demonstrating compliance with this requirement according to a noise study whose methods are approved by the Town as part of the special use permit.

(4) For SWECDs, a noise assessment based on manufacturer's noise data as certified by the Small Wind Certification Council or other documentation acceptable to the Town and conducted in conformance with the guidance provided by the New York State Department of Environmental Conservation's Program Policy "Assessing and Mitigating Noise Impacts" (DEP-00-1) shall be provided unless the Town requests additional measurements. For this assessment ambient noise levels can be

⁴⁵ HAMBURG, N.Y., TOWN CODE § 280-343 (C)(10) (2007).

measured, or can be assumed to be LEQ(60) 25 dBA in residential zoning districts and LEQ(60) 50 dBA in other zoning districts. Regardless of the results of such analysis, SWECDs are required to comply after construction and during operation with the requirements of Subsection G(1) of this subsection.

(5) In the event audible noise due to WECD operations contains a steady pure tone, such as a whine, screech, or hum, the noise generated by the WECD, as measured at the adjacent property lines, shall not exceed the ambient noise level.

(6) Ambient noise levels shall be measured at adjacent property lines. Ambient noise level measurement techniques shall employ all practical means of reducing the effect of wind generated noise at the microphone.

(7) The noise limits specified in this Subsection (G) shall apply to the combined noise levels generated by all WECDs constructed on a single parcel or by a single owner.⁴⁶

F. Visual Requirements

Most wind ordinances contain provisions that require turbines to be painted and lighted in ways that minimize their visual impacts (note that this may no longer fall under local jurisdiction for projects applying under Article X). Visual impacts from wind turbines can affect viewsheds, existing land uses, historic sites, traffic routes, adjacent dwellings and general topography. Although development density and topography varies greatly by municipality, most ordinances consistently regulate turbine color, lighting, signage and shadow flicker. At the same time, wind energy system size is an important consideration, and wind ordinances often require FAA compliance (most wind farms must be lit according to FAA regulations to ensure aviation safety). Although visual restrictions can be important for local communities, these restrictions generally do not pose significant barriers for development.

1. Color

Typically, wind ordinances require turbine blades and tower structures (which can include fences surrounding the structure) to use materials, colors, textures, screening and landscaping that will blend the wind energy facility with the natural setting and existing environment. Most municipalities include restrictions that attempt to minimize visual impacts on scenic corridors and visual corridors. Generally, wind ordinances require paint colors that maintain a galvanized finish. In addition, paint should be a non-reflective, non-obtrusive color such as white, gray, earth tone, or beige that blends with the environment based on the character of the area.

⁴⁶ PERINTON, N.Y., TOWN CODE §§ 204-4(G)(1)-(7) (2010).

Sample Provisions:

TOWN OF PERINTON, NEW YORK, WIND ENERGY CONVERSION

WECFs shall be finished with an unobtrusive, nonreflective, matte-finished color or camouflage scheme.⁴⁷

TOWN OF POTSDAM, NEW YORK, WIND ENERGY CONVERSION SYSTEMS

All applicants shall use measures to reduce the visual impact of WECs to the extent possible. All structures in a project shall be finished in a single, nonreflective matte finished color or a camouflage scheme. Individual WECSs within a Wind Overlay Zone shall be constructed using wind turbines whose appearance, with respect to one another, is similar within and throughout the zone, to provide reasonable uniformity in overall size, geometry, and rotational speeds. No lettering, company insignia, advertising, or graphics shall be on any part of the tower, hub, or blades.⁴⁸

TOWN OF WAWAYANDA, NEW YORK, WIND ENERGY CONVERSION SYSTEMS REGULATION

WECS color will be determined by the Town of Wawayanda Planning Board unless an agency of the state or federal government mandates otherwise.⁴⁹

2. Lighting

The majority of municipalities that include lighting provisions in their wind ordinances require wind energy facilities to minimize artificial lighting, allowing it only to the extent required by the Federal Aviation Administration or another applicable authority that regulates air safety or otherwise regulates lighting. Communities often use lighting requirements to prevent nuisance conditions for surrounding residences and non-participating structures. Some municipalities also include provisions for security ground lighting. As with other visual requirements, municipal lighting requirements no longer apply to proposed projects applying under Article X.

⁴⁷ PERINTON, N.Y., TOWN CODE § 204-4 (F) (2010).

⁴⁸ POTSDAM, N.Y., TOWN CODE § 108-11(E) (2008).

⁴⁹ WAWAYANDA, N.Y., TOWN CODE § 195-42(f)(8) (2009).

Sample Provisions:

TOWN OF GENEVA, NEW YORK, WIND ENERGY FACILITIES

Wind energy facilities shall not be artificially lighted, except to the extent required by the Federal Aviation Administration or other applicable authority that regulates air safety. Lighting shall not be a nuisance to surrounding residences and, when installed on multiple turbines, shall not be synchronized but rather designed to flash independently. If FAA approval is gained to allow for upward-facing-only lights, all lighting shall be retrofitted with such lighting.⁵⁰

TOWN OF HAMBURG, NEW YORK, COMMERCIAL WIND ENERGY CONVERSION SYSTEMS

The applicant shall submit a commercial wind energy facility lighting plan that describes all lighting that will be required, including any lighting that may be required by the FAA. Such plan shall include but is not limited to the planned number and location of lights, light color, whether any such lights will be flashing, and mitigation measures planned to control the light so that it does not spill over onto neighboring properties.⁵¹

TOWN OF PERINTON, NEW YORK, WIND ENERGY CONVERSION

No WECD tower shall be lit except to comply with Federal Aviation Administration requirements. Minimum security lighting for ground level facilities shall be allowed provided that no such lighting shall be erected, operated or maintained in such a manner as to create an annoyance to surrounding properties or that create a public safety hazard due to glare. No lighting with a greater intensity than 1/2 footcandle, measured at five feet above the ground at the property line, shall be installed. Security lighting shall be designed to minimize light pollution, including the use of light hoods, low glare fixtures, and directing lights at the ground.⁵²

3. Signage / Advertising

⁵⁰ GENEVA, N.Y., TOWN CODE § 163-8 E(2) (2007).

⁵¹ HAMBURG, N.Y., TOWN CODE § 280-343(C)(6) (2007).

⁵² PERINTON, N.Y., TOWN CODE § 204-4(C) (2010).

Municipalities that include signage and advertising restrictions in their wind ordinances use similar requirements. Generally, a wind ordinance, at a minimum, will restrict advertising displays on turbines (including flags, streamers or decorative items), except for signage that identifies the turbine manufacturer, facility owner, and operator on the turbine tower, rotors, or other structures associated with the wind energy system. As with other visual requirements, municipal signage restrictions may no longer apply to proposed projects applying under Article X.

Sample Provisions:

TOWN OF POMPEY, NEW YORK, SMALL WIND ENERGY CONVERSION SYSTEMS

Warning signage. A weather-resistant sign plate, no greater than two square feet in size, containing the name of the current owner or operator, emergency phone number, and current address of such owner/operator shall be located on the exterior surface of the tower at a height of five feet or on the fence surrounding each tower and viewable by a Code Enforcement Officer. Such sign shall also warn of electrical shock or high voltage.⁵³

GEORGIA MODEL WIND ORDINANCE FOR ENERGY FACILITIES

The visual appearance of Wind Energy Facilities shall at a minimum: Not display advertising (including flags, streamers or decorative items), except for identification of the turbine manufacturer, facility owner and operator. Size and design parameters shall be subject to approval during Special Use Permit Process.⁵⁴

4. Shadow Flicker

Municipal wind ordinances that include shadow flicker provisions tend to base these provisions on the size and scale of a proposed wind energy facility. Most shadow flicker provisions require developers to minimize shadow flicker impacts. Municipalities may require applicants to perform a shadow flicker study or notify neighbors in proximity to a future tower. Some municipalities also

⁵³ POMPEY, N.Y., TOWN CODE § 165-15(E)(3)(d) (2010).

⁵⁴ GEORGIA WIND WORKING GROUP, MODEL WIND ORDINANCE FOR ENERGY FACILITIES § 4(C)(c) (2010), http://www.gawwg.org/images/GA_Model_Wind_Ordinance_March_2010.pdf.

restrict or limit shadow flicker to a certain number of hours each year, ranging from 10 to 30 hours per year. Some municipalities allow residents to waive shadow flicker restrictions. As with other municipal regulations, shadow flicker provisions may no longer apply to proposed projects applying under Article X.

Sample Provisions:

TOWN OF PERINTON, NEW YORK, WIND ENERGY CONVERSION

The applicant shall conduct an assessment of potential shadow flicker due to any WECD in the area defined as a circle centered on the location of the WECD up to and including a distance of 10 times the WECD blade diameter. The study shall identify locations where shadow flicker may be caused by the WECD and the expected durations of the flicker at these locations. The assessment shall identify areas where shadow flicker has the potential to interfere with the use of residences or other habitable structures and describe measures that shall be taken to mitigate the effects of shadow flicker.⁵⁵

TOWN OF WAWAYANDA, NEW YORK, WIND ENERGY CONVERSION REGULATION SYSTEMS

Shadow flicker and ice and blade throw may need to be mitigated if neighboring residences are within 1,000 feet of a WECS.⁵⁶

GEORGIA MODEL WIND ORDINANCE FOR ENERGY FACILITIES

Shadow flicker at any Occupied Building on a Non-Participating Landowner's property caused by a Wind Turbine Facility located within 2,500 ft of the Occupied Building existing at the time of initial operation of the facility shall not exceed thirty (30) hours per year.⁵⁷

TOWN OF GUILFORD, CONNECTICUT, WIND ENERGY SYSTEMS ZONING ORDINANCE

⁵⁵PERINTON, N.Y., TOWN CODE § 204-4(O) (2010).

⁵⁶ WAWAYANDA, N.Y., TOWN CODE § 195-42(D)(19) (2009).

⁵⁷ GEORGIA WIND WORKING GROUP, MODEL WIND ORDINANCE FOR ENERGY FACILITIES § 6(B) (2010), http://www.gawwg.org/images/GA_Model_Wind_Ordinance_March_2010.pdf.

Shadow/Flicker – Wind energy facilities shall be sited in a manner that minimizes shadowing or flicker impacts. The applicant has the burden of proving that this effect does not have significant adverse impact on neighboring or adjacent uses through either siting or mitigation.⁵⁸

5. Other Aesthetic Concerns

There are several additional aesthetic concerns that a municipality may regulate in its wind ordinance. These requirements tend to reflect the unique qualities of each distinct municipality and involve specific measures that go beyond the typical provisions a municipality implements to minimize a wind facility's impact on the visual character of the surrounding neighborhood and community. For example, wind ordinances may limit vegetation removal, require the use of monopole towers, require underground transmission lines, or restrict turbines in scenic vistas or historic districts. Again, it is important to note that such requirements and restrictions are no longer within the power of the local municipality for projects applying under Article X.

Sample Provisions:

TOWN OF PERINTON, NEW YORK, WIND ENERGY CONVERSION

Additional Standards: A digital viewshed map showing the impact of topography upon the visibility of the project from locations throughout the region, to a distance of five miles from the center of the project, shall be provided for LWECs. The viewshed map shall be constructed in accordance with the New York State Department of Environmental Conservation guidance document "Assessing and Mitigating Visual Impacts" (DEP-00-2). The scale used shall depict a three-mile radius no smaller than 2.7 inches, and the base map shall be a published topographic map showing cultural features and other landmarks.⁵⁹

TOWN OF POTSDAM, NEW YORK, WIND ENERGY FACILITIES

Standards for WECS: All applicants shall use measures to reduce the visual impact of WECS to the extent possible. All structures in a project shall be finished in a single,

⁵⁸ TOWN OF GUILFORD, CONN., AMENDMENT TO THE ZONING CODE REGARDING WIND ENERGY SYSTEMS § 273-88(F)(8), http://www.windct.org/documents/TownofGuilfordCTWindEnergySystems12-17-08_2_.pdf.

⁵⁹ PERINTON, N.Y., TOWN CODE § 204-4(K) (2010).

nonreflective matte finished color or a camouflage scheme. Individual WECSs within a Wind Overlay Zone shall be constructed using wind turbines whose appearance, with respect to one another, is similar within and throughout the zone, to provide reasonable uniformity in overall size, geometry, and rotational speeds. No lettering, company insignia, advertising, or graphics shall be on any part of the tower, hub, or blades.⁶⁰

TOWN OF WAWAYANDA NEW YORK, WIND ENERGY CONVERSION SYSTEM REGULATIONS

The WECS shall be designed and located in such a manner to minimize adverse visual impacts from public viewing areas.⁶¹

TOWN OF BARNSTABLE, MASSACHUSETTS, WIND ENERGY CONVERSION FACILITIES

Visual impact. The proponent shall demonstrate through project siting and proposed mitigation that the wind energy conversion facility minimizes any impact on the visual character of surrounding neighborhoods and the community. This may include, but not be limited to, information regarding site selection, turbine design, buffering, lighting. All electrical conduits shall be underground.⁶²

TOWN OF GUILFORD, CONNECTICUT, WIND ENERGY SYSTEM ZONING ORDINANCE

Scenic Vistas and Historic Areas – The development of wind energy systems shall not significantly impair scenic vistas nor have an adverse impact on historic areas or properties. Scenic vistas are as described in the *Plan of Conservation and Development 2002*, Section 2.2 Policy A: Preserve Guilford's Character and Cultural Landscape (as it may be revised). Historic areas or properties are as listed in the National Register of Historic Districts or Properties or as Local Historic Districts as approved by the Town of Guilford.⁶³

G. Safety Requirements

⁶⁰ POTSDAM, N.Y., TOWN CODE § 108-11(E) (2008).

⁶¹ WAWAYANDA, N.Y., TOWN CODE § 195-42(D)(10) (2009).

⁶² BARNSTABLE, MASS., HOME RULE CHARTER § 240-44.1 (D)(2) (2007).

⁶³ GUILFORD, CONN., AMENDMENT TO THE ZONING CODE REGARDING WIND ENERGY SYSTEMS § 273-88(F)(9) (2008), http://www.windct.org/documents/TownofGuilfordCTWindEnergySystems12-17-08_2_.pdf.

Because wind turbines are fundamentally industrial machines, most wind ordinances are designed to protect the public health, safety and general welfare. In addition to general setback requirements, municipal wind ordinances often include measures to protect neighboring residences from an unlikely tower collapse or blade and ice throw.

Beyond obvious safety concerns associated with an energy generating system/tower, wind ordinance requirements also may address safety issues related to access. For example, at a minimum, some municipalities require that turbines and electrical equipment be adequately fenced off and that owners take precautions to prevent climbing and access to dangerous electrical equipment. Generally, climbable rungs on turbine towers must end between 12 and 15 feet above the ground, and municipalities may require locked, fenced areas around the tower to prevent unauthorized access. Other more specific safety requirements include installation of warning signs (electricity/voltage and owner information), manual and automatic braking/shut-down mechanisms to control/feather rotational speed of the blade, development of an emergency plan, and installation of fire suppression systems.

As with other such requirements, these provisions are now part of the state-level siting process for proposed facilities of 25 MW or greater capacity.

Sample Provisions:

TOWN OF HAMBURG, NEW YORK, COMMERCIAL WIND ENERGY CONVERSION SYSTEMS

Safety and security requirements. The applicant shall adhere to the following safety and security requirements:

(a) Safety shutdown. Each commercial WECS shall be equipped with both manual and automatic controls to limit the rotational speed of the blade within the design limits of the wind turbine. A manual, electrical, and/or over-speed shutdown disconnect switch shall be provided and clearly labeled on the commercial WECS. No wind turbine shall be permitted that lacks an automatic braking, governing, or feathering system to prevent uncontrolled rotation, over-speeding, and excessive pressure on the tower structure, rotor blades, and wind turbine components.

(b) All structures which may be charged with lightning shall be grounded according to applicable electrical codes.

(c) All wiring between the wind turbines and the commercial WECS substation shall be underground. The applicant is required to provide a site plan showing the

locations of all overhead and underground electric utility lines, including substations for the project.

(d) All transmission lines from commercial WECS to on-site substations shall be underground. The Planning Board shall have the authority to waive this requirement if the owner of the property upon which the transmission line will be sited consents to aboveground transmission lines or if the Planning Board has sufficient engineering data submitted by the applicant to demonstrate that underground transmission lines are unfeasible.

(e) Ground clearance. The blade tip of any wind turbine shall, at its lowest point, have ground clearance of not less than 50 feet.

(f) Climability. Wind turbine towers shall not be climbable up to 15 feet above ground level.

(g) Access doors locked. All access doors to commercial WECS structures and electrical equipment shall be lockable and shall remain locked at all times when operator personnel are not present.

(h) Self-supporting structures. All towers shall be of monopole construction (single pole). No lattice structures or guy wire supported structures shall be permitted.

(i) Signage. Appropriate warning signage shall be placed on commercial WECS and at all entrances. Signage shall also include two twenty-four-hour emergency contact numbers to the owner of the commercial WECS in accordance with local, state, and federal codes.

(j) Ice throw. Permit shall determine the acceptable ice throw range based on the activities in the area, location, and calculations of the ice throw.⁶⁴

TOWN OF POMPEY, NEW YORK, SMALL WIND ENERGY CONVERSION SYSTEMS

Ground clearance. The minimum distance between the ground and any exposed, moving part of the rotor blade apparatus shall be 15 feet, measured at the lowest point of the rotor blade arc.**(b)** Wind tower design. The wind tower shall be designed to handle the maximum potential structural load. In addition, under no circumstances shall the height of the system exceed the height recommendations specified by the manufacturer of the system.

Wind tower access. The small WECS shall not be accessible to unauthorized personnel. Access to the wind tower shall be limited by means of a fence, no lower than six feet in height, around the tower base, with a locking portal and with a locking gate on the fence, or by limiting the wind tower climbing apparatus to no

⁶⁴ HAMBURG, N.Y., TOWN CODE § 280-343(D)(9)(2007).

lower than 15 feet from the base of the tower. The fencing requirements do not apply to building-mounted or building-supported WECS.

Warning signage. A weather-resistant sign plate, no greater than two square feet in size, containing the name of the current owner or operator, emergency phone number, and current address of such owner/operator shall be located on the exterior surface of the tower at a height of five feet or on the fence surrounding each tower and viewable by a Code Enforcement Officer. Such sign shall also warn of electrical shock or high voltage.

Braking mechanisms. The small WECS shall be equipped with an automatic braking, governing or feathering system to prevent uncontrolled rotation, over-rotation and excessive pressure on the wind tower structure, rotor blades, wind generator components or enclosed shelter (in the case of building-mounted and/or building-supported small WECS). No small WECS shall be permitted which lacks such a system. The applicant shall file with the Town Code Enforcement Officer a document explaining how the small wind energy system may be shut down in case of an emergency

Emergency shutdown. In the event of a failure of the braking system, the small WECS shall have a positive means to disconnect it from the local power grid.⁶⁵

TOWN OF WAWAYANDA, NEW YORK, WIND ENERGY CONVERSION SYSTEMS REGULATIONS

Any climbing apparatus must be located at least 12 feet above the ground, and the tower must be designed to prevent climbing within the first 12 feet. It may be recommended that the tower be enclosed with an appropriate fence.⁶⁶

WISCONSIN MODEL WIND ORDINANCE FOR TOWNS/COUNTIES

Safety.

- 1) All wiring between Wind Turbines and the Wind Energy Facility substation shall be underground.
- 2) Wind Turbine towers shall not be climbable up to 15 feet above ground level.
- 3) All access doors to Wind Turbine towers and electrical equipment shall be lockable.
- 4) Appropriate warning signage shall be placed on Wind Turbine towers, electrical equipment, and Wind Energy Facility entrances.⁶⁷

⁶⁵ POMPEY, N.Y., TOWN CODE § 165-15(E)(3)(2010).

⁶⁶ WAWAYANDA, N.Y., TOWN CODE § 195-42(D)(6)(2009).

⁶⁷ WISCONSIN MODEL WIND ORDINANCE FOR TOWNS/COUNTIES § 5.6 (2007), http://www.doa.state.wi.us/docs_view2.asp?docid=2869.

CATEGORY: OTHER REQUIREMENTS

***Description:** The following restrictions, requirements, and stipulations vary widely across wind ordinances and may be relevant only in certain localities.*

A. Decommissioning / Abandonment

Most wind ordinances include standards that regulate the decommissioning of a wind energy system after its useful life or when a system is abandoned or no longer used. Generally, a decommissioning requirement will set forth how long a turbine must be inoperable to be considered abandoned and how long an owner has to remove an abandoned system or a system that has been decommissioned. Typically, these requirements consider a turbine abandoned if it is inoperable for between six and twelve months. In other instances, these requirements may deem a turbine unsafe and give its owner a certain amount of time to remedy the unsafe conditions. If the unsafe turbine remains in non-compliance after this time period lapses, the requirements may direct the owner to decommission the unsafe turbine. Once a turbine has been decommissioned or abandoned, a municipality generally requires the owner or operator of the plant to remove the system and remediate the site at his or her own expense. The requirements generally allow 90 days for this process, but in rare cases might permit as long as six months. To help streamline the process, and guard against abandonment, some municipalities have required owners to submit decommissioning and site restoration plans and/or to post a bond to cover decommissioning costs.

Often, wind farms are repowered rather than decommissioned at the end of their lifespan. This means the original turbines are removed and replaced with new turbines. Decommissioning provisions should also include any desired repowering provisions.

Note that under Article X, municipalities may no longer be able to require decommissioning bonds, repowering plans, etc. as a condition of construction.

Sample Provisions:

TOWN OF GENEVA, NEW YORK, WIND ENERGY FACILITIES

Decommissioning.

A. The facility owner and operator shall, at its expense, complete decommissioning of the wind energy facility, or individual wind turbines, within 12 months after the end of the useful life of the facility or individual wind turbines.

B. The wind energy facility or individual wind turbines will presume to be at the end of its useful life if no electricity is generated for a continuous period of 12 months.

C. Decommissioning shall include removal of wind turbines, buildings, cabling, electrical components, roads, foundations to a depth of 36 inches, and any other associated facilities.

D. Disturbed earth shall be graded and reseeded, unless the landowner requests, in writing, that the access roads or other land surface areas not be restored.

E. An independent and certified professional engineer shall be retained to estimate the total cost of decommissioning (decommissioning costs), without regard to salvage value of the equipment, and the cost of decommissioning with the net salvage value of the equipment ("net decommissioning costs"). Said estimates shall be submitted to the Town of Geneva after the first year of operation and every fifth year thereafter.

F. The facility owner or operator shall post and maintain decommissioning funds in an amount equal to net decommissioning costs, provided that at no point shall decommissioning funds be less than 25% of decommissioning costs. The decommissioning funds shall be posted and maintained with a bonding company or federal- or state-chartered lending institution chosen by the facility owner or operator and participating landowner posting the financial security, provided that the bonding company or lending institution is authorized to conduct such business within New York State and is approved by the Town of Geneva.

G. Decommissioning funds may be in the form of a performance bond, surety bond, letter of credit, corporate guarantee or other form of financial assurance as may be acceptable to the Town of Geneva.

H. If the facility owner or operator fails to complete decommissioning within the period prescribed by Subsection **A**, the landowner shall have six months to complete decommissioning.

I. If neither the facility owner or operator nor the landowner complete decommissioning within the periods prescribed by Subsections **A** and **H**, then the Town of Geneva may take such measures as necessary to complete decommissioning. The entry into and submission of evidence of a participating landowner agreement to the Town of Geneva shall constitute agreement and consent of the parties to the agreement, their respective heirs, successors and assigns that the Town of Geneva may take such action as necessary to implement the decommissioning plan.

J. The escrow agent shall release the decommissioning funds when the facility owner or operator has demonstrated and the municipality concurs that decommissioning has been satisfactorily completed or upon written approval of the municipality in order to implement the decommissioning plan."⁶⁸

⁶⁸ GENEVA, N.Y., TOWN CODE §§ 163-16(A)-(J) (2007).

TOWN OF HAMBURG, NEW YORK, COMMERCIAL WIND ENERGY CONVERSION SYSTEMS

Unsafe and inoperable commercial WECS; site reclamation. The applicant shall adhere to the following:

(a) Removal and site restoration. Unsafe commercial WECS, inoperable commercial WECS, and commercial WECS for which the permit has expired shall be removed by the owner. All safety hazards created by the installation and operation of the commercial WECS shall be eliminated, and the site shall be restored to its natural condition to the extent feasible. A bond or other appropriate form of security shall be required to cover the cost of the removal and site restoration.

(b) removal and site restoration plan required. The applicant shall submit a removal and site restoration plan and removal and site restoration plan cost estimate to the Town of Hamburg Planning Board for its review and approval. The restoration plan shall identify the specific properties it applies to and shall indicate removal of all buildings, structures, wind turbines, access roads and/or driveways, foundations to four feet below finished grade, road repair costs, if any, and all regrading and revegetation necessary to return the subject property to the condition existing prior to establishment of the commercial WECS. The restoration shall reflect the site-specific character, including topography, vegetation, drainage, and any unique environmental features. The plan shall include a certified estimate of the total cost (by element) of implementing the removal and site restoration plan.

(c) Public nuisance. Every unsafe commercial WECS and every inoperable commercial WECS is hereby declared a public nuisance which shall be subject to abatement by repair, rehabilitation, demolition, or removal. An inoperable commercial WECS shall not be considered a public nuisance, provided that the owner can demonstrate that modernization, rebuilding, or repairs are in progress or planned and will be completed within no more than six months.

(d) "Inoperable" defined. A commercial WECS shall be deemed inoperable if it has not generated power within the preceding six months."⁶⁹

TOWN OF LERAY, NEW YORK, SMALL WIND ENERGY CONVERSION SYSTEMS

Abandonment.

(1) At such time that a small WECS is scheduled to be abandoned or discontinued, the applicant will notify the Zoning Enforcement Officer by certified U.S. mail of the proposed date of abandonment or discontinuation of operations.

(2) Upon abandonment or discontinuation of use, the owner shall physically remove the small WECS within 90 days from the date of abandonment or discontinuation of use. This period may be extended at the request of the owner and at the discretion of the Zoning Enforcement Officer. "Physically remove" shall include, but not be limited to:

(a) Removal of the wind turbine and tower and related above grade structures.

⁶⁹ HAMBURG N.Y., TOWN CODE § 280-343 (C)(13)(A)-(D) (2007).

(b) Restoration of the location of the small WECS to its natural condition, except that any landscaping, grading or below-grade foundation may remain in the after-conditions.

(3) In the event that an applicant fails to give such notice, the system shall be considered abandoned or discontinued if the system is out of service for a continuous twelve-month period. After the 12 months of inoperability, the Zoning Enforcement Officer may issue a notice of abandonment to the owner of the small WECS. The owner shall have the right to respond to the Notice of Abandonment within 30 days from notice receipt date. The Zoning Enforcement Officer shall withdraw the notice of abandonment and notify the owner that the notice has been withdrawn if the owner provides reasons for the operational difficulty, provides a reasonable time table for corrective action, and demonstrates that the small WECS has not been abandoned.

(4) If the owner fails to respond to the notice of abandonment or if after review by the Zoning Enforcement Officer it is determined that the small WECS has been abandoned or discontinued, the owner of the small WECS shall remove the wind turbine and tower at the owner's sole expense within 120 days of receipt of the notice of abandonment. If the owner fails to physically remove the small WECS after the notice of abandonment procedure, the Town shall have the authority to enter the subject property and physically remove the small WECS.⁷⁰

TOWN OF POTSDAM, NY, WIND ENERGY CONVERSION SYSTEMS

Decommissioning plan. The applicant shall submit a decommissioning plan, which shall include:

- (1) The anticipated life of the WECS;
- (2) The estimated decommissioning costs in current dollars;
- (3) How said estimate was determined;
- (4) The method of ensuring that funds will be available for decommissioning and restoration;
- (5) The method, such as by annual re-estimate by a licensed engineer, that the decommissioning cost will be kept current; and
- (6) The manner in which the WECS will be decommissioned and the site restored, which shall include removal of all roads, structures, and debris to a depth of three feet, restoration of the soil, and restoration of vegetation (consistent and compatible with surrounding vegetation), less any fencing or residual minor improvements requested by the landowner.⁷¹

⁷⁰ LERAY, N.Y., TOWN CODE §§158-37.1(H)(1)-(4) (2010).

⁷¹ POTSDAM, N.Y., TOWN CODE §§108-9(I)(1)-(6). (2008).

B. Compliance with State/National Codes and Regulations

As energy generating facilities, wind turbine projects often are subject to a range of industrial, electrical and structural codes and standards. Generally, a municipal wind ordinance will require a wind energy system to comply with national building and electrical codes. For those municipalities that directly include such requirements, most require wind energy systems to conform or comply with the Uniform Building Code, National Electric Code, and FAA Regulations. Beyond federal codes, municipal wind ordinances often require compliance with specific local and state codes, which might involve stricter building and electrical codes, environmental review, noise and safety codes and agricultural considerations. Note that wind turbines are no longer the responsibility of local building code enforcement officers in New York State; also, some or all of these requirements may no longer be applicable to projects applying under Article X.

Sample Provisions:

TOWN OF GENEVA, NEW YORK, WIND ENERGY FACILITIES

Design safety certification. The design of the wind energy facility shall conform to applicable industry standards, including those of the American National Standards Institute. The applicant shall submit certificates of design compliance obtained by the equipment manufacturers from Underwriters Laboratories, Det Norske Veritas, Germanischer Lloyd wind Energies or other similar certifying organizations.

B. Uniform Construction Code. To the extent applicable, the wind energy facility shall comply with the New York State Building Code, National Electrical Code, NFPA and other national or state codes as deemed applicable by the Town of Geneva Code Enforcement Officer.⁷²

A. Audible sound from a wind energy facility shall not exceed 50 dBA, as measured at the exterior of any occupied building on a nonparticipating landowner's property. Methods for measuring and reporting acoustic emissions from wind turbines and the wind energy facility shall be equal to or exceed the minimum standards for precision described in AWEA Standard 2.1 - 1989, titled "Procedures for the Measurement and Reporting of Acoustic Emissions from wind turbine Generation Systems Volume I: First Tier."⁷³

E. Compliance with FAA regulations. Small wind energy systems must comply with applicable FAA regulations, including any necessary approvals for installations close to airports.⁷⁴

⁷² GENEVA, N.Y. TOWN CODE §§163-8(A), (B) (2007).

⁷³ GENEVA, N.Y., TOWN CODE § 163-13(A) (2007).

⁷⁴ GENEVA, N.Y., TOWN CODE §163-19(F). (2007).

Compliance with New York State Department of Agriculture and Markets Guidelines Wind power construction projects located in county-adopted, state-certified agricultural districts shall comply with the following guidelines:

A. The project sponsor is encouraged to coordinate with the New York State Department of Agriculture and Markets (Ag. and Markets) to develop an appropriate schedule for milestone inspections to assure that the goals of these guidelines are being met. For larger projects, the project sponsor shall hire an Environmental Monitor to oversee the construction and restoration in agricultural fields.⁷⁵

TOWN OF HAMBURG, NEW YORK, COMMERCIAL WIND ENERGY CONVERSION SYSTEMS

Certification. The applicant shall provide the following certifications:

(a) Certification of structural components. The foundation, tower, wind turbine, and compatibility of the tower with related equipment shall be certified in writing by a structural engineer registered in New York State. The engineer shall certify compliance with good engineering practices and compliance with the appropriate provisions of the Uniform Construction Code that have been adopted in New York State.

(b) Certification of postconstruction. After completion of the commercial WECS, the applicant shall provide a postconstruction certification from a licensed New York State professional engineer that the project complies with applicable codes and industry practices and has been completed according to the design plans.

(c) Certification of electrical system. The electrical system shall be certified in writing by an electrical engineer registered in New York State. The engineer shall certify compliance with good engineering practices and with the appropriate provisions of the Electric Code that have been adopted by New York State.

(d) Certification of wind turbine over-speed control. The wind turbine over speed control system shall be certified in writing by a mechanical engineer registered in New York State. The engineer shall certify compliance with good engineering practices.

(e) Certification of project. Certificate of completion must be supplied by the applicant and approved by the Town of Hamburg Code Enforcement Officer.⁷⁶

TOWN OF PERINTON, NEW YORK, WIND ENERGY CONVERSION SYSTEMS

WECD construction or ground disturbance involving land in agricultural districts shall comply with the New York State Department of Agriculture and Markets' publication titled "Guidelines for Agricultural Mitigation for Wind Power Projects."

⁷⁵ GENEVA, N.Y., TOWN CODE §163-20(A) (2007).

⁷⁶ HAMBURG, N.Y., TOWN CODE §§ 280-343 (C)(17)(a)-(e) (2007).

(4) For SWECDs, a noise assessment based on manufacturer's noise data as certified by the Small Wind Certification Council or other documentation acceptable to the Town and conducted in conformance with the guidance provided by the New York State Department of Environmental Conservation's Program Policy "Assessing and Mitigating Noise Impacts" (DEP-00-1) shall be provided unless the Town requests additional measurements.⁷⁷

TOWN OF WAWAYANDA, NEW YORK, WIND ENERGY CONVERSION SYSTEMS REGULATIONS

National and state standards [for industrial turbines]. The applicant shall show that all applicable manufacturers', New York State, and U.S. standards for the construction, operation and maintenance of the proposed WECS are being complied with. All WECS shall be built, operated and maintained to applicable industry standards of the Institute of Electrical and Electronic Engineers (IEEE) and the American National Standards Institute (ANSI) or any successor organization. The applicant for a WECS special use permit and site plan approval shall furnish evidence from a professional engineer licensed to practice in the State of New York that such WECS is in compliance with the standards.⁷⁸

C. Utility Notification

As a general requirement, if a wind energy system is interconnected with a utility system grid, a municipal wind ordinance often will require the applicant to notify the electric utility provider and ensure system compliance with interconnection requirements. Utility notification requirements commonly apply to larger wind energy generating systems, and most municipal ordinances exempt off-grid systems from this requirement. Wind ordinances generally do not include utility notification requirements for small facilities. Some utility notification requirements reference the New York State provisions for the state's net metering policy. Note that such requirements are no longer applicable to proposed facilities applying under Article X.

Sample Provisions:

TOWN OF GENEVA, NEW YORK, WIND ENERGY FACILITIES

No end-user 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

⁷⁷ PERINTON, N.Y., TOWN CODE § 204-4(G)(4) (2010).

⁷⁸ WAWAYANDA, N.Y., TOWN CODE §195-42 F(16)(b) (2009).

interconnected customer-owned generator. Off-grid systems shall be exempt from this requirement.⁷⁹

TOWN OF LERAY, NEW YORK, SMALL WIND ENERGY CONVERSION SYSTEMS

If the proposed small WECS is to be connected to the power grid through net metering, the applicant shall provide written evidence that the electric utility service provider that services the proposed site has been informed of the applicant's intent to install an intermittent customer-owned electric generator.⁸⁰

D. Inspections / Monitoring

Many wind ordinances provide for safety inspections on an annual basis or at the will of the municipality. Inspection and monitoring standards may require annual, bi-annual, or tri-annual inspections. In addition, wind ordinances may charge a wind tower owner and/or operator with maintaining, repairing and keeping the wind facility in good working order. Municipal wind ordinances may also require environmental monitoring. Note, however, that local building code enforcement officers are no longer responsible for inspecting wind turbines; and that such provisions are no longer applicable to facilities applying under Article X.

Sample Provisions:

TOWN OF GENEVA, NEW YORK, WIND ENERGY FACILITIES

Maintenance and inspections.

A. The owner or operator of the wind facility must submit, on an annual basis, a summary of the operation and maintenance reports to the Town of Geneva. In addition to the above annual summary, the owner or operator must furnish such operation and maintenance reports as the Town reasonably requests.

B. Any physical modification to the wind facility that alters the mechanical load, mechanical load path, or major electrical components shall require recertification. Like-kind replacements shall not require recertification. Prior to making any physical modification (other than a like-kind replacement), the owner or operator shall confer with the Town of Geneva Code Enforcement Officer to determine whether the physical modification requires a special use permit modification.

⁷⁹ GENEVA, N.Y., TOWN CODE § 163-19(H) (2007).

⁸⁰ LERAY, N.Y., TOWN CODE § 158-37.1(K) (2010).

C. The Town of Geneva staff, along with licensed third-party professionals retained by the Town for the specific purpose of conducting inspections of the wind facility shall have the right, once annually and with sufficient prior notice, to accompany the owner or operator, or his or her agent, on the premises where a wind facility has been constructed to inspect all parts of said wind facility installation and to require that repairs or alterations be made. The owner or operator of a wind facility may retain a licensed third-party professional engineer familiar with the specific wind facility system to prepare and submit to the Town a written report which addresses the repairs or alterations requested and which suggests alternate methods for addressing the concerns or provides evidence that said repairs or alterations are unnecessary. This report must be submitted within 30 days after receiving notice from the Town of Geneva that repairs or alterations are requested unless both parties have agreed to a longer period of time. The Town of Geneva will consider any such written report and determine whether the repairs or alterations should be made as originally requested or as suggested in the written report.

D. Inspections, at a fee to be determined from time to time by the Town of Geneva and paid by the applicant, may be made by the Town of Geneva Code Enforcement Officer, or by a qualified inspector for equipment of this type selected by the Town of Geneva, no more than once annually to certify the safety and maintenance of the wind facility and accessory structures.⁸¹

TOWN OF HAMBURG, NEW YORK, COMMERCIAL WIND ENERGY CONVERSION SYSTEMS

Monitoring requirements for commercial WECS.

(1) Right to enter premises for monitoring. Upon reasonable notice, Town of Hamburg officials or their designated representatives may enter a lot on which a commercial WECS permit has been granted for the purpose of compliance with any permit requirements. Twenty-four hours advance notice by telephone to the owner/operator or designated contact person shall be deemed reasonable notice.

(2) Avian/bat impact study plan. The applicant shall submit a plan for monitoring the avian impact of the commercial WECS to the Planning Board for its review and approval. Such plan shall document and follow accepted scientific study procedures.

(3) Periodic reporting required. The Planning Board may request that the applicant periodically submit documentation reporting the environmental impacts of the operational WECS and shall contain content and be in the form prescribed by the Planning Board.

(4) Power production report required. The Planning Board may request that the applicant periodically submit documentation that the commercial WECS is producing power.

(5) Inspections. Unless waived by the Planning Board, a Commercial WECS shall be inspected annually by a licensed New York State professional engineer that has been approved by the Town or at any other time, upon a determination by the Town's

⁸¹ GENEVA, N.Y., TOWN CODE §§ 163-17(A)-(D) (2007).

Code Enforcement Office, that the wind turbine, tower, or other WECS component have sustained structural damage, and a copy of the inspection report shall be submitted to the Town Code Enforcement Officer. Any fee or expense associated with this inspection shall be borne entirely by the permit holder.⁸²

TOWN OF POMPEY, NEW YORK, SMALL WIND ENERGY CONVERSION SYSTEMS

Inspections and enforcement. The Code Enforcement Officer, in the company of the owner or operator, or his/her agent, may enter the premises on which a small WECS is being or has been constructed to inspect all components of the installation. When practicable, the Code Enforcement Officer shall provide the owner or operator with written notice of his/her intent to conduct an inspection at least 48 hours before such inspection. Upon inspection, the Code Enforcement Officer may order the owner to make repairs or alterations to the system in the event the system is deemed noncompliant, unsafe, deficient or dangerous and may order that the construction or operation of the small WECS cease until such repairs or alterations are made. In the event that the small WECS is deemed to pose an immediate danger to life or property, the Code Enforcement Officer shall have the right to enter the property forthwith, without the owner being present, and to take such action as is deemed reasonably necessary to eliminate such danger.⁸³

TOWN OF WAWAYANDA, NEW YORK, WIND ENERGY CONVERSION SYSTEMS REGULATIONS

Inspection. An inspection report prepared by a professional engineer licensed in the State of New York will be required at the time of installation and every three years thereafter. The inspection report will be for the structure and the electronics and will be given to the Town's Building Inspector/Code Enforcement Officer.⁸⁴

E. Sanctions / Penalties for Violating Ordinance

In some instances, municipal wind ordinances include penalty provisions that inform operators of the penalties the municipality might assess if a wind energy system does not comply with the ordinance. These provisions act as a safety valve to help ensure operator compliance. Sanctions and penalties vary by municipality and generally involve citations and fines (financial penalties) for initial violations. Some ordinances raise these penalties for additional violations. These fines range from a flat rate penalty of between \$250 and \$500, to daily penalties for non-compliance with a maximum penalty range. In addition, non-compliance and safety violations, such as improper maintenance, can lead to an emergency shutdown, permit revocation, or decommissioning at the

⁸² HAMBURG, N.Y., TOWN CODE §§ 280-343 (D)(1)-(5) (2007).

⁸³ POMPEY, N.Y., TOWN CODE § 165-15 (I)(5) (2010).

⁸⁴ WAWAYANDA, N.Y., TOWN CODE- § 195-42 (F)(16)(a) (2009).

owner's expense if necessary (note that facilities permitted under the state "fast track" process, as delineated in Article X, may not be subject to such local penalties).

Sample Provisions:

TOWN OF GENEVA, NEW YORK, WIND ENERGY FACILITIES

Unless otherwise specifically provided, the violation of any law, ordinance, rule, regulation or any specific provision or provisions thereof adopted by the Town Board as a part of this Code shall be deemed an offense against such law, ordinance, rule, regulation or provision thereof, punishable by a fine not to exceed \$250 or imprisonment of not more than 15 days, or both such fine and imprisonment. Each week any such violation shall continue, shall constitute a separate offense.⁸⁵

TOWN OF LERAY, NEW YORK, SMALL WIND ENERGY CONVERSION SYSTEMS

Any person owning, controlling or managing any building, structure or land who shall undertake a small WECS in violation of this section or in noncompliance with the terms and conditions of any permit issued pursuant to this section, or any order of the enforcement officer, and any person who shall assist in so doing, shall be guilty of an offense and subject to a fine of not more than \$350 or to imprisonment for a period of not more than six months, or subject to both such fine and imprisonment. Every such person shall be deemed guilty of a separate offense for each week such violation shall continue. The Town may institute a civil proceeding to collect civil penalties in the amount of \$350 for each violation and each week said violation continues shall be deemed a separate violation.⁸⁶

Town of POMPEY, NEW YORK, SMALL WIND ENERGY CONVERSION SYSTEMS

Any person who violates any provision of this section shall be guilty of a violation and subject to a fine of not more than \$250 and/or 15 days jail.⁸⁷

F. Insurance Requirements

⁸⁵ GENEVA, N.Y., TOWN CODE ART. III §§ 1-16(A)-(B) (2010).

⁸⁶ LERAY, N.Y., TOWN CODE § 158-37.1(J)(1) (2010).

⁸⁷ POMPEY, N.Y., TOWN CODE § 165-15(I)(7) (2010).

Municipal wind ordinances often include insurance requirements and other mechanisms to cover general liability and protect neighboring land owners and the municipality in the unlikely event of injury or an incident. Generally, a wind ordinance that includes insurance coverage requirements directs the owner to maintain liability insurance that will cover damage or injury to persons, property or structures. Wind ordinances range from requiring no insurance provisions to requiring general liability and proof of insurance. In some instances, a municipality will require a wind system owner to maintain general liability insurance of a specified amount, ranging from \$300,000 to \$2 million. Other wind ordinances permit the relevant local board to determine the set amount. Note that such requirements may not be applicable to proposed facilities applying under Article X.

Sample Provisions:

TOWN OF HAMBURG, NEW YORK, COMMERCIAL WIND ENERGY CONVERSION SYSTEMS

Proof of insurance. Prior to the issuance of a building permit, the applicant shall provide the Town Clerk with proof of insurance in a sufficient dollar amount to cover potential personal and property damage associated with construction and operation thereof.⁸⁸

TOWN OF LE RAY, NEW YORK, SMALL WIND ENERGY CONVERSION SYSTEMS

Issuance of special use permit: Prior to issuance of a special use permit, the applicant shall provide the Town proof of a level of insurance to be determined by the Town Board in consultation with the Town's insurer, to cover damage or injury that might result from the failure of a tower or towers or any other part or parts of the generation and transmission facility.⁸⁹

TOWN OF WAWAYANDA, NEW YORK, WIND ENERGY CONVERSION SYSTEMS REGULATIONS

Liability/indemnity. Prior to issuance of a building permit for a WECS, the applicant shall provide the Town in the form of an insurance policy or a certificate of coverage issued by an insurance company for liability insurance in an amount to be determined by the Town Board and the Attorney for the Town, in consultation with the Town's insurer. This policy or certificate shall be to cover damage or injury

⁸⁸HAMBURG, N.Y., COMMERCIAL WIND ENERGY CONVERSION SYSTEMS § 280-343(E)(4) (2007).

⁸⁹ LE RAY, N.Y., TOWN CODE § 158-37.1 (2010).

which might result from the failure of a tower or any other part(s) of the WECS generation and transmission facility or for any other damage caused by the construction, maintenance or operation of the WECS. In addition, prior to construction of any WECS, the owner of such WECS must provide cash or a letter of credit, in amounts and form satisfactory to the Town Engineer and the Attorney for the Town, to guarantee the proper performance and maintenance of the WEC for three years after construction is completed.⁹⁰

G. Required Plans and Studies – Environmental, Soil, Etc.

Approximately one third of municipal wind ordinances require applicants to complete plans and studies, in general, as part of a wind energy system permitting process. Typically, these required plans and studies focus on environmental issues and often require a developer to prepare an environmental assessment. Required studies related to shadow flicker, noise, ice throw, and lighting allows a municipality to err on the side of caution. Other potential required studies include certification, soil, erosion, environment, seismic, wind speed, visual impact, electromagnetic interference, transportation impacts, ground water, wildlife, and cultural resources. Note that the state-level process for wind farms 25 MW and larger requires environmental studies, and supersedes SEQR and other local study requirements.

Sample Provisions:

TOWN OF GENEVA, NEW YORK, WIND ENERGY FACILITIES

Among other things, the application shall contain the following. . .

(6) A completed New York State Environmental Impact Assessment/SEQR. . .

(11) A transportation plan showing how vehicles would access the site and describing the impacts of the proposed energy project on the local and regional road system during construction and operation.

(12) A revegetation plan that complies with the New York State Department of Agriculture and Markets restoration guidelines and that addresses how areas that are temporarily disturbed during construction will be restored as well as restoration after decommissioning.

⁹⁰ WAWAYANDA, N.Y., TOWN CODE § 195-42(G)(1) (2009).

(13) A drainage plan for construction and operation as well as an erosion plan must be developed and submitted for approval by the Town of Geneva Code Enforcement Officer and the Planning Board as per the normal site plan review process.

(14) Other relevant studies, reports, certifications and approvals as may be reasonably requested by the Town of Geneva to ensure compliance with this chapter. This may include but not be limited to bird migration and flicker impact studies.⁹¹

TOWN OF HAMBURG, NEW YORK, COMMERCIAL WIND ENERGY CONVERSION SYSTEMS

Impact on wildlife species and habitat. The applicant shall adhere to the following regarding the impact on wildlife species and habitat:

(a) Endangered or threatened species. Development and operation of a commercial WECS shall not have a significant adverse impact on endangered or threatened fish, wildlife, or plant species or their critical habitats, or other significant habitats identified in the Town of Hamburg Comprehensive Plan and/or the studies and plans of the regional planning commissions based on criteria established by the federal or state regulatory agencies.

(b) Migratory birds. Development and operation of a commercial WECS shall be evaluated based on SEQR findings.⁹²

Noise study required. The applicant shall submit a noise study based on the requirements set out herein. The Planning Board shall determine the adequacy of the noise study and, if necessary, may require further submissions. The noise study shall consider the following:

- [1] Low frequency noise;
- [2] Infrasound noise;
- [3] Pure tone; and
- [4] Repetitive/impulsive sound.⁹³

A geotechnical report shall be furnished which shall, at a minimum, include the following:

[1] Soils engineering and engineering geologic characteristics of the site based on on-site sampling and testing⁹⁴

(i) Ice throw calculations: a report from a licensed New York State professional engineer that calculates the maximum distance that ice from the wind turbine

⁹¹ GENEVA, N.Y., TOWN CODE §§ 163-7(B)(6), (11)-(14) (2007).

⁹² HAMBURG, N.Y., TOWN CODE § 280-343 (C)(12)(a),(b) (2007).

⁹³ HAMBURG, N.Y., TOWN CODE § 280-343 (C)(10)(b) (2007).

⁹⁴ HAMBURG, N.Y., TOWN CODE § 280-343 (B)(h)[1] (2007).

blades could be thrown. (The basis of the calculation and all assumptions must be disclosed.)

(j) Blade throw calculations: a report from a licensed New York State professional engineer that calculates the maximum distance that pieces of the turbine blades could be thrown. (The basis of the calculation and all assumptions must be disclosed.)⁹⁵

TOWN OF POTSDAM, NEW YORK, WIND ENERGY CONVERSION SYSTEMS ORDINANCE

If a positive declaration of environmental significance is determined by the SEQRA lead agency, the following information shall be included in the draft environmental impact statement (DEIS) prepared for a wind energy facility. Otherwise, the following studies shall be submitted with the application:

(1) Shadow flicker: The applicant shall conduct a study on potential shadow flicker. The study shall identify locations where shadow flicker may be caused by the WECSs and the expected durations of the flicker at these locations. The study shall identify areas where shadow flicker may interfere with residences and describe measures that shall be taken to eliminate or mitigate the problems.

(2) Visual impact: Applications shall include a visual impact study of the proposed WECS as installed, which may include a computerized photographic simulation, demonstrating any visual impacts from strategic vantage points. Color photographs of the proposed site from at least two locations accurately depicting the existing conditions shall be included. The visual analysis shall also indicate the color treatment of the system's components and any visual screening incorporated into the project that is intended to lessen the system's visual prominence.

(3) Fire protection: a fire protection and emergency response plan, created in consultation with the fire department(s) having jurisdiction over the proposed Zone.

(4) Noise analysis: a noise analysis by a competent acoustical consultant documenting the noise levels associated with the proposed WECS. The study shall document noise levels at property lines and at the nearest residence not on the site (if access to the nearest residence is not available, the Town Board may modify this requirement). The noise analysis shall include low-frequency noise.

(5) Property value analysis: property value analysis shall be prepared by a licensed appraiser in accordance with industry standards, regarding the potential impact of values of properties neighboring WECS sites.

(6) Electromagnetic interference: an assessment of potential electromagnetic interference with microwave, radio, television, personal communication systems and other wireless communication.

(7) Transportation impacts: An analysis of impacts on local transportation shall be prepared, regarding impacts anticipated during construction, reconstruction,

⁹⁵ HAMBURG, N.Y., TOWN CODE §§ 280-343 (B)(i),(j) (2007).

modification, or operation of WECS. Transportation impacts to be considered shall include, at a minimum, potential damage to local road surfaces, road beds and associated structures; potential traffic tie-ups by haulers of WECS materials; impacts on school bus routes; impacts of visitors to the WECS facilities.

(8) Groundwater impacts: An analysis of impacts on local groundwater resources shall be prepared, regarding impacts anticipated during construction, reconstruction, modification or operation of WECS.

(9) Cultural resources: An analysis of impacts on cultural resources shall be prepared, regarding impacts anticipated during construction, reconstruction, modification or operation of WECS.

(10) Wildlife impacts: An analysis of impacts on local wildlife shall be prepared, regarding impacts anticipated during construction, reconstruction, modification or operation of WECS. Wildlife impacts to be considered shall include, at a minimum, anticipated impacts on flying creatures (birds, bats, insects), as well as wild creatures existing at ground level.⁹⁶

H. Wind Technology Certification Requirements

About half of municipalities include certification requirements in their wind ordinances. These requirements can include a range of design and electrical standards, as well as structural and safety elements. Municipalities can use certification requirements from federal regulations such as the National Building Code, the National Electric Code, and Institute of Electrical and Electronic Engineers (IEEE) standards. Other requirements might pertain to wind-turbine-specific design standards, including the International Electrotechnical Commission (IEC) standards for design and safety. Note that such requirements are no longer allowed under Article X for proposed facilities of 25 MW or greater capacity.

Sample Provisions:

TOWN OF GENEVA, NEW YORK, WIND ENERGY FACILITIES ORDINANCE

Certification by a registered professional engineer that the tower and base design is sufficient to withstand wind load requirements⁹⁷

⁹⁶ POTSDAM, N.Y., TOWN CODE §§ 108-9 (P)(1)-(10) (2008).

⁹⁷ GENEVA, N.Y., TOWN CODE § 163-7(B)(9) (2007).

Design safety certification. The design of the wind energy facility shall conform to applicable industry standards, including those of the American National Standards Institute. The applicant shall submit certificates of design compliance obtained by the equipment manufacturers from Underwriters Laboratories, Det Norske Veritas, Germanischer Lloyd wind Energies or other similar certifying organizations.⁹⁸

TOWN OF HAMBURG, NEW YORK, COMMERCIAL WIND ENERGY CONVERSION SYSTEMS

Certification. The applicant shall provide the following certifications:

(a) Certification of structural components. The foundation, tower, wind turbine, and compatibility of the tower with related equipment shall be certified in writing by a structural engineer registered in New York State. The engineer shall certify compliance with good engineering practices and compliance with the appropriate provisions of the Uniform Construction Code that have been adopted in New York State.

(b) Certification of postconstruction. After completion of the commercial WECS, the applicant shall provide a postconstruction certification from a licensed New York State professional engineer that the project complies with applicable codes and industry practices and has been completed according to the design plans.

(c) Certification of electrical system. The electrical system shall be certified in writing by an electrical engineer registered in New York State. The engineer shall certify compliance with good engineering practices and with the appropriate provisions of the Electric Code that have been adopted by New York State.

(d) Certification of wind turbine over-speed control. The wind turbine over speed control system shall be certified in writing by a mechanical engineer registered in New York State. The engineer shall certify compliance with good engineering practices.

(e) Certification of project. Certificate of completion must be supplied by the applicant and approved by the Town of Hamburg Code Enforcement Officer.⁹⁹

TOWN OF PERINTON, NEW YORK, WIND ENERGY CONVERSION ORDINANCE

For SWECDs, a noise assessment based on manufacturer's noise data as certified by the Small Wind Certification Council or other documentation acceptable to the Town and conducted in conformance with the guidance provided by the New York State Department of Environmental Conservation's Program Policy "Assessing and

⁹⁸ GENEVA, N.Y., TOWN CODE § 163-8(A) (2007).

⁹⁹ HAMBURG, N.Y., TOWN CODE § 280-343 (C)(17) (a)-(e) (2007)

Mitigating Noise Impacts" (DEP-00-1) shall be provided unless the Town requests additional measurements.¹⁰⁰

I. Electronic Signal Interference

Wind energy system development potentially can impact various modes of telecommunication. Some municipalities try to mitigate these impacts and reduce wind energy interference with over-the-air-television, microwave, RADAR, Cellular, PCS telephones, and AM radio. A municipal wind ordinance may require a wind developer to provide a certification or other written statement affirming that no electrical interference will occur. Other ordinances may require a wind developer to relocate a turbine or limit installation of turbines where they would cause such interference. Generally, most wind ordinances state that a system should not interfere with the various modes of telecommunication, and a developer should make a reasonable effort to reduce such interference. Note that these requirements are no longer applicable to proposed facilities applying under Article X.

Sample Provisions:

TOWN OF GENEVA, NEW YORK, TOWN CODE

No individual tower facility shall be installed in any location along the major axis of an existing microwave communications link where its operation is likely to produce electromagnetic interference in the link's operation. No individual tower facility shall be installed in any location where its proximity with existing fixed broadcast, retransmission or reception antennas (including residential reception antennas) for radio, television, or wireless phone or interference with signal transmission or reception.¹⁰¹

TOWN OF PERINTON, NEW YORK, TOWN CODE

No WECD shall be installed in any location where its proximity to existing fixed broadcast, retransmission or reception antenna (including residential reception antenna) for radio, television, wireless phone or other wireless communication systems would produce electromagnetic interference with signal transmission or reception.¹⁰²

¹⁰⁰ PERINTON, N.Y., TOWN CODE § 204-1 (G)(4) (2010).

¹⁰¹ GENEVA, N.Y., TOWN CODE §§ 163-14(A) - (B) (2007).

¹⁰² PERINTON, N.Y., TOWN CODE § 204-3(F) (2010).

TOWN OF POTSDAM, NEW YORK, TOWN CODE

No WECS shall be installed in any location where its proximity to existing fixed broadcast, retransmission, or reception antennas for radio, television, or wireless phone or other personal communication systems could produce electromagnetic interference with signal transmission or reception. No WECS shall be installed in any location along the major axis of an existing microwave communications link where its operation is likely to produce electromagnetic interference in the link's operation. If it is determined that a WECS is causing electromagnetic interference, the operator shall take the necessary corrective action to eliminate this interference, including relocation or removal of the facilities, or resolution of the issue with the impacted parties. Failure to remedy electromagnetic interference is grounds for revocation of the wind energy permit for the specific WECS or WECSs causing the interference."¹⁰³

J. Exemptions for Certain Types of Projects

Some municipal wind ordinances include exemption provisions for certain projects. Although no generic exemption section exists for municipal wind ordinances, municipalities generally offer exemptions for smaller wind projects. These exemptions or deviations from standards should not be contrary to public health, safety and welfare.

Sample Provisions:

TOWN OF POMPEY, NEW YORK, TOWN CODE

If an applicant does not satisfy all of the requirements of this section, a building permit shall be denied. However, the applicant may seek a variance from the Town of Pompey Zoning Board of Appeals for the construction and placement of the proposed small WECS."¹⁰⁴

TOWN OF POTSDAM, NEW YORK, TOWN CODE

No permit or other approval shall be required under this chapter for mechanical, nonelectrical WECS utilized solely for on-site agricultural operations;" Notwithstanding the requirement of this section, replacement in kind or

¹⁰³ POTSDAM, N.Y., TOWN CODE § 108-11(G) (2008).

¹⁰⁴ POMPEY, N.Y., TOWN CODE § 165-15(G) (2010).

modification of a wind energy facility may occur without Town Board approval when there will be: (1) No increase in total height of the WECS; (2) No change in the location of the WECS; (3) No additional lighting or change in facility color; and (4) No increase in noise produced by the WECS.¹⁰⁵

K. Meteorological (Met) Tower Requirements/Provisions

Meteorological towers typically are installed on a site to assess local wind speeds prior to the construction of a wind energy facility. These towers are typically 60 to 80 meters tall and have multiple monitoring devices at different heights to measure wind speed, direction and temperature. When a local wind ordinance includes met tower provisions, they are usually similar to the development process for small wind energy systems, which might include a special use permit application process or other zoning and local authorization requirements such as height limits, environmental considerations and permitted use periods.

Sample Provisions:

TOWN OF GENEVA, NEW YORK, WIND ENERGY FACILITIES

Meteorological (MET) tower construction. Meteorological towers shall be monopoles rather than lattice construction and shall use no guy-wires, where possible.¹⁰⁶

TOWN OF POTSDAM, NEW YORK, WIND ENERGY FACILITIES

Wind site assessment.

The Town Board acknowledges that prior to construction of a WECS, an assessment is typically needed to determine local wind speeds and the feasibility of using particular sites. Installation of wind measurement towers, also known as anemometer ("met") towers, shall be permitted as special uses, but shall not be limited to those areas delineated as Wind Overlay Zones.¹⁰⁷

Applications. An application for a wind measurement tower shall include:

¹⁰⁵ POTSDAM, N.Y., TOWN CODE §§ 108-5(F), (H)(1) – (4) (2008).

¹⁰⁶ GENEVA, N.Y., TOWN CODE §163-8 (H) (2007).

¹⁰⁷ POTSDAM, N.Y., TOWN CODE §108-19 (2008).

A. Name, address and telephone number of the applicant. If the applicant is represented by an agent, the application shall include the name, address, and telephone number of the agent as well as an original signature of the applicant authorizing the representation.

B. Name, address and telephone number of the property owner. If the property owner is not the applicant, the application shall include a letter or other written permission signed by the property owner:

(1) Confirming that the property owner is familiar with the proposed applications; and

(2) Authorizing the submission of the application.

C. Address of each proposed tower site, including Tax Map section, block, and lot number.

D. A site plan.

E. A decommissioning plan, including a security bond or cash for removal.¹⁰⁸

Standards.

A. The distance between a wind measurement tower and the property line shall be at least 1.5 times the total height of the tower. Sites can include more than one piece of property and the requirement shall apply to the combined properties. Exceptions for neighboring property are also allowed with the consent of those property owners.

B. Special use permits for wind measurement towers may be issued for a period of up to 26 months. Permits may be renewed if the facility is in compliance with the conditions of the special use permit.

C. Anchor points for any guy wires for a wind measurement tower shall be located within the property that the system is located on and not on or across aboveground electric transmission or distribution lines. The point of attachment for the guy wires shall be sheathed in bright orange or yellow covering for three feet to eight feet above the ground.

D. The New York State Department of Agriculture and Markets guidelines for agricultural mitigation for wind farm projects shall be adhered to both inside and outside of agricultural districts. . .

I. SEQRA review. Applications for wind measurement towers are deemed unlisted projects under SEQRA. The Planning Board may conduct its SEQRA review in conjunction with other agencies, in which case the records of review by said communities shall be part of the record of the Planning Board's proceedings. The Planning Board may require an escrow agreement for the engineering and legal

¹⁰⁸ POTSDAM, N.Y., TOWN CODE §108-20 (2008).

review of the applications and any environmental impact statements before commencing its review.¹⁰⁹

L. Public Hearing/Notice Requirements

Although wind ordinances do not always contain public hearing provisions because they often are included in the permitting process, the public hearing and notice process is very important to the success of new wind legislation. Some municipal wind ordinances that explicitly mandate public hearings or notice require a public hearing prior to issuing a permit for a wind energy project. In addition, some local wind legislation includes requirements for public hearings during the environmental review process, for natural resources review, or when dealing with matters of noncompliance and remedial action. Note that public hearings for larger wind farm proposals are defined under Article X; thus, local municipal hearing requirements will only be valid for projects of less than 25 MW capacity.

TOWN OF HAMBURG, NEW YORK, COMMERCIAL WIND ENERGY CONVERSION SYSTEMS (WECS)

Findings necessary to grant a commercial WECS permit. In order to grant a commercial WECS permit, the Town of Hamburg shall review the application, all filings by any other party, and conduct a public hearing. A commercial WECS special use permit shall not be granted unless the Town of Hamburg Planning Board makes the following findings based on substantial evidence. . .¹¹⁰

TOWN OF POMPEY, NEW YORK, SMALL WIND ENERGY CONVERSION SYSTEMS

(b) Public hearing. Notwithstanding any other abatement provision of this section, if the small WECS is not brought into permit compliance after notice from the Town, the Town Board may, after a public hearing at which the operator or owner shall be given opportunity to be heard and present evidence, including a plan to come into compliance, order either remedial action within a particular time frame or revocation of the wind energy permit for the WECS and require the removal of the WECS within 90 days.¹¹¹

¹⁰⁹ POTSDAM, N.Y., TOWN CODE §108-22 (I) (2008).

¹¹⁰ HAMBURG, N.Y., TOWN CODE § 280-343 (F)(1) (2007).

¹¹¹ POMPEY, N.Y., TOWN CODE § 165-15 (I)(1)(B) (2010).

CATEGORY: DEFINITIONS

Description: *Wind ordinances generally contain specialized definitions sections that are unique to the field. These definitions can help specify uses that depend on the scale of a project, such as small, medium or large wind. Further, definitions help developers and residents understand which language in an ordinance applies to the desired wind energy development. Some of the more common and important provisions are categorized below.*

A. Wind Energy System/Facility

TOWN OF GENEVA, NEW YORK, TOWN CODE

WIND ENERGY FACILITY

An electric generating facility, whose main purpose is to supply electricity, consisting of one or more wind turbines and other accessory structures and buildings, including substations, meteorological towers, electrical infrastructure, transmission lines and other appurtenant structures and facilities.¹¹²

TOWN OF HAMBURG, NEW YORK COMMERCIAL WIND ENERGY CONVERSION SYSTEMS

WIND ENERGY CONVERSION SYSTEM

One or more mechanical devices which are designed and used to convert wind energy into a form of electric energy. . . .

WIND ENERGY FACILITY

Any wind energy conversion system, wind measurement tower, or wind energy system, including all related infrastructure, electrical lines and substations, access roads, and accessory structures¹¹³

TOWN OF PERINTON, NEW YORK, TOWN CODE

¹¹² GENEVA, N.Y., TOWN CODE § 163-2 (2007).

¹¹³ HAMBURG, N.Y., TOWN CODE § 280-342 (2007).

Wind Energy Conversion Facility. Any installation of one or more WECDs including all related infrastructure, electrical lines and substations, access roads and accessory structures.¹¹⁴

TOWN OF POTSDAM, NEW YORK, TOWN CODE

Wind Energy Facility. Any wind energy conversion system, small wind energy conversion system, or wind measurement tower, including all related infrastructure, electrical lines and substations, access roads and accessory structures.¹¹⁵

TOWN OF WAWAYANDA, NEW YORK WIND ENERGY CONVERSION SYSTEMS REGULATIONS

Wind energy conversion system(s)

Any mechanism designed for the purpose of converting wind energy into electrical energy. A WECS may include one or more wind turbines, towers, associated control or conversion electronics, transformers, and/or other maintenance or control facilities or other components used in the system. A WECS may be a commercial wind energy conversion system, a residential wind energy conversion system or an industrial wind energy conversion system.¹¹⁶

B. Small Wind Energy System

TOWN OF GENEVA, NEW YORK, TOWN CODE

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 250 kW and which is intended to primarily reduce on-site consumption of utility power.¹¹⁷

TOWN OF PERINTON, NEW YORK, TOWN CODE

¹¹⁴ PERINTON, N.Y., TOWN CODE § 204-2 (2010).

¹¹⁵ POTSDAM, N.Y., TOWN CODE § 108-6 (2008).

¹¹⁶ WAWAYANDA, N.Y., TOWN CODE § 195-42(B) (2009).

¹¹⁷ GENEVA, N.Y., TOWN CODE § 163-2 (2007).

Wind Energy Conversion Device. A WECD which has a rated capacity of not more than 10 kW, is not more than 65 feet in total height from the ground surface to the maximum height of any component of the system, and is intended to primarily reduce on-site consumption of utility power.”¹¹⁸

TOWN OF POMPEY, NEW YORK SMALL WIND ENERGY CONVERSION SYSTEM

Small Wind Energy Conversion System. A wind energy conversion system consisting of a wind generator, wind tower, and associated control or conversion electronics that is accessory to the principle use.¹¹⁹

TOWN OF POTSDAM, NEW YORK, TOWN CODE

Small Wind Energy Conversion 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 kW and which is intended to primarily generate on-site power or reduce on-site consumption of utility power.”¹²⁰

C. Medium Wind Energy System

Town of PERINTON, NEW YORK, WIND ENERGY CONVERSION SYSTEMS

Medium Wind Energy Conversion Device (MWECD). A WECD which can have a rated capacity more than 10 kW, but is not more than 200 feet in total height from the ground surface to the maximum height of any component of the system, and which is intended to primarily reduce on-site consumption of utility power.¹²¹

GEORGIA MODEL WIND ORDINANCE FOR ENERGY FACILITIES

‘Wind Energy Facility, Class II System’ is a single system designed to supplement other electricity sources as an accessory use to existing buildings or facilities, wherein the power generated is used primarily for on-site consumption. A Class II

¹¹⁸ PERINTON, N.Y., TOWN CODE § 204-2 (2010).

¹¹⁹ POMPEY, N.Y., TOWN CODE § 165-15(D) (2010).

¹²⁰ POTSDAM, N.Y., TOWN CODE § 108-6 (2008).

¹²¹ PERINTON, N.Y., TOWN CODE § 204-2 (2010).

System is a small wind energy conversion system consisting of a single wind turbine, a tower, and associated control or conversion electronics, which has a total rated capacity of more than 20 kW but no greater than 100 kW.¹²²

D. Large Wind Energy System

TOWN OF PERINTON, NY, WIND ENERGY CONVERSION SYSTEMS

Large Wind Energy Conversion Device (LWECD). A WECD which primarily generates power on-site to be transferred to a transmission system for distribution to offsite customers or for sale to a distribution company. The definition of LWECD shall also include WECDs erected and used for private use if the maximum height of any system component is greater than 200 feet from the ground surface.¹²³

GEORGIA MODEL WIND ORDINANCE FOR ENERGY FACILITIES

‘Wind Energy Facility, Class III System’ is a wind energy conversion system consisting of one or more wind turbine(s), a tower(s), and associated control or conversion electronics, which has a total rated capacity of more than 100 kW but not greater than 2 MW.¹²⁴

‘Wind Energy Facility, Class IV System’ is a wind energy conversion system consisting of one or more than one wind turbine(s), a tower(s), and associated control or conversion electronics, which has a total rated capacity of more than 2 MW.¹²⁵

E. Tower Height

TOWN OF GENEVA, NEW YORK, WIND ENERGY FACILITIES

¹²² GEORGIA WIND WORKING GROUP, MODEL WIND ORDINANCE FOR ENERGY FACILITIES § 3(L) (2010), http://www.gawwg.org/images/GA_Model_Wind_Ordinance_March_2010.pdf.

¹²³ PERINTON, N.Y., TOWN CODE § 204-2 (2010).

¹²⁴ GEORGIA WIND WORKING GROUP, MODEL WIND ORDINANCE FOR ENERGY FACILITIES § 3(M) (2010), http://www.gawwg.org/images/GA_Model_Wind_Ordinance_March_2010.pdf.

¹²⁵ GEORGIA WIND WORKING GROUP, MODEL WIND ORDINANCE FOR ENERGY FACILITIES § 3(N) (2010), http://www.gawwg.org/images/GA_Model_Wind_Ordinance_March_2010.pdf.

Tower Height. The height above grade of the fixed portion of the tower, excluding the wind turbine itself.¹²⁶

TOWN OF HAMBURG, NY COMMERCIAL WIND ENERGY CONVERSION SYSTEMS

Tower Height: The height above grade of the uppermost fixed portion of the tower, excluding the length of any axial rotating turbine blades¹²⁷

TOWN OF POTSDAM, NEW YORK, TOWN CODE

Total Height. The height of the tower and the furthest vertical extension of the WECS.¹²⁸

TOWN OF WAWAYANDA, NEW YORK, WIND ENERGY CONVERSION SYSTEMS REGULATIONS

Tower Height: The total height of a structure from natural grade to the tip of the blade at extreme vertical position.¹²⁹

F. Rotor Diameter

TOWN OF POMPEY, NEW YORK, SMALL WIND ENERGY CONVERSION SYSTEM

Diameter of the circle swept by the tips of the rotating blades of a small WECS.¹³⁰

WISCONSIN MODEL WIND ORDINANCE FOR TOWNS/COUNTIES

‘Rotor diameter’ means the cross sectional dimension of the circle swept by the rotating blades.”¹³¹

¹²⁶ GENEVA, N.Y., TOWN CODE § 163-2 (2007).

¹²⁷ HAMBURG, N.Y., TOWN CODE § 280-342 (2007).

¹²⁸ POTSDAM, N.Y., TOWN CODE § 108-6 (2008).

¹²⁹ WAWAYANDA, N.Y., TOWN CODE § 195-42(B) (2009).

¹³⁰ POMPEY, N.Y., TOWN CODE § 165-15(D) (2010).

¹³¹ WISCONSIN MODEL WIND ORDINANCE FOR TOWNS/COUNTIES § 2 (2007), http://www.doa.state.wi.us/docs_view2.asp?docid=2869.

G. Environmental Assessment

Town of POTSDAM, NEW YORK, TOWN CODE

SEQRA. The New York State Environmental Quality Review Act and its implementing regulations in Title 6 of the New York Codes, Rules and Regulations, Part 617.¹³²

TOWN OF WAWAYANDA, NEW YORK, WIND ENERGY CONVERSION SYSTEMS REGULATIONS

Environmental Assessment. The environmental assessment form, as defined in 6 NYCRR Part 617.¹³³

GEORGIA MODEL WIND ORDINANCE FOR ENERGY FACILITIES

‘Environmental Assessment’ is a detailed examination of the applicant’s proposal and its potential local environmental context with an emphasis on avoiding, minimizing, and mitigating adverse impacts.¹³⁴

H. Occupied Building

TOWN OF GENEVA, NEW YORK, TOWN CODE

Occupied Building. A residence, barn, shop, garage, school, hospital, church, public library or other building used for public gathering that is occupied or in use when the permit application is submitted.”¹³⁵

TOWN OF POTSDAM, NEW YORK, TOWN CODE

Residence. Any dwelling suitable for habitation existing in the Town of Potsdam on the date an application is received. A residence may be part of a multidwelling or multipurpose building, and shall include buildings such as hunting camps, seasonal residences, hotels, hospitals, motels, dormitories, sanitariums, nursing homes,

¹³² POTSDAM, N.Y., TOWN CODE § 108-6 (2008).

¹³³ WAWAYANDA, N.Y., TOWN CODE § 195-42(B) (2009).

¹³⁴ GEORGIA WIND WORKING GROUP, MODEL WIND ORDINANCE FOR ENERGY FACILITIES § 3(B) (2010), http://www.gawwg.org/images/GA_Model_Wind_Ordinance_March_2010.pdf.

¹³⁵ GENEVA, N.Y., TOWN CODE § 163-2 (2007).

schools, or other buildings used for educational purposes, or correctional institutions.”¹³⁶

TOWN OF HAMBURG, NEW YORK COMMERCIAL WIND ENERGY CONVERSION SYSTEMS

A combination of any materials, whether portable or fixed, having a roof, to form a structure affording shelter for persons, animals or property. The word "building" shall be construed, when used herein, as though followed by the words "or part or parts thereof" unless the context clearly requires a different meaning.¹³⁷

I. Shadow Flicker

TOWN OF WAWAYANDA, NEW YORK, WIND ENERGY CONVERSION SYSTEMS REGULATIONS

Shadow Flicker. The motion of the shadow of wind turbine blades as they rotate.¹³⁸

GEORGIA MODEL WIND ORDINANCE FOR ENERGY FACILITIES

‘Shadow Flicker’ is the visible flicker effect when rotating turbine blades cast shadows on the ground and nearby structures causing the repeating pattern of light and shadow.¹³⁹

¹³⁶ POTSDAM, N.Y., TOWN CODE § 108-6 (2008).

¹³⁷ HAMBURG, N.Y., DEFINITIONS AND WORD USAGES § 280-342

¹³⁸ WAWAYANDA, N.Y., WIND ENERGY CONVERSION SYSTEMS REGULATIONS § 195-42(B)

¹³⁹ GEORGIA WIND WORKING GROUP, MODEL WIND ORDINANCE FOR ENERGY FACILITIES § 3(I),

[HTTP://WWW.GAWWG.ORG/IMAGES/GA_MODEL_WIND_ORDINANCE_MARCH_2010.PDF](http://www.gawwg.org/images/GA_Model_Wind_Ordinance_March_2010.pdf).