

SECTION 7.9 SPECIAL USES REQUIRING ADDITIONAL STANDARDS

E. Utility-Grid Wind Energy System.

1. Wind Site Assessment

- a. Prior to construction of a Utility-Grid Wind Energy System, a wind site assessment is conducted to determine the wind speeds and the feasibility of using the site. Installation of anemometer (“Met”) towers shall be considered a special use.
- b. Prior to the installation of the tower, applications for Site Plan Review and a Special Use permit shall be filed with the Sherman Township Zoning Administrator that will include:
 - (1) Applicant identification
 - (2) Site plan
 - (3) Copy of that portion of the applicant’s lease, easement, or other agreement with the land owner granting authority to install the Met tower and requiring the applicant to remove all equipment and restore the site after completion of the wind site assessment.
- c. The distance from the center of a Met tower shall be at least **1.25 times** the height of the Met tower head to the leased property boundary, habitable structures, **and road right-of-ways**. Leased property can include more than one piece of property and the requirement shall apply to the combined properties. Exceptions for adjacent property are allowed with the written consent of those property owners.

2. Utility-Grid Wind Energy System Special Use Permit Application

A Utility-Grid Wind Energy System is designed and built to provide electricity to the electric utility grid. Prior to the installation of a Utility-Grid Wind Energy System, applications for Site Plan Review and a Special Use permit must be filed and subsequently approved by the Sherman Township Planning Commission and shall include the following:

- (1) Applicant Identification: Applicant name, address, and contact information.
- (2) Project Description: A general description of the proposed project including a legal description of the properties on which the project would be located.
- (3) Site Plan: The site plan shall include maps showing the physical features and land uses of the project area, both before and after construction of the proposed project. The site plan shall include all required information noted in Section 8.4 of the Sherman Township zoning ordinance. In addition, the site plan shall include the following information:
 - i. Project area boundaries,
 - ii. The location, height, and dimensions of all existing and proposed structures and fencing,
 - iii. Storage location of all equipment and materials associated with the construction and maintenance of a Utility-Grid Wind Energy System,
 - iv. The location, grades, and dimensions of all temporary and permanent on-site and access roads, including width and surface material, from the nearest county or state maintained road,
 - v. Water bodies, waterways, wetlands, and drainage channels,
 - vi. Existing infrastructure and utilities that are located underground and above-ground, and
 - vii. All new infrastructure that is located underground and above-ground related

to the project.

- (4) Fees: An applicant shall remit an application fee in the amount specified in the fee schedule adopted by the Sherman Township Board of Trustees. This schedule shall be based on the cost of the application review and may be adjusted from time to time.
- (5) Engineering Data: Engineering data concerning construction of the tower and its base or foundation, which must be engineered and constructed in such a manner that upon removal of said tower, the soil will be restored to its original condition to a depth of **four (4) feet**.
- (6) Maintenance Schedule: Anticipated construction schedule, and description of operations, including regular maintenance.
- (7) Consent Documents: Statement by **the land owner granting authority to install the wind tower.**
- (8) Sound Pressure Level: Copy of the modeling and analysis report.
- (9) Certifications: Certification that applicant has complied or will comply with all applicable state and federal laws and regulations. Copies of all such permits and approvals that have been obtained or applied for at the time of the application.
- (10) Visual Impact: Visual simulations of how the completed project will look **at ground level** from four viewable angles **at 1,320 feet (¼ mile) from the lease boundary.**
- (11) Environmental Impact: Copy of the Environmental Impact analysis.
- (12) Avian and Wildlife Impact: Copy of the Avian and Wildlife Impact analysis.
- (13) Shadow Flicker: Copy of the Shadow Flicker analysis.
- (14) Manufacturers' Material Safety Data Sheet: Documentation shall include the type and quantity of all materials used in the operation of all equipment.
- (15) Decommissioning: Copy of the decommissioning plan, **which shall include:**
 - i. The anticipated life of the project.**
 - ii. The estimated decommissioning costs net of salvage value in current dollars.**
 - iii. The method of ensuring that funds will be available for decommissioning and restoration.**
 - iv. The anticipated manner in which the project will be decommissioned and the site restored.**
- (16) Complaint Resolution: Description of the complaint resolution process.
- (17) Map of Electromagnetic Interference.
- (18) **Maximum tower height shall be five hundred (500) feet.**

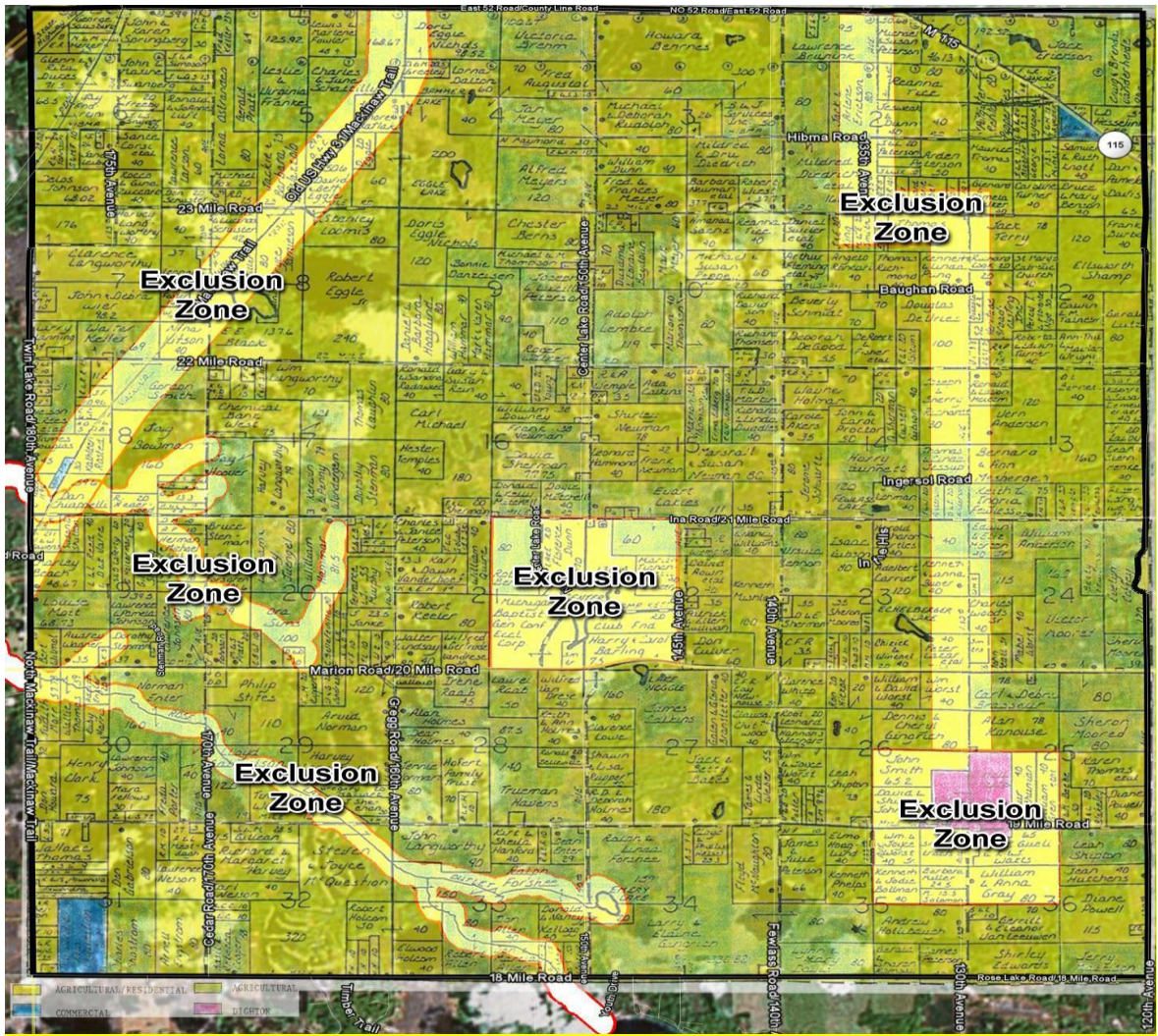
3. The Utility-Grid Wind Energy system project shall meet the following standards and requirements:

a. Utility-Grid Wind Energy Exclusion Zone: All proposed Utility-Grid Wind Energy Systems are subject to the Exclusion Zone.

- (1) It is the intent and purpose of the Utility-Grid Wind Energy Exclusion Zone to provide residents of Sherman Township relief in specified areas from wind energy systems. Sherman Township permits Utility-Grid Wind Energy Systems as a special use requiring a Special Use Permit in the Agriculture "A" and Agriculture/Rural Residential "A/R" districts only. Utility-Grid Wind Energy Systems are further restricted from all property in the "Exclusion Zone" as depicted on the Utility-Grid

Wind Energy Exclusion Zone Map, regardless of the zoning district.

- (2) The boundaries of the Utility-Grid Wind Energy Exclusion Zone are hereby defined and established as shown on the map, shown below, which accompanies this Ordinance and which map, with all explanatory matter thereon, is hereby made a part of this Ordinance.



- (3) Where uncertainty exists with respect to the boundaries on the Utility Grid Wind Energy Exclusion Zone Map, the following rules shall apply:
- i. Boundaries indicated as approximately following the streets or highways shall be construed to be such boundaries.
 - ii. Boundaries indicated as approximately following Township boundary lines or following lot lines shall be construed as following said lines.

- iii. Boundaries indicated as approximately parallel to the center lines of streets or highways shall be construed as being parallel thereto and at such distance therefrom as indicated by given distance or scaled dimension. Specifically, boundaries indicated to be parallel to Mackinaw Trail, 135th Avenue, 23 Mile Road, and 130th Avenue are set back five hundred (500) feet from the centerline of the roads.
- iv. Boundaries indicated as approximately parallel to the high water mark of specified water bodies shall be construed as being parallel thereto and at such distance therefrom as indicated by given distance or scaled dimension. Specifically, boundaries indicated to be parallel to tributaries of the Pine River, are set back four hundred (400) feet from the high water mark of tributaries of the Pine River.

b. **Property Setback:**

- (1) The distance between a wind turbine within a Utility-Grid Wind Energy System and the property lines of adjacent non-leased properties shall be **five times (5x) the tower height including the blade in its upright position**, measured from the base of the wind energy tower to the property line of adjacent non-leased properties. **This setback shall also apply when non-leased property is separated from a Utility-Grid Wind Energy System by a public right-of-way or road. The property line of non-leased land shall be considered as the start of measurement for the setback.**
- (2) The distance between a wind turbine within a Utility-Grid Wind Energy System and public rights-of-ways and roads shall be at least 1.25 times (1.25x) times the height of the wind turbine.
- (3) Where property is leased on both sides of a public right of way, excluding roads, a wind energy system may be placed no closer than one rotor radius from the closest edge of the right of way. Leased property can include more than one piece of property and the requirement shall apply to the combined properties.
- (4) **Buildings, sub-stations, or ancillary equipment shall comply with any property set-back requirements that may be applicable to that type of building or equipment.**
- (5) Overhead transmission lines and power poles shall comply with the setback requirements applicable to public utilities.
- (6) Exceptions for adjacent property or public rights of way are allowed with the written consent of those property owners. Written consent letters must be submitted at the time of the public hearing for the special use permit.

c. **Other Required Setbacks:**

- (1) The distance between a wind turbine within a Utility-Grid Wind Energy System and a habitable structure on leased property shall be at least 2.0 times the height of the wind energy system tower including the top of the blade in its vertical position, measured from the base of the wind energy tower to the nearest edge of the habitable structure.
- (2) Turbine/tower separation shall be based on: Industry standards, manufacturer

recommendation, and the characteristics of the particular site location. At a minimum, there shall be a separation between towers of not less than three (3) times the rotor diameter, and Utility Grid wind energy system shall be designed to minimize disruption to farmland activity. Separation between turbines with different rotor sizes shall be not less than three times (3x) the diameter of the smaller rotor. Documents shall be submitted by the applicant confirming specifications for turbine/tower separation.

- (3) A wind turbine in a Utility-Grid Wind Energy System that is proposed to be located upon a shared property boundary may be exempt from the side and rear setbacks requirements of Section 4.9 if the site plan contains appropriate documentation demonstrating that a legally-binding easement agreement between the owners of the property with the shared boundary has been recorded with the Osceola County Register of Deeds. This exemption applies only to leased property that is part of a Utility-Grid Wind Energy System. Distances from habitable structures as required under this section shall be maintained.

The distance between a wind turbine within a Utility Grid Wind Energy System and internal property lines of leased property lines shall be at least 1.25 times the height of the wind energy system tower including the top of the blade in its vertical position.

d. **Sound Pressure Level:**

(1) **Audible Noise Standard:**

Background sound level shall be established separately for daytime (6:00 A.M. - 10:00 P.M.) and for nighttime (10:00 P.M. until 6:00 A.M.) values.

Daytime: From 6:00 A.M. Until 10:00 P.M., for wind speeds from cut-in to rated power of the wind energy system, the A scale equivalent noise level due to the wind energy system at the property line closest and at locations within one (1) mile of the wind energy system shall not exceed the greater of:

- a. Thirty-five (35) dB(A) or
- b. The established outdoor daytime background sound level by more than five (5) dB(A).

Nighttime: From 10:00 P.M. until 6:00 A.M., the A scale equivalent noise level due to the wind energy system at the property line closest and at locations within one (1) mile of the wind energy system shall not exceed the greater of

- a. (30) dB(A) or
- b. the established outdoor nighttime background sound level by more than three (3) dB(A).

(2) **Tonality and/or Repetitive, Impulsive Tone Penalty:** In the event the audible noise due to wind turbine operations exhibits tonality, contains a pure tone and/or repetitive, impulsive noise as defined in IEC 61400-11, the Audible Noise Standard shall be reduced by a total of five (5) dB(A).

(3) **Noise Measurement, Analysis and Applicable Noise Control Engineering Standards:** Measurement, modeling and analysis shall conform to the most

current version of ANSI S12.18 and other applicable ANSI standards. Pre-construction background sound pressure level measurements and post-construction sound pressure level measurements made after installation of the wind energy system shall be done by a qualified professional approved by Sherman Township and shall be done according to the procedures in the most current version of ANSI S12.18 when wind speeds are less than 5 (five) miles per hour. All sound pressure levels shall be measured with instruments that meet ANSI or IEC precision integrating sound level meter performance specifications. Calibration must be performed by an ISO certified laboratory and be traceable to the National Bureau of Standards (NBS).

- (4) Documentation of the sound pressure level measurements shall be tested by the township, with funds from the performance guarantee escrow fund, within sixty (60) days after construction is completed on the wind energy system project.

e. **Construction Codes, Towers, and Interconnection Standards:**

- (1) Utility Grid wind energy systems including towers shall comply with all applicable state construction and electrical codes and local building permit requirements.
- (2) Utility Grid wind energy systems including towers shall comply with Federal Aviation Administration requirements, the Michigan Zoning Enabling Act (Public Act 110 of 2006), the Michigan Tall Structures Act (Public Act 259 of 1959), and local jurisdiction airport overlay zone regulations.
- (3) The minimum FAA lighting standards shall not be exceeded. All tower lighting required by the FAA shall be shielded to the extent possible to reduce glare and visibility from the ground. The tower shaft shall not be illuminated unless required by the FAA.
- (4) Utility Grid wind energy systems shall comply with applicable utility, Michigan Public Service Commission, and Federal Energy Regulatory Commission interconnection standards.

f. **Safety:**

- (1) All Utility Grid wind energy systems shall be designed to prevent unauthorized access to electrical and mechanical components and shall have access doors that are kept securely locked at all times when service personnel are not present.
- (2) All spent lubricants and cooling fluids shall be handled in accordance with all state and federal laws.
- (3) A sign shall be posted near the tower or Operations and Maintenance Office building that will contain emergency contact information. Signage placed at the road access shall be used to warn visitors about the potential danger of falling ice.
- (4) The minimum vertical blade tip clearance from grade shall be thirty-five (35) feet for a wind energy system employing a horizontal axis rotor.

g. **Visual Impact:**

- (1) Utility Grid wind energy system projects shall use tubular towers and all Utility Grid wind energy systems in a project shall be finished in a single, non-reflective matte finished color.
- (2) No lettering, company insignia, advertising, or graphics shall be on any part of the tower, hub, or blades. Nacelles may have lettering that exhibits the manufacturer's and/or

owner's identification.

(4) The applicant shall avoid state or federal scenic areas and significant visual resources listed in the **Sherman Township Master Plan**.

h. Environmental Impact:

- (1) The applicant shall have a third party, qualified professional **approved by Sherman Township** conduct an analysis to identify and assess any potential impacts on the natural environment including, but not limited to wetlands and other fragile ecosystems, historical and cultural sites, and antiquities. The applicant shall take appropriate measures to minimize, eliminate or mitigate adverse impacts identified in the analysis. The **qualified professional** shall identify and evaluate the significance of any net effects or concerns that will remain after mitigation efforts.
- (2) The applicant shall comply with applicable parts of the Michigan Natural Resources and Environmental Protection Act (Act 451 of 1994, MCL 324.101 et seq.) including but not limited to Part 31 Water Resources Protection (MCL 324.3101 et seq.), Part 91 Soil Erosion and Sedimentation Control (MCL 324.9101 et seq.) , Part 301 Inland Lakes and Streams (MCL 324.30101 et seq.), Part 303 Wetlands (MCL 324.30301 et seq.), Part 323 Shoreland Protection and Management (MCL 324.32301 et seq.), Part 325 Great Lakes Submerged Lands (MCL 324.32501 et seq.), and Part 353 Sand Dunes Protection and Management (MCL 324.35301 et seq.).
- (3) The applicant shall be responsible for making repairs to any public roads damaged by the construction of the Utility Grid wind energy system. In addition, the applicant shall submit to Sherman Township and the appropriate Osceola County office(s):
 - i. A description of the routes to be used by construction and delivery vehicles
 - ii. Any road improvements that will be necessary in Sherman Township to accommodate construction vehicles, equipment or other deliveries
 - iii. An agreement or bond which guarantees the repair of damage to public roads and other areas caused by construction of the Utility Grid wind energy system

i. Avian and Wildlife Impact:

- (1) The applicant shall have a third party, qualified professional **approved by Sherman Township** conduct an analysis to identify and assess any potential impacts on wildlife and endangered species. The applicant shall take appropriate measures to minimize, eliminate or mitigate adverse impacts identified in the analysis. The applicant shall identify and evaluate the significance of any net effects or concerns that will remain after mitigation efforts.
- (2) Sites requiring special scrutiny include bird refuges and other areas where birds are highly concentrated, bat hibernacula, wooded ridge tops that attract wildlife, sites that are frequented by federally listed endangered species of birds and bats, significant bird migration pathways, and areas that have landscape features known to attract large numbers of raptors.

At a minimum, the analysis shall include a thorough review of existing information regarding species and potential habitats in the vicinity of the project area. Where appropriate, surveys for bats, raptors, and general avian use should be conducted. The

analysis shall include the potential effects on species listed under the federal Endangered Species Act and Michigan's Endangered Species Protection Law

The analysis shall indicate whether a post construction wildlife mortality study will be conducted and, if not, the reasons why such a study does not need to be conducted. Power lines should be placed underground, when feasible, to prevent avian collisions and electrocutions.

j. Electromagnetic Interference:

- (1) No Utility Grid wind energy system shall be installed in any location where its proximity with existing fixed broadcast, retransmission, or reception antenna for radio, television, or wireless phone or other personal communication systems would produce electromagnetic interference with signal transmission or reception unless the applicant provides a replacement signal to the affected party that will restore reception to the level present before operation of the wind energy system.
- (2) No Utility Grid wind energy system shall be installed in any location within the line of sight of an existing microwave communications link where its operation is likely to produce electromagnetic interference in the link's operation unless the interference is insignificant.

k. Shadow Flicker:

- (1) The applicant shall conduct an analysis **by a professional approved by Sherman Township** on potential shadow flicker at **habitable** structures with direct line-of-sight to a wind turbine.
- (2) The analysis shall identify the locations of shadow flicker that may be caused by the project and the expected durations of the flicker at these locations from sun-rise to sun-set over the course of a year.
- (3) The analysis shall identify problem areas where shadow flicker may affect the occupants of the structures for more than thirty (30) hours per year and describe measures that shall be taken to eliminate or mitigate the problems. Shadow Flicker on a **habitable** building shall not exceed thirty (30) hours per year.

l. Storage of Equipment:

All materials and **equipment** associated with maintenance of a Utility Grid wind energy system shall be stored in an enclosed structure designated for the purposes of storing said equipment.

m. Performance Guarantee:

- (1) To ensure compliance with **the terms of the permit** and the provisions of the Sherman Township zoning ordinance, **the energy company shall deposit the sum of \$25,000 or an amount set by the township for each permitted project into a escrow account maintained by Sherman Township. Sherman Township shall inform the energy company of the name of the financial institution where said escrow account is maintained. Sherman Township shall designate a person who is authorized to withdraw funds from the escrow account.**
- (2) **The energy company shall replenish the escrow account to the required**

balance of \$25,000 upon notification by the Zoning Administrator within 30 days. In the event that the energy company shall fail to replenish the escrow account to the required \$25,000 balance, the permit, if previously issued, shall be deemed revoked. The Zoning Administrator shall notify the energy company of said revocation.

(3) Sherman Township may require the escrow account balance to be adjusted throughout the life of the project to account for cost fluctuations in conducting tests and/or analysis. Within 60 days after written notification by the Zoning Administrator to the the energy company of the new required account balance, the energy company shall provide Sherman Township with the difference between the \$25,000 and the new required balance.

(4) Sherman Township shall maintain the escrow account until such time as the Zoning Administrator is satisfied that the project has been decommissioned and the site restored as required by the permit.

o. **Complaint Resolution:**

Should an aggrieved property owner allege that the Utility-Grid Wind Energy System is not in compliance with the requirements of this Zoning Ordinance, the procedure shall be as follows:

- i. An aggrieved party must first notify the the energy company in writing regarding concerns.
- ii. If the complaint remains unresolved after sixty (60) days, an aggrieved party may notify the Planning Commission in writing regarding concerns about the noise level.
- ii. If the complaint is deemed sufficient by the Planning Commission to warrant an investigation, the Planning Commission may order applicable noise level, shadow flicker, or other tests to be conducted by a technician approved by Sherman Township to determine compliance with the requirements of this Zoning Ordinance.
- iii. The energy company shall pay for any test required by Sherman Township from the escrow account established for performance guarantee.
- iv. If the Utility-Grid Wind Energy System Owner(s) is in violation of the Zoning Ordinance noise requirements, the Owner(s) must take immediate action to bring the violating turbine(s) within the Utility-Grid Wind Energy System into compliance, which may include ceasing operation of said turbine(s) until Zoning Ordinance violations are corrected.

p. **Change of Ownership, Certification & Compliance:**

- (1) The Sherman Township Planning Commission must be notified of a change in ownership of a Utility-Grid Wind Energy System.
- (2) The Sherman Township Planning Commission reserves the right to inspect the Utility-Grid Wind Energy System in order to ensure compliance with the Zoning Ordinance. Any cost associated with the inspections shall be paid by the owner/operator of the Utility-Grid Wind Energy System from the performance

guarantee escrow fund.

- (3) In addition to the Certification & Compliance requirements listed previously, the Utility-Grid Wind Energy System shall also be subject to the following:
- i. A sound pressure level **and shadow flicker** analysis shall be conducted from a reasonable number of sampled locations **determined by Sherman Township** to demonstrate compliance with the requirements of this Ordinance. Proof of compliance with the noise **and shadow flicker** standards is required within ninety (90) days of the date the Utility-Grid Wind Energy System becomes operational. Sound **and shadow flicker** shall be measured by a third-party, qualified professional approved by Sherman Township.
 - ii. The Utility-Grid Wind Energy System Owner(s) or Operator(s) shall provide the Zoning Administrator with a copy of a maintenance inspection upon request.

q. Abandoned, Inoperable, and Unsafe Wind Energy Systems (Turbines):

Any wind energy turbine or anemometer tower that is found to present an imminent physical threat of danger to life or a significant threat of damage to property shall be shut down immediately and removed or repaired or otherwise be made safe. A Michigan professional engineer approved by Sherman Township shall certify its safety prior to resumption of operation.

r. Removal and Site Restoration:

Within ninety (90) days of receipt of written notification from the Planning Commission, the owner/operator shall remove any wind energy system (turbine) or anemometer tower if:

- (1) **the owner/operator determines the system is at the end of its useful life, or**
- (2) **the Planning Commission determines the system is subject for removal because it is unsafe, abandoned, or inoperable, or**
- (3) **the Planning Commission determines the special use permit is expired or has been revoked. If the owner/operator fails to remove the wind energy system within 90 days, the township may remove it at the owner's expense from decommissioning funds and/or the performance guarantee escrow account.**