

Ordinance No. \_\_\_\_

AN AMENDMENT TO THE PENN FOREST TOWNSHIP ZONING ORDINANCE  
TO REPLACE EXISTING REGULATIONS FOR WIND TURBINES, OTHER  
THAN TURBINES ALLOWED AS AN ACCESSORY USE

Under the authority and procedures of the Pennsylvania Municipalities Planning Code, as amended, the Board of Supervisors of Penn Forest Township, Carbon County, Pennsylvania hereby approve the following amendment to the Penn Forest Township Zoning Ordinance:

**Part One.** The existing provisions in Section 402.A.54. regarding Wind Turbines are hereby replaced with the following new text:

**“54. Wind turbines, Other than is Allowed for Wind Turbine as an Accessory Use by Section 403 (This section regulates, among other items, a wind turbine as a principal use or in most cases 2 or more wind turbines per lot).**

- a. Purposes. These provisions are intended to provide compatibility between wind turbines and adjacent uses by establishing substantial setbacks and controls on noise, shadow flicker and other adverse effects, as well as to minimize potential hazards.
- b. Residential Lot. For the purposes of this subsection 402.A.54, the term “Residential Lot” shall mean: a) a lot that is occupied by a principal existing dwelling unit, or b) a lot that is residentially zoned, is undeveloped, is not owned by a governmental entity, and has a lot area of less than 10 acres.
- c. Setbacks and Maximum Height. The wind turbine shall be set back from the lot line of a “Residential Lot” a distance not less than four times the maximum height to the top of the maximum sweep of the blade of the turbine, unless a written waiver is provided by the owner of such lot. The turbine height shall be the measured from the ground level. The setback shall be measured from the base of the turbine to the nearest lot line.
  - (1) Unless a larger setback is required by another provision of this Section, all wind turbines shall be set back from each lot line and each street right-of-way a minimum distance equal to 1.1 times the total height to the top of the maximum sweep of the blade of the turbine. However, a setback from a lot line may be reduced if a written waiver is provided by the owner of such adjacent lot.
  - (2) Unless a larger setback is required by another provision of this Section, if a wind turbine has a total height to the top of the maximum sweep of the blade of the turbine of greater than 250 feet above the adjacent

ground level, it shall have a minimum setback from a "Residential Lot" of 1,500 feet.

(3) The maximum height to the top of the maximum sweep of the blade of a wind turbine above the adjacent ground level shall be 350 feet.

d. Waterway Setbacks. The base of any wind turbine shall be setback the following minimum distances: a) 500 feet from the centerline of a perennial waterway, b) 2,000 feet from the average water level of a public water supply reservoir, and c) 500 feet from any wetland of more than 0.25 acres in size.

e. Removal. The owner of wind turbines shall completely remove all above-ground structures and all below-ground improvements that are less than 3 feet below the ground level within 9 months after any wind turbine(s) are no longer used to generate electricity. If the owner of the wind turbines fails to complete the removal, then the Board of Supervisors may require that the landowner accomplish the removal. Upon the request of either the owner of the wind turbines or the landowner, this time limit may be extended to a total of 12 months by the Board of Supervisors if the owner is showing a good faith effort to comply. Driveways shall be removed and disturbed earth shall be re-seeded, unless the applicant provides evidence in writing to the Board of Supervisors that a particular feature is needed to serve a new approved use.

(1) The wind turbines(s), the below ground improvements and the driveways to be removed shall be collectively referred to as "Items Subject to Removal."

(2) Prior to the issuance of a Building Permit to construct the Items Subject to Removal, the owner of the turbines shall obtain and deliver to the Township a letter of credit or similar financial assurance acceptable to the Township to secure performance of the owner's obligation to remove the Items Subject to Removal. This financial assurance shall be known as the "Removal Bond."

(3) The Removal Bond shall be equal in value to 110% of the estimated amount of the costs to remove the Items Subject to Removal. The owner shall re-evaluate the amount of the Removal Bond at least once every five years after the initial estimate was submitted to the Township. A copy of the revised evaluation shall be submitted in writing to the Township. The estimates of the costs shall be provided by an independent licensed Professional Engineer, with the costs of the evaluation paid by the owner. The qualifications of such person(s) who will complete the estimate shall be provided in writing in advance to the Board of Supervisors, and shall be subject to acceptance by the

Board of Supervisors, provided such acceptance shall not be unreasonably withheld.

- (4) If a Township Municipal Code Official has reason to believe that a wind turbine has become a safety hazard, the Municipal Code Official shall send an order in writing to the owner of the wind turbine to require the owner to provide evidence within 7 days that the wind turbine is safe, or is actively being repaired to become safe. If the Municipal Code Official determines that insufficient efforts are being made by the owner in a timely manner to resolve safety hazards, the Municipal Code Official may require that the wind turbine be removed within a reasonable maximum period of time stated in writing by the Municipal Code Official, considering the severity of the hazard.
- f. Minimum Height. The minimum height of the lowest position of the wind rotor shall be 25 feet above the ground. Wind turbines shall not be climbable for at least the first 12 feet above the ground level.
- g. Codes. The wind turbine and its installation shall meet applicable regulations of the Uniform Construction Code and the National Electrical Code. The safety features of the wind turbine shall be certified by Underwriters Laboratory or an equivalent independent organization. Any new electrical wiring shall be underground, to the maximum extent feasible.
- h. Standards. The design of the wind turbines and related on-site facilities shall conform to applicable written 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 independent certification organizations.
- i. High Winds. Wind turbines shall be equipped with a redundant braking system to address high winds. This shall include both aerodynamic overspeed controls (including variable pitch, tip and other similar systems) and mechanical brakes. Mechanical brakes shall be operated in a fail safe mode. Stall regulation shall not be considered a sufficient braking system for overspeed protection.
- j. Colors. The color of the wind turbine should be non-obtrusive, such as white, off-white or gray, unless the applicant shows that an alternative is necessary to reduce hazards to birds and bats.
- k. Lighting and FAA Approval. Wind turbines shall meet any lighting requirements of the Federal Aviation Administration (FAA). Any other exterior lighting visible from beyond the property, other than security lighting, shall be described on the plans and be subject to approval by the

Zoning Hearing Board. The applicant shall provide evidence of the successful completion of FAA review and issuance of any required FAA approval prior to receiving building permits.

- l. Signs. Wind turbines shall not display any advertising, except for a single sign of up to 5 square feet to identify the manufacturer. Safety warning signs and emergency contact information signs may also be displayed.
- m. Warning Sign. At least one warning sign shall be placed near any electrical transformer or substation.
- n. Guy Wires. If guy wires are used, and they are not within a fence, they shall be marked near their base with reflectors, flags, reflective tape or similar method.
- o. Interference. The Applicant shall make reasonable efforts to avoid any disruption or loss of radio, telephone or similar signals and shall mitigate any such harm caused by the Wind Turbines. For example, the applicant may be required to provide a resident with an alternative method of receiving television signals if there is significant interference.
- p. Support Facilities. Accessory electrical facilities are allowed, such as a transformer or mechanical buildings, provided they meet principal building setbacks. In addition, an accessory building may house necessary maintenance and safety equipment, provided it is setback a minimum of 200 feet from any exterior lot line. Landscaped visual screening shall surround any buildings or electrical substations, except at a driveway crossing. Such screening shall primarily include evergreen trees with an initial height of 6 feet. Such planting shall be outside of any fence around such buildings or electrical substations.
- q. Forest Preservation. The site plan shall show proposed driveways, turbines and areas of woods proposed to be cleared or preserved. The delineation of areas of woods to be cleared or preserved shall be binding upon the project, unless a revised plan is later submitted for approval. The applicant shall show that the clearance of woods has been held to a reasonable minimum, and in no case shall there be clearance of more than 10 percent of the total woodland area on the tract for the use.
- r. Noise. The audible sound from the wind turbine(s) shall not exceed 45 A-weighted decibels, and shall also not exceed 45 C-weighted decibels, as each is measured at the lot line of a "Residential Lot," unless a written waiver is provided by the owner of such dwelling. This requirement shall be a maximum noise level using a Lmax standard, and not based upon an average. The modeling of noise shall follow published standards for precision of the American Wind Energy Association.

- (1) The above maximum noise limits shall be reduced to 42 A-weighted and 42 C-weighted decibels between the hours of 10 pm and 7 am. However, the noise limits shall not be reduced below 45 decibels where the applicant provides evidence that the current continuous background (ambient) sound level without the wind turbines would be higher than 42 decibels.
- (2) All required noise studies and testing shall be completed by a qualified independent professional specializing in noise analysis. The qualifications of the person(s) conducting the analysis shall be included in the special exception application. ANSI standards shall be used for calibration of the noise meter.
- (3) With the special exception application, the applicant shall provide a written noise study that projects the maximum sound levels at the nearest five (5) dwellings, and that recommends measures that may be used as conditions by the Zoning Hearing Board to minimize noise impacts. The noise study shall document compliance with the A- and C-weighted decibels level requirements of this Section.
- (4) The applicant shall provide an independent written test of actual noise produced by the project upon completion, and every 2 subsequent years after the project is completed, to document compliance with the noise standards in this Section. If the project will involve more than 10 total wind turbines, then the noise study shall also be completed after each 10 wind turbines are put into service. If the testing finds that the noise levels in this Section are being violated, then the owner of the wind turbines shall immediately take the wind turbine(s) out of service until such modifications, replacements, or repairs are made to the wind turbine(s) as are required or necessary to make them comply with the noise levels of this Section.
- (5) In addition to the noise studies provided above, at any time when the Zoning Officer has reasonable cause to believe that the noise limits of this Ordinance are being violated, the Zoning Officer may request that the Township or its authorized agents conduct its own tests to ascertain compliance with the noise limits. If the tests do not find a violation, then the Township shall be responsible to pay for the costs of such Township-sponsored tests.
- (6) If the Township institutes an enforcement action because of a violation of the noise limits, and if the owner is found liable for the violation in a civil enforcement proceeding, then in addition to any other rights or remedies available to the Township, the judgement shall require the owner of the project to pay all of the Township's reasonable costs and

expenses to prove non-compliance with the noise requirements, including the tests to determine the noise levels. Such costs shall be paid within 30 days by the owner of the project after the final judgement. In the event the owner does not pay such costs within 30 days, the Township may pursue appropriate remedies at law or equity to recover such costs and expenses from the owner, including placing a municipal lien against the property upon which the project is located.

- s. Land Development Approval. "Land development" approval shall be needed for the installation of two or more wind turbines.
- t. Hydrogeologic. If a cumulative total of 2 or more wind turbines are planned to be installed on any lot existing on the effective date of this Amendment, including any new lot which may be created from an existing lot by subdivision or otherwise after the effective date of this Amendment, the applicant shall provide a hydrogeologic study by a qualified professional. Such study shall consider impacts of the project upon groundwater recharge, adjacent water supplies and water quality, and include recommendations for conditions that may be established by the Zoning Hearing Board to minimize negative impacts. While it is recognized that a municipality does not have the authority to regulate blasting operations, the hydrogeologic study shall also consider potential impacts of blasting upon groundwater supplies and wetlands.
- u. Birds and Bats. If a cumulative total of 2 or more wind turbines are planned to be installed on any lot existing on the effective date of this Amendment, including any new lot which may be created from an existing lot by subdivision or otherwise after the effective date of this Amendment, the applicant shall provide an analysis of the impacts of the project upon birds and bats, by a qualified professional. Such study shall include recommendations for conditions that may be established by the Zoning Hearing Board to minimize negative impacts.
- v. Shadow Flicker. The applicant shall provide an analysis with a map of the shadow flicker impacts of the project upon any dwellings that will be impacted by this effect. The analysis shall be conducted by a qualified professional using generally accepted modeling methods, and shall estimate the number of hours per year that dwellings will be impacted by shadow flickering. No lot line of a lot occupied by a dwelling and no outdoor recreation field, outdoor recreation court or outdoor playground within a public park or homeowner association recreation area shall be affected by shadow flicker for a total of more than 20 hours per year, and no more than 30 total minutes per day. This requirement shall only apply to dwellings and recreational facilities that existed at the time of submission of initial site plans to the Township. Such analysis shall include recommendations for conditions that may be established by the Zoning Hearing Board to

minimize the number of affected dwellings or recreational facilities, the hours affected and the severity of the impacts from shadow flicker. This provision shall not apply to a dwelling or recreational facility if a written and signed waiver is provided by the owner of an affected property.

- (1) In addition to the analysis provided above, at any time when the Zoning Officer has reasonable cause to believe that the shadow flicker is in violation of this subsection, the Zoning Officer may request that the Township or its authorized agents conduct its own tests to ascertain compliance with the shadow flicker provisions of this subsection. If the tests do not find a violation, then the Township shall be responsible to pay for the costs of such Township-sponsored tests.
  - (2) If the Township institutes an enforcement action because of a violation of this subsection, and if the owner is found liable for the violation in a civil enforcement proceeding, then in addition to any other rights or remedies available to the Township, the judgement shall require the owner of the project to pay all of the Township's reasonable costs and expenses to prove non-compliance with the shadow flicker requirements, including the tests to determine the amount/times of shadow flicker. Such costs shall be paid within 30 days by the owner of the project after the final judgement. In the event the owner does not pay such costs within 30 days, the Township may pursue appropriate remedies at law or equity to recover such costs and expenses from the owner, including placing a municipal lien against the property upon which the project is located.
- w. Traffic. The applicant shall submit a traffic study, which shall identify the public roads to be used for the construction, operation or maintenance of the wind turbine project, and which analyzes how such traffic will be safely accommodated on public roads, considering the length and weight of truck loads, the weight limits of bridges, the geometry of intersections and the slope of roads. The applicant shall have the burden of proof of showing that the route will be able to safely accommodate the traffic without creating hazards or damage to roads or bridges.
- (1) The Penn Forest Township Engineer, or a qualified third party engineer hired by Penn Forest Township and paid for by the applicant, shall document road conditions prior to construction. Such engineer shall document road conditions again within 30 days after construction is complete, or as weather permits.
  - (2) Penn Forest Township may bond the road in compliance with State regulations.

- (3) Any road damage caused by the applicant or its contractors shall be promptly repaired at the Applicant's expense.
  - (4) The Applicant shall demonstrate that it has appropriate financial resources to ensure prompt repair of damaged roads.
- x. Emergencies. The applicant shall submit an emergency response plan, which shall address matters such as firefighting. The emergency response plan shall be submitted to local fire officials for comment, and shall be found to be acceptable by the Zoning Hearing Board. The Zoning Hearing Board may establish reasonable conditions to address fire hazards. The applicant shall offer to provide training to local emergency responders in the proper response to on-site hazards, at no cost to the Township. If locked gates control access to the property, Township fire officials shall be provided with keys, security codes or similar methods to access the property in an emergency.
- (1) The owner of the turbines shall prepare and submit a Spill Prevention and Control program. Sufficient equipment shall be kept on-site to contain reasonably expected spills from the turbines into the groundwater or surface waters, or such equipment shall be funded as necessary by the applicant if it will be maintained by one or more emergency service providers in the vicinity.
- y. Lightning and Fire Hazards. The project shall include suitable measures to reduce hazards from lightning strikes and other fire hazards. Examples of these types of measures may include, but are not limited to: use of non-combustible oils, heat barriers around combustible materials, smoke fire detection systems inside the turbines, and/or fire suppression systems. Those measures shall be described in writing as part of the application, and may be made a condition of approval.
- z. Property Values. If a cumulative total of 2 or more wind turbines are planned to be installed on any lot existing on the effective date of this Amendment, including any new lot which may be created from any existing lot by subdivision or otherwise after the effective date of this Amendment, the applicant shall submit an analysis by a qualified appraiser of the actual impacts upon residential property values of a similar set of wind turbines in a mostly rural community within the United States.
- (1) Such analysis shall compare changes in property values of impacted dwellings to changes in property values of non-impacted dwellings over the same time period. Properties within a one mile radius of a wind farm shall be considered, as well as properties outside that radius. The study shall be completed by an appraiser who has an active MAI, SRA or SRPA certification from the Appraisal Institute. The appraiser must also have a Pennsylvania appraiser license. Such analysis shall include



recommendations for conditions that may be established by the Zoning Hearing Board to minimize the impact upon residential property values.

- aa. Ice Hazards. The Zoning Hearing Board may place conditions upon an approval to address ice throw hazards, such as requiring mechanisms to sense heavy ice build-up, and which allow remote-controlled or automatic shutdown of turbine blades.
- bb. Visual Analysis. The applicant shall present an analysis of the visual impacts of the project. This analysis shall accurately illustrate the visual impact from 5 different locations, as viewed from 2 public roads and from 3 dwellings in various areas that will experience the greatest impacts. Additionally, the applicant shall present to the Zoning Hearing Board a three-dimensional computer generated surface model that accurately depicts the wind turbines in proper scale and location in relationship to the surrounding terrain. No less than 5 viewpoints, at such locations as may be determined by the Zoning Hearing Board, shall be presented.
- cc. Expert Credentials. The qualifications of experts who provide information or testimony regarding compliance with technical standards of this Section shall be provided to the Zoning Officer and the Zoning Hearing Board. The Zoning Hearing Board shall have the authority to determine the credibility of the testimony and reports of various experts and may weigh the value of the testimony and reports as a result.
- dd. Fencing and Security. The applicant shall show the locations and describe the height and materials of the fencing that is proposed. The Zoning Hearing Board may require additional fencing of up to 8 feet height enclosing the individual wind turbines and related equipment as a condition, if determined to be needed for security reasons. Elevator doors servicing wind turbines shall have secure locks.
- ee. Inspections. The owner of the wind turbines shall engage a Professional Engineer to inspect the wind turbines to ensure they are structurally sound and operating properly. If the inspection report recommends that repairs or maintenance be completed, the owner of the wind turbines shall provide a written schedule to the Township for completion of the work. Such inspections shall occur a minimum of once every 2 years after a wind turbine becomes operational. A copy of the inspection report shall be provided in writing to the Township.
- ff. Electrical Setbacks. Each wind turbine shall be setback a minimum distance of 1.1 times the total height to the top of the maximum sweep of the blade of the turbine from any above-ground electric power line, telecommunications line or pole or tower that supports such line. This requirement shall not apply for a line that may be approved to be connected

to a turbine and that would not adversely affect other customers if the line was damaged.

- gg. Ridgetops. Where practical and feasible considering wind conditions and topography, and where other alternatives exist, the applicant shall show that they have worked to minimize the number of wind turbines placed along the tops of the most visually prominent ridgelines, as viewed from public roads and existing dwellings.
- hh. Insurance. During all times of on-site construction and operation and until completion of removal, the owner of the wind turbines shall maintain a current general liability insurance policy covering bodily injury and property damage, with a minimum limit of \$1 million per occurrence and \$2 million in the aggregate. Certificates shall be made available to the Board of Supervisors of Penn Forest Township upon request.
- ii. Complaints. The operator shall publicize the phone number, mailing address and email address of a specific contact person who is authorized to receive complaints and questions from neighbors and Township officials on behalf of the operator. Such information shall be sent by first class mail to all property-owners of lots within 300 feet of the exterior lot line of any lot on which wind turbines are located. Such mailing shall occur prior to commencing of operations and at any subsequent time when the phone number, mailing address or email address may change. Such person or their designee shall regularly respond to such complaints and questions.
- jj. Natural Diversity. The applicant shall complete a Pennsylvania Natural Diversity Inventory search for the affected land areas, and submit the results of that search and any follow-up written communications from state or federal agencies on the matter to the Zoning Hearing Board.

**Part Two. Repealer.** All ordinances or parts thereof inconsistent with the provisions of this Ordinance Amendment are hereby repealed to the extent of the inconsistency.

**Part Three. Severability.** The provisions of this Ordinance Amendment are declared to be severable. If any provision of this Ordinance Amendment is declared by a court of competent jurisdiction to be invalid or unconstitutional, such determination shall have no effect on the remaining provisions of this Ordinance Amendment or other sections of the Zoning Ordinance.

**Effective Date.** This Ordinance shall be effective five calendar days following its enactment.

**This Ordinance is hereby ENACTED and ORDAINED** this \_\_\_\_\_  
date of \_\_\_\_\_.

ATTEST:

**BOARD OF SUPERVISORS OF  
PENN FOREST TOWNSHIP**

\_\_\_\_\_  
Township Secretary

\_\_\_\_\_  
Chairperson