

**BROCKWAY TOWNSHIP**

**ORDINANCE TO AMEND ZONING ORDINANCE  
REGARDING WIND ENERGY CONVERSION SYSTEMS**

**ORDINANCE NO. 2024-15**

**BROCKWAY TOWNSHIP ORDAINS:**

**Section 1. Purpose.**

Brockway Township (the "Township") adopts the following revisions to the Township's Zoning Ordinance for the health, safety, and welfare of Township residents.

**Section 2. Amendment of Zoning Ordinance**

The Zoning Ordinance is hereby amended to add a new Section 14.53 which reads as follows:

**SECTION 14.53: WIND ENERGY CONVERSION SYSTEMS (WECS)**

**1. Findings and Purpose**

The most prevalent land use in Brockway Township is agriculture, and its preservation has been an ongoing goal in the community for many years. This Ordinance is intended to protect the health, safety and welfare of the residents of the Township and to encourage the safe, effective, efficient and orderly development and operation of wind energy resources in the Township while preserving and protecting the character and stability of agricultural land use, as well as residential, recreational, commercial, industrial, and other areas within the Township.

With advances in technology of wind energy, specific locations within the Township may support the implementation of wind energy conversion systems. To prepare for potential wind energy projects within the Township, this Ordinance will require Utility-Grade Wind Energy Conversion Systems to obtain special land use and site plan approval to ensure that such facilities are appropriately located so as to protect the character and stability of the Township's agricultural, residential, recreational, commercial, and industrial areas.

The regulations in Section 14.53 are intended to preserve and protect the Township's important and sensitive environmental and ecological assets and areas, open space, viewscales and aesthetics, wetlands, and other ecological and environmentally sensitive areas. The regulations are deemed necessary to further the above goals and to minimize the potential adverse effects of wind energy conversion systems on nearby properties.

This Ordinance has been developed based on evidence presented in Michigan and other states and countries concerning the adverse effects of wind energy systems on the health and well-being of people in the communities in which they are located. These studies have documented the following potential harmful effects of wind energy systems:

- a. Falling ice or "ice throws" is physically harmful and measures should be taken to protect the public from such risk.

- b. Nighttime wind turbine noise can cause sleep disturbance. Generally, sleep disturbance can adversely affect mood, cognitive functioning and one's overall sense of health and well-being. Chronic stress and sleep disturbance can increase the risk for cardiovascular disease, decreased immune function, endocrine disorders, and mental illness. In addition, possible health effects include increased heart rate, insomnia, fatigue, accidents, reduction in performance, and depression.
- c. Sound from wind energy facilities can potentially impact people's health and well-being if it increases background sound levels by more than 10 dB(A) or results in long term outdoor community sound levels above 35-40 dB(A).
- d. There is evidence that wind turbine sound is more noticeable, annoying, and disturbing than other community industrial sounds at the same level of loudness.
- e. People who live near wind turbines are more likely to be affected by wind turbine impacts than those who live far away.
- f. Alternating changes in light intensity caused by the moving blades of wind turbines on the ground and on stationary objects, known as shadow flicker, can cause health issues.
- g. The Township desires to protect ecological and environmentally sensitive areas in the Township, including, but not limited to, habitats for endangered species or heavily used migration routes for species of waterfowl and other migratory birds (some of which are protected species), including tundra swans and sand hill cranes. The Township has determined that wind energy conversion systems can adversely impact wildlife and their habitats, so evaluation of proposed wind development sites is essential. The Township finds that any wind development sites should have the lowest potential for negative impacts on wildlife resources and avoid locations with higher concentrations of migratory birds. Further, any wind development sites that would fragment sensitive habitat areas, like rivers, streams, and wetlands, should be avoided.
- h. The general health, safety, and welfare of the citizens of the Township will be promoted by the enactment of this ordinance.

## 2. Definitions

The following terms and phrases in Section 14.53 shall have the meanings set forth below:

**ABANDONMENT:** Any wind energy system that ceases to produce energy on a continuous basis for one hundred eighty (180) days will be considered abandoned, unless the operator can demonstrate that a reasonable effort is being made to restore energy production within a specific period of time, in which case the Township Board at its discretion may grant a one hundred eighty (180) day extension. This definition of abandonment includes a wind energy system that was never operational if construction has been halted for a period of one hundred eighty (180) days.

**ADLS:** Aircraft Detection Lighting System, a sensor-based system that is designed to detect aircraft as they approach an obstruction, such as a wind turbine. An ADLS uses primary radar to detect approaching aircraft and activate the lighting system.

**ADVERSE SOUND CHARACTER:** Sound that causes building rattle, is impulsive, tonal, or has low-frequency bass rumble.

**AMBIENT SOUND LEVEL:** Ambient sound level is the sound pressure level exceeded 90% of the time over a 96-hour measurement period with daytime/nighttime division.

**ANEMOMETER TOWER:** A freestanding tower containing instrumentation, such as anemometers, which are designed to provide present moment wind data for use by the supervisory control and data acquisition (SCADA) system (may also be called a Meteorological Tower or Testing Tower).

**ANSI:** American National Standards Institute.

**AUDIBLE:** The varying degrees of sound perception as reported by affidavit, including, but not limited to, just perceptible, audible, clearly audible, and objectionable.

**CFR:** Code of Federal Regulations.

**dB(A):** The sound pressure level in decibels referred to in the “A” weighted scale. dB(A) levels are weighted according to weighting curves to approximate the way the human ear hears.

**dB(C):** The sound pressure level in decibels referred to in the “C” weighted scale. This is a standard weighting of the audible frequencies commonly used for the measurement of peak sound pressure level.

**DECIBEL:** A unit of measure used to express the magnitude of sound pressure and sound intensity.

**DECOMMISSION:** To remove or retire from active service.

**DECOMMISSIONING PLAN:** A document that details the planned shut down or removal of a wind energy system from operation or usage.

**EMERGENCY WORK:** Any work or action necessary to deliver essential services in an emergency, including, but not limited to, repairing water, gas, electricity, telephone and sewer facilities and public transportation, removing fallen trees on public rights-of-way, and abating life-threatening conditions.

**EQUIVALENT SOUND LEVEL (or Leq):** The sound level measured in decibels with an integrating sound level meter and averaged on an energy basis over a specific duration.

**EXCESSIVE NOISE:** Sound that is determined by ordinance to be too loud or unnecessary or that creates a noise disturbance.

**HEIGHT:** The height of the turbine with a blade at the highest vertical point (also referred to as “Tip Height”).

**HERTZ (Hz):** The unit of frequency in the International System of Units equivalent to one event per second.

**LAYDOWN YARD:** A designated area where turbine components are temporarily stored prior to erection. A central laydown yard may be used for the project or there may be several laydown yards. A laydown yard may be used temporarily during construction or may be a permanent feature of the wind energy system development.

**L<sub>max</sub>:** The maximum sound level during a measurement period or noise event.

**L<sub>10</sub>:** The noise level exceeded for ten percent (10%) of the time of the measurement duration. This is often used to give an indication of the upper limit of fluctuating noise, such as that from road traffic.

**L<sub>90</sub>:** The noise level exceeded for ninety percent (90%) of the time of the measurement duration and is commonly used to determine ambient or background noise level.

**NACELLE:** A cover that houses all the generating components in a wind turbine, including the generator, gearbox, drive train, and brake assembly.

**NAMEPLATE CAPACITY:** The designed full-load sustained generating output of an energy facility. Nameplate capacity shall be determined by reference to the sustained output of an energy facility even if components of the energy facility are located on different parcels, whether contiguous or noncontiguous.

**NOISE:** A sound, especially one that is loud or unpleasant or that causes disturbance. Any airborne sounds of such level and duration as to be or tend to be injurious to human health or welfare or well-being or that would unreasonably interfere with activities, or the enjoyment of life or property, is deemed to be noise.

**PARTICIPATING PARCEL:** A parcel that is under a lease or easement for development of a utility-scale wind energy system.

**PASQUILL STABILITY CLASS:** The Pasquill Stability Class is derived from the combination of wind speed, solar radiation, and cloud cover. The seven Stability Classes range from Extremely Unstable Conditions (Class A) to Neutral Conditions (Class D) to Extremely Stable Conditions (Class G).

**NON-PARTICIPATING PARCEL:** A parcel for which there is not a signed leased or easement for development of a proposed utility-scale wind energy system.

**QUIET RURAL OR RESIDENTIAL PROPERTY:** Any property where there is an inherent expectation of quiet, including, but not limited to, all residential, business, or agricultural-zoned properties, single-family homes, and retirement homes.

**rms:** Root mean square.

**SCADA:** Supervisory Control and Data Acquisition, a control system architecture comprising computers, networked data communications, and graphical user interfaces for high-level supervision of machines and processes. SCADA systems are used to oversee the operation of WECS.

**SETBACK:** The horizontal distance between any lot line or road right-of-way line and the nearest part of part of a structure on a lot. The minimum required setback is the minimum

distance between a front, side, or rear lot line or road right-of-way line and the nearest part of a wind energy facility to conform to the required setback provisions of this Ordinance.

**SHADOW FLICKER:** Alternating changes in light intensity caused by the moving blade of a wind turbine casting shadows on the ground or on stationary objects, such as a window or face of a dwelling unit.

**SLUP:** Special Land Use Permit.

**SOUND LEVEL METER:** An instrument for the measurement of sound levels that meets the ANSI requirements of S1.4-1983 (or later revision) for Type 1 or 2 instruments. Frequency analysis, octave and 1/3 octave filters shall conform to ANSI S1.11-1986 (or later revision).

**SURVIVAL WIND SPEED:** The maximum wind speed, as designated by the WECS manufacturer, at which a WECS in unattended operation (not necessarily producing power) is designed to survive without damage to any structural equipment or loss of the ability to function normally.

**TIP HEIGHT:** The height of the turbine with a blade at the highest vertical point.

**UTILITY-SCALE WIND ENERGY CONVERSION SYSTEM:** A system that captures and converts wind into electricity, which may be for the purpose of sale or for use in locations other than solely the wind energy facility property. Wind energy system or facility includes, but is not limited to, the following equipment and facilities to be constructed by an electric provider or independent power producer: wind towers; wind turbines; access roads; distribution, collection, and feeder lines; wires and cables; conduit; footings; foundations; towers; poles; crossarms; guy lines and anchors; substations; interconnection or switching facilities; circuit breakers and transformers; energy storage facilities; overhead and underground control; communications and radio relay systems and telecommunications equipment; monitoring and recording equipment and facilities; erosion control facilities; utility lines and installations; generation tie lines; ancillary buildings; wind monitoring stations; and accessory equipment and structures.

**WECS:** Wind Energy Conversion System.

**WECS APPLICANT:** The person, firm, corporation, company, limited liability corporation or other entity, as well as the applicant's successors, assigns and/or transferees, that applies for Township approval to construct a WECS and/or WECS Testing Facility. The duties and obligations regarding a zoning approval for any approved WECS or Testing Facility shall be with the WECS and/or Testing Facility owner, and jointly and severally with the owner, operator, and lessee of the WECS and/or Testing Facility if different than the WECS owner.

**WIND ENERGY CONVERSION SYSTEM (WECS) TESTING FACILITY:** A structure and equipment, such as a meteorological tower for the collection of wind data and other meteorological data for transmission to a collection source, which shall not be deemed to be a communication tower.

**WIND TURBINE:** A group of component parts used to convert wind energy into electricity, including the tower, base, rotor, nacelle, and blades.

### 3. Exempt Wind Energy Conversion Systems (WECS).

- a. Accessory wind energy conversion systems (windmills, turbines) and ancillary facilities located on the premises of a farm, home, or business and which do not primarily involve the sale of electricity off the premises shall be exempt from the requirements of the following subsection 4, except for compliance with noise limitations specified in subsection 4(n). Such facilities shall be permitted as an accessory use in all zoning districts, provided the electricity generated is primarily used on site for a farm, home or business.
- b. The total height with the blade fully extended (tip height) shall not exceed one hundred thirty (130) feet, and the minimum clearance from ground level to the blade at its lowest point shall be twenty (20) feet. Accessory exempt WECS shall be set back from all property lines and road right-of-way lines a minimum distance equal to three (3) times the height of the WECS.

### 4. Utility-Scale Wind Energy Conversion Systems (WECS)

- a. **Approval Requirements.** Utility-scale wind energy conversion systems and WECS testing facilities shall only be permitted subject to special land use and site plan approval in the AG, Agricultural Zoning Districts in Section 25 on the east side M-19 (Emmett Road) between Wilkes Road and Norman Road and Section 36 on the east side of M-19 (Emmett Road) between Norman Road and M-136 (Metcalf Road). An application for a special land use permit and site plan approval shall be filed with the Township pursuant to Article XIV and Section 18.06 of the Zoning Ordinance. Supporting data and documentation shall be submitted in their entirety at time of application. The applicant shall provide to the Township updated documents throughout the lifespan of the WECS upon request by the Township Board or Planning Commission.
- b. **Application Fees and Escrow Account.** An escrow account shall be set up when the applicant applies for special land use and site plan approval for a WECS or WECS testing facility. The escrow amount submitted by the applicant with the Township shall be estimated by the Township Board to cover all reasonable costs and expenses associated with the zoning review and approval process, which costs may include, but are not limited to, fees of the township attorney, township planner, and township engineer, as well as any reports or studies which the Township anticipates it may have to have completed related to the zoning review process for the particular application. Such escrow amount shall include regularly established fees.

At any point during the zoning review process, the Township may require that the applicant place additional monies into the escrow account if the existing escrow amount submitted by the applicant proves insufficient. If the escrow account needs replenishing and the applicant refuses to do so within fourteen (14) days after receiving notice, the zoning review and approval process shall cease until and unless the applicant makes the required escrow deposit.

Funds remaining in the escrow account upon completion of the permitting process shall be returned to the applicant within ninety (90) days. An itemized list of all expenses shall be provided to the applicant.

The Township shall hire qualified professionals for the technical fields associated with the special land use and site plan review, including, but not limited to, planning, engineering, electrical, acoustics, environment, economics, wildlife, health, and land-use.

- c. **Environmental Assessment.** An environmental analysis shall be prepared and submitted, which shall demonstrate the mitigation measures necessary to minimize impacts on natural resources and wildlife. The analysis shall demonstrate compliance with the Federal Endangered Species Act and Michigan's endangered species protection laws. The environmental analysis shall demonstrate compliance with the Michigan Natural Resources and Environmental Protection Act (Public Act 451 of 1994, as amended), particularly as it relates to protection of endangered species, eagles and other raptors, birds, and/or other wildlife, as required by the Township for review. Studies shall be limited to an area within three (3) miles outside of the Township boundaries. In addition, the environmental analysis shall assess the impact of the project on potable water supply and quality.
- d. **Economic Impact.** An economic impact study shall be prepared and submitted for the area affected by the WECS project. Such a study shall address the following, at minimum: estimates of the impact on property tax revenues for all taxing jurisdictions on a yearly basis for the life of the project, estimates of construction and permanent job creations, average lease payments per acre for participating parcels, property value impact for participating and non-participating landowners, and impact on residential growth in the community.
- e. **Site Plan.** A site plan drawn to scale shall be submitted pursuant to Section 18.06. In addition to the requirements specified in Section 18.06, the site plan shall provide the following:
  - (1) Identification of project boundaries and delineation of all lots and parcels within the project boundaries.
  - (2) Identification of participating and non-participating parcels.
  - (3) Delineation of County drains and other drainage ways, and the layout of agricultural drain tile fields.
  - (4) A description of the proposed technology from the system manufacturer.
  - (5) Locations of existing and proposed overhead and underground electrical transmission and distribution lines.
  - (6) Footprints of existing structures and fence lines on participating and nonparticipating parcels.
  - (7) Topographic grades on participating parcels at 2-foot intervals.
  - (8) Documentation and delineation of existing wooded areas, regulated wetlands, regulated floodplains, threatened and endangered species, and lakes, streams, or ponds on participating parcels.
  - (9) Identification of existing conservation areas and state game areas on and adjacent to the project site.
  - (10) Locations of property lines, roads rights-of-way, other rights-of-way and easements, and required setbacks.

- (11) Proposed improvements to public roads that will provide access to the proposed wind energy facility.
- (12) The locations, grades, and dimensions of temporary and permanent access roads or driveways from the nearest county road or state highway.
- (13) Existing and proposed aboveground and underground utilities located on participating or non-participating parcels, such as gas lines, telephone lines, cable lines, etc.
- (14) New above and below-ground infrastructure that connects the utility-scale wind energy system to the utility grid.
- (15) Locations and dimensions of proposed signs.
- (16) Location and orientation of any exterior lighting, which shall comply with the Brockway Township Outdoor Lighting Ordinance. Batteries used in relation to lighting shall be shown on the site plan.
- (17) Locations of any structures or trees greater than six (6) inches caliper to be removed.
- (18) Methods for dust and erosion control during construction.
- (19) A written description of the design characteristics of the wind energy facility and its ability to withstand winds, ice and other naturally occurring hazards. This description shall address the potential for the WECS to structurally fail or collapse, and what results should be expected in such an event.
- (20) Locations and height of all proposed buildings, structures, electrical lines, towers, guy wires, guy wire anchors, security fencing, and other above-ground structures associated with the WECS.
- (21) Locations and height of all buildings, structures, and above ground utilities located on participating parcels, non-participating parcels, and adjacent parcels.
- (22) Locations of WECS and testing facility access driveways together with details regarding dimensions, composition, and maintenance of the proposed driveways. Access driveways shall be set back a minimum distance of three hundred (300) feet from any property line, unless the adjacent property owner(s) consent in writing to a smaller setback. Governmental emergency service vehicles shall always be provided with access to the WECS and testing facilities to protect the public health, safety, and welfare in the event of an emergency.
- (23) The site plan shall identify traffic routes that will be used during construction and times of the year during which the routes will be used.
- (24) Documentation of security measures, which shall be sufficient to prevent unauthorized trespass and to protect health, welfare, and safety.
- (25) The applicant shall provide a written description of the maintenance and problem resolution program to be used to resolve the WECS and WECS testing facility issues, including procedures and schedules for removal when determined to be obsolete or abandoned.
- (26) The applicant shall provide a lighting plan for the WECS and WECS testing facility. Lighting for utility-scale wind energy systems shall comply with Federal Aviation Administration (FAA) requirements. The minimum FAA lighting requirements shall not be exceeded. The lighting plan submitted to the FAA shall include an Aircraft Detection Lighting System (ADLS) alternative. The



tower shall not be illuminated unless required by the FAA. In addition, utility scale wind energy systems shall comply with Michigan Airport Zoning Act (Public Act 23 of 1950, as amended), and the Michigan Tall Structures Act (Public Act 259 of 1959, as amended).

- (27) The applicant shall provide additional details and information requested by the Planning Commission to make an informed decision concerning the proposed project.
- f. **Site Insurance.** The applicant shall maintain at least \$2,000,000 in insurance for each WECS for liability, property damage, livestock damage, and future earnings loss. The applicant shall annually provide proof of insurance to the Township Supervisor that confirms active coverage for the applicant, township, participating landowners, and nonparticipating landowners. Aggregate policies are allowed if minimum coverage per WECS is satisfied, and coverage is provided for every site where applicant's equipment is located.
- g. **Decommissioning Plan.** A decommissioning plan shall be submitted, which shall specify procedures to be followed when the system is abandoned (see definition of Abandonment, previously). The decommissioning plan shall include the following, at minimum:
- (1) The anticipated life of the project.
  - (2) A detailed plan for removal of all above and below ground wind energy components from the site, including complete removal of turbine foundations. The plan shall provide for return of the land to the same state and topography it was in prior to the WECS installation.
  - (3) The applicant shall furnish the Township with professional engineers' estimates of decommissioning costs from three (3) non-applicant related independent sources along with a detailed decommissioning process plan, all of which shall be subject to Township Board approval. The decommissioning costs shall not include a discount for salvage costs.
  - (4) A performance guarantee in an amount equal to or greater than one hundred twenty five percent (125%) of the estimated averaged cost of decommissioning shall be submitted to the Township, but in no case shall the performance guarantee be less than \$800,000 per WECS.
  - (5) The performance guarantee shall be in the form of a surety bond, cash escrow, or irrevocable letter of credit issued by a 3<sup>rd</sup> party, which shall be supplied by the applicant to provide coverage for the entire project lifespan. The performance guarantee shall be submitted after the SLUP has been approved but before construction commences on the utility-scale wind energy installation. The performance guarantee shall be posted and maintained with a company licensed to do business in the State of Michigan or a Federal or State chartered lending institution acceptable to the Township. If a surety bond is posted, the bonding agency must be rated A+ or better.
  - (6) The amount of the performance guarantee shall be reviewed every five (5) years for the life of the project to account for inflation and changes in decommissioning costs. Revised cost estimates shall be submitted to the Township Board by the applicant for review. If warranted due to an increase in decommissioning costs, the applicant shall increase the performance guarantee in an amount equal to or

greater than one hundred twenty five percent (125%) of the new estimated cost of decommissioning.

- (7) The bonding agency or lending institution shall provide the Township with 180 days' notice of the expiration of the security bond, escrow account, or letter of credit. Lapse of a valid performance guarantee shall immediately revoke all facility permits issued by the Township and the applicant shall cease operation immediately. The Township shall take action permitted by law against assets of facility or the parent company.
- (8) In the event of a sale or transfer of ownership or operation of the wind energy facility, the original performance guarantee shall be maintained throughout the entirety of the process and shall not be altered.
- (9) The applicant shall acknowledge that failure to keep the performance guarantee in full force and effect at all times while the wind energy system exists shall constitute a material and significant violation of the special land use approval and this ordinance and will subject the owner to all available enforcement remedies, including possible revocation of the special land use approval.
- (10) The applicant shall acknowledge that the wind energy system owner shall be responsible for the payment of all costs, including attorney fees, incurred by the Township in securing the removal of the wind energy system.
- (11) The Township shall have access to the funds provided for security for the expressed purpose of completing decommissioning if decommissioning is not completed by the applicant within three hundred sixty-five (365) days of the end of the project life or facility abandonment.
- (12) Township officials or their designated representatives shall be granted the right of entry onto the site, pursuant to reasonable notice, to evaluate the pace of decommissioning or to effectuate decommissioning.
- (13) The Township is granted the right to seek injunctive relief to effect or complete decommissioning, as well as the Township's right to seek reimbursement from applicant or applicant's successor for decommissioning costs in excess of the amount deposited in escrow and to file a lien against any real property owned by applicant or applicant's successor, or in which they have an interest, for the amount of the excess, and to take all steps allowed by law to enforce said lien. Financial provisions shall not exceed reasonable anticipated decommissioning costs.

**h. Public Safety Concerns.**

- (1) Potential hazards to adjacent properties, public roads, and to the community in general shall be identified. Emergency and normal shutdown procedures shall be described.
- (2) An unredacted safety manual for all components of the project and material safety data sheets that include the type and quantity of all materials used in the operation of all equipment shall be submitted for distribution to first responders to be kept with the St. Clair County Emergency Manager and the Township Board. This safety manual shall include, but shall not necessarily be limited to, what to do if the WECS catches fire, safe distances during WECS failure, procedures during emergencies, etc.

**i. Repair Policies and Procedures.** The applicant shall submit written policies and procedures for the repair, replacement, and removal of malfunctioning, defective, worn,

or non-compliant WECS. The policies and procedures shall consider Ordinance requirements set forth herein.

5. **Standards and Requirements for Utility-Scale Wind Energy Conversion Systems (WECS).**

- a. **Minimum Required Setbacks.** Utility-scale wind energy conversion systems shall comply with the following minimum setbacks:
- (1) Setback from any road right-of-way line: 3.3 times the tip height.
  - (2) Setback from any non-participating parcel property line: 3.3 times the tip height.
  - (3) Setback from any participating parcel property line: 1.1 times the tip height.
  - (4) Setback from any occupied dwelling unit on a participating parcel: 1.1 times the tip height.
  - (5) Setback from any active railroad line, gas transmission line, or electric transmission line: 1.1 times the tip height.
  - (6) Setback from any potable water well or aquifer: turbine foundation must be set back fifty (50) feet.
- b. **Soil Removal.** Soil excavated for the purposes of constructing a WECS or WECS testing facility foundation shall be retained on site so that it can be used for site restoration at the time of decommissioning.
- c. **Ground Clearance.** The minimum clearance from ground level to the blade at its lowest point shall be one hundred (100) feet.
- d. **Blade Clearance.** The minimum clearance from or over any structure to a turbine blade shall be one hundred (100) feet.
- e. **Braking.** Each WECS shall be equipped with a braking device, capable of stopping the WECS operation in high winds, with or without SCADA control. The braking system shall be effective during complete grid power failure where WECS are unable to communicate with SCADA control or receive power.
- f. **Signs.** Advertising and non-project related graphics shall not be displayed on a WECS or other components of the utility-scale wind energy facilities. However, two (2) two square foot signs shall be posted at each wind energy facility, one at the roadside and one at the base of the turbine, which shall be kept up to date with the following information:
- (1) The WECS owner's name and operator's name.
  - (2) Participating landowner's name.
  - (3) Emergency contact numbers and web addresses (more than one).
  - (4) Warning of high voltage associated with the wind energy facility.
  - (5) Address of the WECS. If more than one WECS is located at a single address, then each WECS shall have further identification for the benefit of first responders.
- g. **Communication and Signal Interference.**

- (1) No utility-scale wind energy system shall be installed in any location where its proximity to fixed broadcast, retransmission, or reception for radio, television, or wireless phone or other personal communication systems would produce interference with signal transmission or reception unless the applicant provides a replacement signal to the affected party that restores service to at least the level present before operation of the wind energy system.
  - (2) No utility-scale wind energy system shall be installed in any location within the line of sight of an existing microwave communications link where operation of the wind energy system would produce electromagnetic interference in the link's operation.
  - (3) In the event that signal interference is experienced and confirmed, the applicant shall address the interference to the affected party's satisfaction within thirty (30) days, following the Complaint Tracking and Resolution Program outlined in subsection q.
- h. **Infrastructure Wiring.** All electrical connection systems and lines from the WECS to the electrical grid shall be located and maintained underground. Electrical lines shall be at a depth that causes no known environmental, land use, or safety issues, but, at a minimum, they shall be six (6) feet below grade, and they shall be deeper than drain tiles. Electrical lines and systems shall comply with the current National Electrical Code.
- i. **Roads.** Any material damage to a public road located within the Township resulting from the construction, maintenance, or operation of a utility-scale wind energy facility shall be repaired at the applicant's expense within ninety (90) days of completion of construction or maintenance. The applicant shall submit to the Michigan Department of Transportation or St. Clair County Road Commission, as appropriate, a description of the routes to be used by construction and delivery vehicles and anticipated road improvements that will be necessary to accommodate construction vehicles, equipment, and deliveries. The applicant shall abide by all State or County requirements regarding the use and/or repair of the roads.
- j. **Appearance.** WECS shall be painted a non-obtrusive, non-reflective, light environmental color such as white, off-white, or grey. The wind turbine base and blades shall be of a color consistent with other turbines in the area. No striping of color or advertisements shall be visible on the blades or tower.
- k. **Shadow Flicker.** On-site wind energy systems shall produce no off-site shadow flicker on any non-participating parcels. Measures to eliminate shadow flicker, such as programming the wind turbine to stop rotating during times when shadows would cross neighboring occupied structures, may be required.
- l. **Stray Voltage.** No stray voltage originating from utility-scale wind energy systems may be detected on any participating or non-participating parcels. A preconstruction stray voltage test shall be conducted on all Michigan Department of Agriculture & Rural Development (MDARD) registered livestock facilities located within a one-mile radius of the proposed wind energy facility parcels. The tests shall be performed by an investigator approved by the Township. A report of the tests shall be provided to the owners of all

property included in the study area. The applicant shall seek written permission from the property owners prior to conducting testing on such owners' property. The applicant shall not be required to perform testing on property where the owners have refused to grant permission to conduct the testing. The owner of any participating parcel(s) included in the list of project parcels may not refuse the stray voltage testing if they have a MDARD registered livestock facility on the parcel or a portion of the parcel. The applicant shall compensate residents for damages to human or livestock health caused by stray voltage originating from utility-scale wind energy systems.

- m. **Abandonment and Decommissioning.** Following the operational life of the wind energy project, or following abandonment (as defined previously), the applicant shall perform decommissioning and removal of all equipment and components associated with the utility-scale wind energy system, which shall include the following requirements:
- (1) **Land Improvements.**
    - (a) The land shall be returned to the same state and topography it was in prior to the wind energy system installation within 180 days of Township notice of abandonment or decommissioning. The applicant shall provide agronomy data to substantiate the suitability of the soils for agriculture.
    - (b) All underground components, foundations, and ancillary equipment shall be removed unless written permission is obtained by the landowner to retain those underground components that are at least six (6) feet below grade. In no way shall this be construed to allow turbine foundations to remain.
    - (c) Upon removal of turbine foundations, the clay layer shall be backfilled in one-foot lifts, compacted to 95% to 97% density.
    - (d) All fencing shall be removed after decommissioning unless written permission is obtained by the landowner to retain the fencing.
    - (e) All access roads or driveways shall be removed, cleared, and graded by the applicant, unless the property owner requests in writing that an access road or driveway be retained. The County Road Commission will not be assumed to take ownership of any access road or driveway.
    - (f) All decommissioned structures and project-related materials shall be removed from the site for disposal.
  - (2) **Decommissioning Plan.** Decommissioning shall comply with the decommissioning plan outlined previously in this Section.
- n. **Maximum Height.** The maximum tip height of any WECS or WECS testing facility shall be five hundred (500) feet.
- o. **Regulation of Sound and Noise.** Utility-scale wind energy systems shall comply with the following sound and noise requirements to preserve the quality of life, peace, and tranquility, and protect the natural quiet of the environment of Brockway Township:
- (1) **Documentation and Modeling Requirements.** The applicant shall provide initial sound modeling and post-construction reports for the project with a schedule and documentation that adhere to the following requirements:

- (a) The applicant shall specify whether submitted data is modeled or measured.
  - (b) The applicant shall provide base values and formulas, test methods, data sources, and similar information for all modeled and measured data.
  - (c) The applicant shall provide an estimated timeline for all compliance testing procedures during pre-construction and post-construction, as outlined herein.
  - (d) The measured sound data submitted by the applicant shall be accompanied by SCADA data confirming full power during testing. The scope of required SCADA data shall be determined by the Township's professional engineer or acoustician. Unless otherwise requested by the Township's professional engineer or acoustician, SCADA data shall be grouped in 24-hour periods and one (1) second intervals and shall include wind vector, wind speed, temperature, humidity, time-of-day, WECS power output, WECS amps, WECS volts, WECS nacelle vector, WECS blade rpm, and WECS blade pitch.
  - (e) The applicant shall submit manufacturer's sound data, as well as measured sound data from active similar WECS facilities.
  - (f) The applicant shall submit sound data from existing similar WECS installations that are 5, 10, and 15-years of age to demonstrate that the proposed WECS will remain in compliance with the sound requirements over time.
  - (g) A chart shall be submitted that lists all ordinance sound and noise requirements and notes whether each proposed WECS complies with each requirement.
  - (h) Modeling factors shall be set for the worst-case condition, such as high humidity, frozen ground (i.e., non-porous), atmospheric variances (atmospheric profile Pasquill Stability Class E or F), elevated noise source, and no ground cover. Any deficiencies of modeling methods shall be disclosed along with margins of error.
- (2) **Pre-Construction Ambient Sound Level Assessment.** The applicant shall submit an ambient sound level study using the A-weighted and C-weighted scales at Leq 1 second, L10, and L90. Data shall be collected at midpoints along property lines of adjoining non-participating parcels. Measurement procedures shall follow the most current versions of ANSI S12.18 and ANSI S12.9, Part 3 guidelines, with an observer present. Measurements shall be taken using an ANSI or IEC Type 1 precision integrating sound level meter. The study shall include a minimum four-day (96-hour) testing period, which shall include one Sunday, and the data shall be divided by daytime and nighttime. The topography, temperature, weather patterns, sources of ambient sound, and prevailing wind direction shall be recorded as part of the study.

- (3) **Post-Construction Sound Level Assessment.** Post-construction sound level assessments shall comply with the following requirements:
- (a) Post-construction sound level measurements to determine compliance with Ordinance requirements are the financial responsibility of the WECS owner. Such measurements shall be independently performed by a qualified professional acoustician approved by the Planning Commission.
  - (b) Post-construction compliance testing shall be performed during a variety of ground and hub height wind speeds: low (between 6-9 mph), medium (between 10-22 mph), and high (greater than 22mph). SCADA data shall be provided, which shall be in the scope and form specified by the Township's professional engineer or acoustician.
  - (c) All sound level measurements shall be attended. Sound level measurements shall exclude contributions from wind on the microphone, tree and leaf rustle, flowing water, and natural sounds such as tree frogs and insects. During testing of elevated sources such as wind turbines, the atmospheric profile shall be Pasquill Stability Class E or F preferred, Class D as alternate.
  - (d) Noise measurements shall be conducted consistent with ANSI S12.18 Procedures for Outdoor Measurement of Sound Pressure Level and ANSI S12.9 Part3 (Quantities and Procedures for Description and Measurement of Environmental Sound – Part 3: Short-Term Measurements with an Observer Present), using Type 1 meter, A-weighting, Fast Response.
  - (e) Tonal noise shall be assessed using unweighted, or linear, 1/3 octave band noise measurements with time-series, level-versus-time data acquisition. A measurement shall constitute prima facie evidence of a tonal noise condition if at any time (single sample or time interval) the noise spectrum of the noise source under investigation shows a 1/3 octave band exceeding the average of the two adjacent bands by 15 dB in low one-third octave bands (10–125 Hz), 8 dB in middle-frequency bands (160–400 Hz), or 5 dB in high-frequency bands (500–10,000 Hz).
  - (f) **Sample Metric and Rate.** Noise level measurements for essentially continuous non-time-varying noise sources shall be acquired using the Leq (Fast) metric at a sample rate of 1 per second. For fluctuating or modulating noise sources such as wind turbines, a 10 per second sample rate or faster shall be used. These sample rates shall apply to dB(A), dB(C), and unweighted 1/3 octave band measurements.
  - (g) **Reporting.** Measurements of time-varying dB(A) and dB(C) noise levels and 1/3 octave band levels shall be reported with time-series level-versus-time graphs and tables. Sound levels shall be graphed as level-vs-time over a period of time sufficient to characterize the noise signature of the noise source being measured. For 1-per-second sampling, a 5-minute or longer graph shall be produced. For 10-per-second sampling, a 30-

second or longer graph shall be produced. Graphs and tables shall be clearly notated, identifying what was heard and when the noise source was dominating the measurement. The report shall furnish all noise data and information on weather conditions and Pasquill Stability Class occurring during testing.

- (4) **Sound and Noise Level Standards.** WECS shall comply with the following sound and noise level standards:
- (a) **Nighttime Noise Level.** No WECS shall generate audible noise that exceeds 39 dB(A) or 49 dB(C) during the night (10:00 pm to 7:00 am) for any duration, at a property line or any point within a non-participating parcel.
  - (b) **Daytime Noise Level.** No WECS shall generate plainly audible noise that exceeds 45 dB(A) or 55 dB(C) during the day (7:00 am to 10:00 pm) for any duration, at a property line or at any point within a nonparticipating parcel.
  - (c) **Acoustic, Vibratory, or Barometric Oscillations.** No WECS shall generate any acoustic, vibratory, or barometric oscillations in the frequency range of 0.1 to 1 Hz that is detectable at any time and for any duration by confirmed human sensation or that exceeds a sound pressure level of 0.1 to 20 Hz of 50 dB (unweighted) re 20 uPA or exceeds an rms acceleration level of 50 dB (unweighted) re 1 micro-g by instrumentation at a non-participating landowner's property line or at any point within a non-participating landowner's property.
  - (d) **Vibration.** No WECS shall generate any vibration in the low-frequency range of 0.1 to 20 Hz, including the 1, 2, 4, 8, and 16 Hz octave bands that is perceivable by human sensation, or exceeds an rms acceleration level of 50 dB (unweighted) re 1 micro-g at any time and for any duration, either due to impulsive or periodic excitation of structure or any other mechanism at a non-participating landowner's property line or at any point within a non-participating landowner's property.
  - (e) **Tonal Sound.** A tonal noise condition generated from a WECS shall be assessed an upward noise penalty of 5 dB(A) (for example, 42 dB(A) increased to 47 dB(A)) for assessment to the nighttime and daytime noise limits.
  - (f) **Nuisance Evidence.** A noise level measurement made in accordance with methods specified herein that is higher than 39 dB(A) or 49 dB(C) during the nighttime hours or 45 dB(A) or 55 dB(C) during the daytime hours, adjusted for the penalty assessed for a tonal noise condition, shall constitute prima facie evidence of a nuisance. Furthermore, acoustic, vibratory or barometric measurements documenting oscillations with levels exceeding the limits specified herein shall constitute prima facie evidence of a nuisance.



p. **Maintenance and Repair.**

- (1) **General Requirements.** The utility-scale wind energy system shall always be maintained in good repair and condition. Malfunctioning, defective, worn, noncompliant, unsafe, or hazardous wind energy components shall be repaired, replaced, or removed in a timely manner. The site within the utility-scale wind energy system facility shall be kept neat, clean, and free of refuse, waste, and unsightly, hazardous, or unsanitary conditions.
- (2) **Notice of Noncompliance.** If the Township Board or Zoning Administrator determines that a utility-scale wind energy facility fails to meet the requirements of this ordinance and the special land use permit, the Zoning Administrator or Township Supervisor shall provide notice to the applicant of noncompliance, at which point the applicant shall have thirty (30) days to resolve the issue. If the noncompliance issue is a safety hazard as determined by the Zoning Administrator or Township Supervisor, the applicant shall have only seven (7) days to resolve the issue. If the applicant has not remedied the noncompliance issues in the specified time periods, the applicant shall immediately shut down the utility-scale wind energy system and not operate, start or restart the system until the issues have been resolved.
- (3) **Maintenance Log.** The applicant shall keep a maintenance log on the utility scale wind energy system, which shall be available for the Township's review within forty-eight (48) hours of being requested

q. **Complaint Tracking and Resolution.** The applicant shall engage a Township approved complaint vendor to submit a detailed, written complaint, web-based resolution process to resolve complaints from the Township Board, property owners, or residents concerning the construction or operation of the utility-scale wind energy system. The complaint resolution process, which must be approved by the Planning Commission as a condition of approval of the special land use permit application, shall include the following elements at minimum:

- (1) The complaint vendor shall report to the Township Board
- (2) The complaint vendor shall manage a public website that includes a timestamped log of all complaints. Methods of contact shall include voice, text, and email.
- (3) The Township shall have management control of the complaint website and oversight of hosting company. The applicant shall not be permitted to edit, change, or control the site.
- (4) The complaint vendor shall log into site and update status of each complaint's resolution with complete logging.
- (5) A complaint investigation escrow account in the amount of \$25,000 shall be established with the Township by the applicant for investigation of complaints. Funds in this account may be used at the discretion of the Township Board for investigation of complaints. This fund must be replenished by the applicant or wind energy facility owner at any point that the balance falls below \$10,000.
- (6) A flow chart shall be provided showing the complaint response protocol including 1) a time limit, not to exceed thirty (30) days, for acting on and resolving complaints, 2) how complaints are recorded and dealt with, and 3) a provision specifying that resolution in some instances shall include rendering the unit inoperable.
- (7) If the Township Board requires corrective action, then the applicant shall submit SCADA data to the Township to demonstrate compliance with Ordinance

- requirements. The SCADA data shall be submitted within twenty (20) calendar days after the request is issued by the Township. The scope and format of the SCADA data shall be specified by the Township and its professional engineers and acousticians. Unless otherwise requested by the Township's professional engineer or acoustician, SCADA data shall be grouped in 24-hour periods and one (1) second intervals and shall include wind vector, wind speed, temperature, humidity, time-of-day, WECS power output, WECS amps, WECS volts, WECS nacelle vector, WECS blade rpm, and WECS blade pitch.
- (8) The Township Board reserves the right to require WECS Applicant to shut down any WECS unit that does not meet ordinance requirements until such WECS unit meets ordinance requirements.
- r. **Compliance with Applicable Codes and Regulations.** Utility-scale wind energy facilities shall comply with the State Construction Code, the National Electrical Code, and other applicable Local, County, State, and Federal codes.
- (1) Ground shall not be broken, nor shall any construction or installation commence until all required permits have been obtained for the entire project.
- (2) The applicant shall provide evidence to the Township of compliance with all applicable laws and regulations.
- (3) A list of all anticipated required local, county, state, federal permits, authorizations, and approvals related to the project must be provided to the Township at the time the application is submitted. The applicant shall continue to submit copies of all such permits and approvals that have been obtained as they are received by the applicant.
- s. **Transferability of Approval.** A special land use permit for a utility-scale wind energy system is transferable to a new owner. The new owner must register its name, business address, and contact information with the Township within ninety (90) days of transfer of ownership, and must comply with this Ordinance and all conditions of approval.
- t. **Laydown Yard.** The temporary laydown yard shall be subject to special land use and site plan review and approval. Structures and uses within the laydown yard shall comply with the minimum setback requirements for AG, Agricultural District. The Planning Commission shall require a performance guarantee in an amount sufficient to cover the removal of temporary structures and uses within the laydown yard and restoration of the site upon completion of construction. An insecticide shall be applied to all equipment and facilities brought to the laydown yard from outside the United States.
- u. **Remedies.** If an applicant or operator fails to comply with this Ordinance, the Township, in addition to any other remedy under this Ordinance, may revoke the special land use permit and site plan approval after giving the applicant or operator notice and an opportunity to be heard. Additionally, the Township may pursue any legal or equitable action to abate a violation and recover any and all costs, including the Township's actual attorney fees and costs.
- v. **Utility-Scale Wind Energy Conversion Systems under Michigan Public Act 233 of 2023.** On or after November 29, 2024, one Public Act 233 of 2023 is in effect, the following provisions apply to Utility-Scale Wind Energy Conversion Systems with a

nameplate capacity of 100 megawatts or more. To the extent that these provisions conflict with the provisions in subsections a through u, above (regulating Utility-Scale Wind Energy Conversion Systems), the provisions below control as to such Utility-Scale Wind Energy Conversion Systems. All provisions in subsection a through u, above, that do not conflict with this subsection remain in full force and effect. This subsection does not apply if Public Act 233 of 2023 is repealed, enjoined, or otherwise not in effect, and does not apply to Utility-Scale Wind Energy Conversion Systems with a nameplate capacity of less than 100 megawatts.

- (1) **Setbacks.** Utility-Scale Wind Energy Conversion Systems shall comply with the following minimum setback requirements, measured from the base of the wind tower:

<b>Setback Description</b>	<b>Minimum Setback Distance</b>
Occupied community buildings and residences on nonparticipating properties	2.1 times the maximum blade tip height to the nearest point on the outside wall of the structure
Residences and other structures on participating properties	1.1 times the maximum blade tip height to the nearest point on the outside wall of the structure
Nonparticipating property lines	1.1 times the maximum blade tip height
Public road right-of-way	1.1 times the maximum blade tip height to the centerline of the public road right-of-way
Overhead communication and electric transmission, not including utility service lines to individual houses or outbuildings	1.1 times the maximum blade tip height to the centerline of the easement containing the overhead line

- (2) **Shadow Flicker.** Utility-Scale Wind Energy Conversion Systems shall be sited such that any occupied community building or nonparticipating residence will not experience more than thirty (30) hours per year of shadow flicker under planned operating conditions as indicated by industry standard computer modeling.
- (3) **Height.** Each wind tower blade tip of a Utility-Scale Wind Energy Conversion System shall not exceed the height allowed under a Determination of No Hazard to Air Navigation by the Federal Aviation Administration under 14 CFR part 77.
- (4) **Noise.** Utility-Scale Wind Energy Conversion Systems shall not generate a maximum sound in excess of fifty-five (55) average hourly decibels as modeled at the nearest outer wall of the nearest dwelling located on an adjacent nonparticipating property. Decibel modeling shall use the A-weighted scale as designed by the American Standards Institute.
- (5) **Light-Mitigating Technology.** Utility-Scale Wind Energy Conversion Systems shall be equipped with functioning light-mitigating technology. To allow proper

conspicuity of a wind turbine at night during construction, a turbine may be lighted with temporary lighting until the permanent lighting configuration, including the light-mitigating technology, is implemented.

- (6) **Environmental Regulations.** Utility-Scale Wind Energy Conversion Systems shall comply with applicable state and federal environmental regulations.
- (7) **Host Community Agreement.** The applicant shall enter into a host community agreement with the Township. The host community agreement shall require that, upon commencement of any operation, the Utility-Scale Wind Energy Conversion System owner must pay the Township \$2,000.00 per megawatt of nameplate capacity. Th payment shall be used as determined by the Township for police, fire, public safety, or other infrastructure, or for other project as agreed to by the local unit and the applicant.

**Section 3. Amendment of Section 4.03.**

Sections 4.03 of Brockway Township’s Zoning Ordinance is hereby amended to add “UtilityScale Wind Energy Conversion Systems” as a special land use in the AG, Agricultural Districts in Section 25 on the east side M-19 (Emmett Road) between Wilkes Road and Norman Road and Section 36 on the east side of M-19 (Emmett Road) between Norman Road and M-136 (Metcalf Road).

**Section 4. Validity and Severability.**

If any portion of this Ordinance is found invalid for any reason, such holding will not affect the validity of the remaining portions of this Ordinance.

**Section 5. Repealer.**

- 1. All other ordinances inconsistent with the provisions of this Ordinance are hereby repealed to the extent necessary to give this Ordinance full force and effect.
- 2. **An Ordinance to Establish Standards and Procedures for the Installation and Operation of Wind Facility/Farm Energy Systems Greater than 20 kw Within Brockway Township**, adopted by the Township Board on May 9, 2023, is hereby repealed in its entirety.

**Section 6. Effective Date.**

This Ordinance takes effect seven (7) days after publication as provided by law.