

PALMYRA TOWNSHIP

ORDINANCE NO. 25-05

**AN ORDINANCE TO AMEND THE ZONING ORDINANCE REGARDING WIND
ENERGY SYSTEMS**

The Township of Palmyra ordains:

Section 1. Purpose.

The purpose of this Ordinance is to amend the Township's wind energy zoning regulations, to render certain wind energy zoning regulations compatible with Public Act 233 of 2023 ("PA 233") while retaining local control over matters of regulation that are not governed by PA 233, and to promote the public health, safety, and welfare of Township residents.

Section 2. Repeal of Sections 2.66.1, 2.66.2, and 2.66.3.

Sections 2.66.1, 2.66.2, and 2.66.3 of the Zoning Ordinance are repealed in their entirety.

Section 3. Addition of New Section 2.66.1.

A new Section 2.66.1 is added to Article II of the Zoning Ordinance and reads in its entirety as follows:

Section 2.66.1 – Wind Energy System (WES).

Wind Energy System ("WES") means any part of a system that collects or stores wind energy for the purpose of transforming it into any other form of usable energy and includes any combination of the following: A mill or machine operated by wind acting on oblique vanes or sails that radiate from a horizontal or vertical shaft; a surface area such as a blade, rotor, or similar device, either variable or fixed, for utilizing the wind for electrical or mechanical power; a shaft, gearing, belt, or coupling utilized to convert the rotation of the surface area into a form suitable for driving a generator, alternator, or other electricity or energy producing device; the generator, alternator, or another device to convert the energy of the wind into electrical or other usable energy; the tower, pylon, or other structure upon which any, all, or some combination of the above are mounted; and any other components not listed above but associated with the normal construction, operation, and maintenance of a WES.

- A. Adverse Sound Character: Sounds or noise that cause building rattle, is impulsive, tonal, and includes amplitude modulation, or has a low-frequency bass rumble.
- B. Ambient: Ambient is defined as the sound pressure level exceeded 90% of the time over a 96- hour measurement period with daytime/nighttime division.
- C. Anemometer Tower: A freestanding tower containing instrumentation such as anemometers that is designed to provide present moment wind data for use by the

supervisory control and data acquisition (SCADA) system which is an accessory land use to a Wind Energy System.

- D. ANSI: The American National Standards Institute.
- E. dba: The A-weighted sound level.
- F. FAA: The Federal Aviation Administration.
- G. GIS: Geographic Information System and is comparable to GPS (global positioning system) coordinates.
- H. IEC: The International Electrotechnical Commission.
- I. ISO: The International Organization for Standardization.
- J. L_{max} (L_{Amax} or L_{Cmax}): The maximum dB(A) or dB(C) sound level measured using the “fast response” setting of the sound meter (equivalent to 0.125 second exponential averaging time).
- K. NEC: National Electrical Code.
- L. Noise: A sound that causes disturbance that exceeds 40 dBA L_{max} or 35 dBA L_{max}.
- M. Non-Participating Property: A property that is not subject to a Wind Energy System lease or easement agreement at the time an application is submitted for the purposes of constructing a Wind Energy System.
- N. Owner/Operator: A person, firm, corporation, company, limited liability corporation or other entity, as well as their agents, contractors, successors, assigns and/or transferees, who applies for Township approval to construct, repair, maintain, decommission and/or operate a WES and/or WES Testing Facility. An Owner/Operator must have the legal authority to represent and bind the owner of the Participating Property or lessee to the terms or conditions of any approvals for a permitted WES or WES Testing Facility. The duties and obligations regarding approval for any approved WES or WES Testing Facility shall be jointly and severally binding upon the Owner/Operator of the WES or WES Testing Facility. “Owner/operator,” even when used in the singular, may refer to more than one person or entity if there are multiple applicants, owners, or operators, or if the WES or WES Testing Facility is owned and operated by different entities.
- O. Participating Property: A property that participates in a lease or easement agreement, or other contractual agreement, with or that is owned by an entity submitting an application for the purpose of developing a WES. Participating Property also includes any property upon which is located a WES.
- P. SCADA (supervisory control and data acquisition): A computer system that monitors and controls WES.

- Q. Shadow Flicker: Alternating changes in light intensity caused by the moving blades of wind turbines on the ground and stationary objects, including but not limited to a window of a dwelling.
- R. 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. For frequency analysis, octave and 1/3 octave filters shall conform to ANSI S1.11-1986 (or later revision).
- S. Sound Pressure: An average rate at which sound energy is transmitted through a unit area in a specified direction (equivalent to 0.125 second exponential averaging time) See LMax. The pressure of the sound measured at a receiver.
- T. Sound Pressure Level: The sound pressure mapped to a logarithmic scale and reported in decibels (dB).
- U. Strobe Effect: The effect resulting from the flashing of reflected light, which can be visible from some distance, from the surface finish of turbine blades.
- V. Tip Height: The height of a WES with a blade at the highest vertical point or the tallest point of a vertical axis wind turbine.
- W. Utility-Scale Wind Energy System (Utility-Scale WES): A Wind Energy System consisting of a vertical axis wind turbine in which the principal design, purpose, or use is to provide energy to off-site uses or the wholesale or retail sale of generated electricity to any person or entity.
- X. Vertical Axis Wind Turbine (VAWT): A vertical axis wind turbine is a type of wind turbine where the main rotor shaft is set transverse to the wind while the main components are located at the base of the turbine.
- Y. Wetland: As used in this Ordinance, wetland shall mean the areas defined as such by Michigan law (see Part 301 Inland Lakes and Rivers and Part 303 Wetlands Protections of the Natural Resources and Environmental Protection Act, last revised effective 3-29-19), and regulated by the Michigan Department of Natural Resources, and the Michigan Department of Environment, Great Lakes, and Energy.
- Z. Wind Energy System Testing Facility (WES Testing Facility): A structure and equipment such as a meteorological tower for the collection of wind data and other meteorological data and transmission to a collection source, shall not be deemed to be a communication tower.
- AA. Wind Energy System Facility (WES Facility): Clusters of two or more Utility Scale WES placed upon a lot or parcel with the intent to sell or provide electricity to a site or location other than the premises upon which the WES Facility is located. A WES Facility may or may not be owned by the Owner of the Participating Property upon which they are placed.

Section 4. Amendment to Section 4.1.3

A new subsection U is added to Section 4.1.3 of the Zoning Ordinance and reads in its entirety as follows:

U. Wind Energy Systems pursuant to Section 8.14.

Section 5. Addition of New Section 8.14.

A new Section 8.14 is added to the Zoning Ordinance and reads in its entirety as follows:

A. General Provisions. All WES are subject to the following requirements:

1. All WES, including towers, shall conform to the provisions of this Section and all local, county, state, and federal regulations and safety requirements, including applicable building codes and applicable industry standards, including those of ANSI, FAA, Michigan Airport Zoning Act, Michigan Tall Structures Act, Underwriter Laboratory (UL), NEC, National Fire Protection Association (NFPA), and the most current Michigan Uniform Building Code adopted by the enforcing agencies. An interconnected Utility-Scale WES shall comply with any applicable Michigan Public Service Commission (MPSC) and Federal Energy Regulatory Commission (FERC) standards.
2. If an applicant, Owner, Operator, or Participating Property Owner of a WES fails to comply with this Section, the Township, in addition to any other remedy under the Zoning Ordinance, may revoke any approvals after giving notice and an opportunity to be heard. Additionally, the Township may pursue any legal or equitable action to abate a violation and recover all costs, including the Township's actual attorney fees and costs.
3. All WES, prior to construction, must obtain a no hazard determination from the FAA.
4. Wind turbines that exceed two hundred (200) feet in total height are considered obstructions to air traffic and are subject to the approval of the FAA. The FAA requires that obstructions to air traffic be illuminated with the appropriate FAA approved flashing red, flashing white, or steady burning red light lighting as described in FAA Advisory Circular AC 70/7460-1K, titled Obstruction Lighting and Marking.

B. Utility-Scale Wind Energy Systems. Utility-Scale WES are permitted by special land use approval in the Renewable Energy Overlay District as shown on the Palmyra Township Zoning Map and require a special land use permit under Article VI and site plan approval under Article VII. Utility-Scale WES are also subject to the following requirements:

1. Special Land Use Permit Application Requirements. In addition to the requirements of Article VI, the applicant for a Utility-Scale WES shall provide the Township with all of the following:

- a. Application fee in an amount set by resolution or fee schedule approved by the Township Board.
- b. A deposit for an escrow account in an amount set by resolution or fee schedule approved by the Township Board. The escrow account is used to cover all costs and expenses associated with the special land use review and/or approval process, which costs can include, but are not limited to, review fees of the Township Attorney, Township Planner, Township Engineer, and other Township qualified professional consultants in the areas of electrical, acoustics, environmental, and health and safety, as well as any reports or studies which the Township anticipates will be required during the review and/or approval process for the application. At any point during the review process, the Township may require that the applicant place additional monies into escrow with the Township if the existing escrowed funds on account with the Township will be insufficient, in the sole determination of the Township, to cover any remaining costs or expenses with the review and/or approval process. If additional funds are required by the Township to be placed in escrow and the applicant refuses to do so within 14 days after receiving notice, the Township will cease the zoning review and/or approval process until and unless the applicant makes the required escrow deposit. Any escrow amounts more than actual cost will be returned to the applicant. An itemized billing of all expenses will be provided to the applicant upon request.
- c. Required Security Deposits. Following approval, but prior to the issuance of a special land use permit for the construction of any Utility Scale WES, the following security deposits shall be deposited with the Township.
 - i. Sufficient funds to decommission and remove the WES in the event of abandonment.
 - ii. Sufficient funds to repair the anticipated damage to roadways during construction of the WES.
 - iii. A \$15,000 escrow account to cover the costs of complaint investigation, mitigation, and resolution.
- d. A map including all parcel numbers that depicts all Participating Property to be used by the Utility-Scale WES; documentation establishing ownership of each parcel; and any and all lease or option agreements (including “good neighbor” agreements), easements, or purchase agreements for the subject parcels, together with any attachments to such agreements or easements.
- e. An operations agreement setting forth the operations parameters, the name and contact information of the Owner/Operator, the Owner/Operator’s inspection protocol, emergency procedures, and general safety documentation.

- f. Federal Employer Identification Number for the Owner/Operator is required at the time of application.
- g. A written emergency response plan detailing the Owner/Operator's plan for responding to emergencies, including fire emergencies, and analyzing whether adequate resources exist to respond to fires and other emergencies. If adequate resources do not exist, the Owner/Operator shall identify its plan for providing those resources. The emergency plan shall include identification of potential hazards to adjacent properties, public roadways, and to the community in general that may be created, as well as plans for immediate cleanup, long-term monitoring, and continued mitigation efforts following an emergency.
- h. A written description of the fire suppression system that will be installed, which shall identify the manufacturer of the fire suppression system and generally describe its operations and capacity to extinguish fires.
- i. A written description of specialized training and/or equipment necessary for handling fires and/or other emergencies. All training and/or equipment will be paid for by the Owner/Operator. The training plan must include, at a minimum, mandatory annual emergency response training for local firefighters and other local emergency personnel at the site of a Utility-Scale WES.
- j. A complete set of photographs, video, and topography map of the entire Participating Property prior to construction.
- k. A copy of any power purchase agreement or other written agreement that the Owner/Operator has with an electric utility or any agreement or approval for interconnection between the proposed Utility-Scale WES and an electric utility or transmission company.
- l. A written plan conforming to the requirements of this Ordinance for maintaining the subject property, including a plan for maintaining and inspecting drain tiles and addressing stormwater management.
- m. A decommissioning and land reclamation plan describing the actions to be taken following the abandonment or discontinuation of the Utility-Scale WES, including evidence of proposed commitments with property owners to ensure proper final reclamation, repairs to roads, and other steps necessary to fully remove the Utility-Scale WES and restore the subject parcels to as near as possible to the condition the subject parcels were in prior to being used as a Utility-Scale WES.
- n. Financial security that meets the requirements of this Section.
- o. A plan for resolving complaints regarding but not limited to noise, glare, maintenance, shadow flicker, vibrations, ice throws, lighting, and drainage from the

public or other property owners concerning the construction and operation of the Utility-Scale WES.

- p. Identification of and a plan for managing any hazardous waste.
- q. A transportation plan for construction and operation phases, including any applicable agreements with the County Road Commission and Michigan Department of Transportation.
- r. An attestation that the Owner/Operator of the subject property will indemnify and hold the Township and its officials, elected or appointed, harmless from any costs or liability arising from the approval, installation, construction, maintenance, use, repair, or removal of the Utility-Scale WES.
- s. Utility-Scale WES shall be a vertical axis wind turbine constructed in accordance with the manufacturer's specifications and directions and shall be inspected by a third-party engineer retained by the Township and paid for out of the escrow maintained by the applicant. As built plans shall be provided to the Township upon completion of construction. A copy of the manufacturer's directions, instruction manual, and specification sheets for each model of turbine in the Utility-Scale WES, including any unredacted safety manuals and Safety Data Sheets (SDS), for installing, maintaining, and using the Utility-Scale WES. The safety manuals and SDS should include standard details for an industrial site such as materials, chemicals, fire, access, safe distances during Utility-Scale WES failure, processes in emergencies, etc.
- t. A ground cover vegetation establishment and management plan that complies with the Zoning Ordinance.
- u. Proof of environmental compliance, including compliance with:
 - i. Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act; (MCL 324.3101 et. Seq.);
 - ii. Part 91, Soil Erosion and Sedimentation Control (MCL 324.9101 et. Seq.) and any corresponding County ordinances;
 - iii. Part 301, Inland Lakes and Streams, (MCL 324.30101 et. Seq.);
 - iv. Part 303, Wetlands (MCL 324.30301 et. Seq.);
 - v. Part 365, Endangered Species Protection (MCL324.36501 et. Seq.); and
 - vi. Any other applicable laws and rules in force at the time the application is considered by the Township.

- v. Any additional information or documentation requested by the Planning Commission, Township Board, or other Township representative.
 - w. Insurance. Proof of the Owner/Operator's public liability insurance shall be provided at the time of application. If the Owner/Operator is approved, proof of insurance shall be provided to the Township annually thereafter. The policy shall provide for bodily injury, property damage, livestock damage, and future earnings loss and shall name the Township and each Participating Property owner as an additional insured with the right to be notified of cancellation and/or significant reduction of coverage. The Owner/Operator shall insure for liability, for the utility scale wind system until removed for at least \$25,000,000 per occurrence to protect the Owner/Operator, Township, and Participating Property owner. Proof of a current policy is required annually and shall be provided each year to the Township prior to the anniversary date of the special land use permit. Aggregate policies are allowed if minimum coverage per Utility-Scale WES is satisfied, and coverage is provided for every site where owner/operator's equipment is located.
 - x. Compliance with the Michigan Uniform Building Code and National Electric Safety Code: Construction of a Utility-Scale WES shall comply with the most current version of the Michigan Uniform Building Code and National Electrical Code adopted by the enforcing agencies as a condition of any special land use permit under this section.
 - y. Conceptual plan. A graphical computer-generated depiction of how the Utility-Scale WES will appear from all directions.
 - z. The Owner/Operator shall also submit a written explanation of the design characteristics and the ability of the structure(s) and attendant facilities to withstand winds, ice and other naturally occurring hazards, as well as information regarding health, welfare and safety in areas including, but not limited to, noise, vibration, shadow flicker, and blade ice deposits. This information shall also address the potential for the WES to structurally fail or collapse, and what results should be expected in such an event.
2. Site Plan Application Requirements. In addition to the requirements in Article VII, the applicant shall, at its expense, provide a detailed application and site plan drafted to a scale of 1 inch = 200 feet with the following:
- a. Location of all proposed structures, turbines, equipment, transformers, and substations.
 - b. Depiction of all setbacks, property lines, fences, signs, greenbelts, screening, drain tiles, easements, flood plains, bodies of water, proposed access routes, and road rights of way.

- c. Indication of how and where the system will be connected to the power grid.
- d. Plan for any land clearing and grading required for the installation and operation of the system.
- e. Plan for ground cover establishment and management.
- f. Anticipated construction schedule and completion date. As a condition of any special land use or site plan approval, hours of construction shall be limited to Monday through Friday from 7:00 a.m. to 5:00 p.m. with no construction on Saturday, Sunday, or any federally recognized holiday.
- g. Sound modeling study including sound isolines extending from the sound sources to the property lines of Participating Property.
- h. Any additional studies requested by the Planning Commission, including but not limited to the following:
 - i. Visual Impact Assessment: A technical analysis by a third-party qualified professional acceptable to the Township, of the visual impacts of the proposed project, including a description of the project, the existing visual landscape, and important scenic resources, plus visual simulations that show what the project will look like (including proposed landscaping and other screening measures), a description of potential project impacts, and mitigation measures that would help to reduce the visual impacts created by the project.
 - ii. Environmental Analysis: An analysis by a third-party qualified professional acceptable to the Township, to identify and assess any potential impacts on the natural environment including, but not limited to, removal of trees, wetlands and other fragile ecosystems, wildlife, endangered and threatened species. If required, the analysis will identify all appropriate measures to minimize, eliminate or mitigate adverse impacts identified and show those measures on the site plan, where applicable.
 - iii. Stormwater Study: An analysis by a third-party qualified professional acceptable to the Township, studying the proposed layout of the Utility-Scale WES and how the spacing, row separation, and slope affects stormwater infiltration, including calculations for a 100-year rain event. Percolation tests or site-specific soil information shall be provided to demonstrate infiltration on-site without the use of engineered solutions.
 - iv. Glare Study: An analysis by a third-party qualified professional acceptable to the Township, to determine if glare from the Utility-Scale WES will be visible from nearby airports, air strips, residences, and roadways. The analysis will

consider the changing position of the sun throughout the day and year and its influences on the Utility-Scale WES.

- v. Conceptual Layout Plan. Owner/Operator shall submit a conceptual layout plan for review prior to submission of a formal site plan. The conceptual site plan shall be reviewed by the Planning Commission to allow for discussion and feedback.
- vi. Background Sound Analysis. A background (ambient) sound analysis shall be performed by an independent third-party acoustician acceptable to the Township and a report provided which indicates Leq 1 second, L10, and L90 sound levels using A-weighting and C-weighting. Data shall be collected at midpoints along property lines of adjoining Non-Participating Property and Participating Property. Measurement procedures are to follow the most recent versions of ANSI S12.18 and ANSI S12.9, Part 3 guideline (with an observer present). Measurements shall be taken using an ANSI or IEC Type 1 Precision Integrating Sound Level Meter. The study must include a minimum of four four-day (96 hour) testing periods, include one Sunday, and divide data by daytime and nighttime. One of the four-day testing periods must occur between December 1 and March 1, one must occur between March 1 and June 1, one must occur between June 1 and September 1, and one must occur between September 1 and December 1. The sound background study shall report for the period of the monitoring topography, temperature, weather patterns, sources of ambient sound, and prevailing wind direction.
- vii. Economic Impact: The Owner/Operator shall fund and provide an economic impact analysis performed by an independent third-party acceptable to the Township. Such a study shall include probable financial impact regarding jobs, tax revenue, lease payments and property values at a minimum and average setbacks distances. Business and residential growth potential shall be considered.
- viii. Wind Assessment Analysis. A wind assessment analysis conducted within a potential project area shall be completed within 18 months of the date of application for a Utility-Scale WES and shall be performed by an independent third-party acceptable to the Township. The study must show analysis for a period of time no less than one (1) year. The height of an anemometer (or similar) device measuring wind availability shall be placed within the potential vertical swept blade area of the proposed Utility-Scale WES. The anemometer shall be decommissioned in accordance with this Ordinance, including the provision of a security bond covering decommissioning costs.
- ix. Shadow Flicker Impact Analysis. A copy of a shadow flicker analysis shall be performed by an independent third-party acceptable to the Township at Non-Participating Property lines to identify the locations of shadow flicker that may

be caused by any Utility-Scale WES and the expected durations of the flicker at these locations from sunrise to sunset over the course of a year. The site plan shall identify problem areas where shadow flicker may affect the owners and/or occupants of Non-Participating Property and show measures that shall be taken to eliminate shadow flicker.

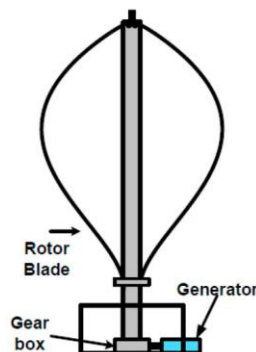
- x. A copy of a site suitability analysis by a third-party qualified professional acceptable to the Township to identify and assess any potential impacts to or hazardous conditions resulting from proximate existing uses and conditions. The suitability analysis must include:
 - (a) A flight pattern analysis and impact statement.
 - (b) A subsurface mine analysis and impact statement.
 - (c) An oil and gas lease analysis and impact statement.
 - (d) Other local site conditions identified by Planning Commission.
- i. Approvals from Other Agencies. Final site plan approval may be granted only after the Owner/Operator receives all required federal, state and local approvals, including any applicable approval by the state historic preservation office. Owner/Operator shall provide copies of all review letters, final approved plans, and reports issued by any other governing agencies to the Township.
- j. The site plan must show the existing topographical grades in two-foot intervals and conditions of all Participating Property at the time of application.
- k. A baseline soil test with a minimum of 1 core sample within 10 feet of each turbine foundation, including Cation Exchange Capacity (CEC), shall be provided to the Township prior to any construction.
- l. A written description of how the applicant will address dust control during construction. Such plan shall, at a minimum, consist of water applications at least three times per day unless it has rained in the preceding three hours of the planned application.
- m. Water Usage and Cleaning. The Owner/Operator shall detail the methodology planned for cleaning the wind turbines, frequency, and listing of any and all detergents, surfactants, chemical solutions used for each cleaning, and sources of water used to facilitate turbine restoration and maintenance.
- n. Repair Documentation: Owner/Operator must provide a detailed policy and process book for the repair, replacement, and removal of malfunctioning, defective, worn, or noncompliant Utility-Scale WES. Sections of the process book should consider

any ordinance requirement or Utility-Scale WES performance deficiency. The process book shall also include a detailed maintenance schedule.

- o. Documentation that noise emissions, construction code, tower, and safety requirements have been reviewed by the appropriate third-party professional and the submitted site plan is prepared to show compliance with these issues.
- p. A description of the routes to be used by construction and delivery vehicles and of any road improvements that shall be necessary to accommodate construction vehicles, equipment or other deliveries, and an agreement or bond which guarantees the repair of damage to public roads and other areas caused by construction of the Utility-Scale WES.
- q. Access Driveways: Geographic information system (GIS) mapping location of Utility-Scale WES and WES Testing Facility access driveways together with details regarding dimensions, composition, and maintenance of the proposed driveways and be filed with the township and recorded at the County Register of Deeds as an easement. The site plan shall include traffic routes, time of the year use, staging areas, and any other physical sites related to Utility-Scale WES. Construction of the Access Driveway that serves a Utility-Scale WES or WES Testing Facility is required to protect the public health, safety, and welfare by offering an adequate means by which governmental agencies may readily access the site in the event of an emergency. All such roads shall be constructed to allow access at all times by any emergency service vehicles, such as fire, police, and repair. Access driveways must meet Fowlerville Township Fire Department regulations and grant permanent access easement to the Township to be recorded at the County Register of Deeds.
- r. All new infrastructure above and below ground related to the project, including transmission line locations.
- s. A contact for the Owner/Operator to which any notice of complaint, as defined by this Ordinance, may be sent.
- t. Building Siting: Geographic information system(GIS) mapping of locations and height of all proposed buildings, structures, electrical lines, towers, guy wires, guy wire anchors, security fencing, and other aboveground structures associated with the Utility Scale WES.
- u. Nearby Building Siting and Airports: Geographic information system (GIS) mapping locations of any existing airport located within 5 miles of a proposed Utility-Scale WES and the location and height of all existing adjacent buildings, structures, and existing or proposed above ground and underground utilities located within 2500 feet of the property lines of any Participating Property, including the

location of all overhead and underground electrical transmission or distribution lines, whether utilized or not by the Utility-Scale WES or WES Testing Facility.

- v. **Site Lighting:** A lighting plan for each Utility-Scale WES and WES Testing Facility. Such plan must describe all lighting that will be utilized and documentation that FAA requirements are met. RADAR activated lighting shall be utilized if allowed by FAA. Such a plan shall include but is not limited to, the planned number and location of lights, light color, activation methods, effect on Township residents and whether any lights blink. Due to complexity in describing lighting effects for health, welfare, and safety, Owner/Operator shall, if available, provide example locations with product descriptions, where similar, or proposed, lighting solutions are currently deployed. Lighting shall be fully shielded from ground, be FAA compliant, and be of most current design, to minimize lighting blinking and brightness nuisance.
 - w. **Supplemental:** Additional detail(s) and information as requested by the Planning Commission.
3. Application Items as Substantive Requirements. The information, plans, documents, and other items identified as application requirements in this Section, including the site plan and special land use permit, are substantive requirements for obtaining approval for a Utility-Scale WES. The Planning Commission shall review the sufficiency of the application materials and the required standards and findings under Articles VI and VII of the Zoning Ordinance. If the Planning Commission determines that the substance of any application item is insufficient, the Planning Commission shall deny approval on that basis.
4. System and Location Requirements.
- a. Utility-Scale WES shall be limited to vertical axis wind turbines similar to the depiction below, as opposed to a horizontal axis wind turbine, and shall only be located in the Renewable Energy Overlay District as shown on the Palmyra Township Zoning Map.



- b. **Setback:** The following setback, measured from the outside edge (the point furthest from the tower as it rotates) of the blades, not from the tower itself, shall be

observed. The minimum setback from any property line of a Non-Participating Property or any public or private road right-of-way is 500 feet for non-participating and 750 from public road rights of way. Additionally, each turbine must be located at least 1 mile from the nearest inland lake as defined by the Natural Resources and Environmental Protection Act, Act 451 of 1994 and shall not raise the descent minimums of any approach procedure to any airport, or otherwise limit operations at an airport. If a single Utility-Scale WES is located on more than one property, or if the adjacent property is owned by the same owner as the property on which the Utility-Scale WES is located, then the lot line setbacks of this subsection do not apply to the lot lines shared by those properties.

- c. The height of a Utility-Scale WES with the blade fully extended must not exceed 200 feet.
 - d. The minimum clearance from ground level to the blade at its lowest point must be at least 50 feet.
 - e. Rotor blades of a Utility-Scale WES must have a minimum of 100 feet of clearance from any structure, other than another WES.
 - f. Each Utility-Scale WES must be equipped with a braking or equivalent device, capable of stopping the Utility-Scale WES operation in high winds with or without SCADA control. The braking system must be effective during complete grid power failure when Utility-Scale WES are unable to communicate with SCADA control or receive power.
 - g. All Utility-Scale WES may be required to be equipped with technology that automatically de-ices the turbine blades. Such system must detect ice and heat the blades, such as through the use of built-in carbon heating mats or through the circulation of hot air.
 - h. The size of a Participating Property to be used for a Utility-Scale WES shall be sufficient to comply with all setback requirements in this section.
5. Vibrations: No Utility-Scale WES shall create vibrations that are detectable by humans on Non-participating Property. No Utility-Scale WES shall generate or permit to be generated any vibration in the low-frequency range of 0.1 to 20 Hz, including the 1, 2, 4, 8, and 16 Hertz 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 Property line or at any point within a Non-Participating Property.
6. Shadow Flicker: Zero hours of Shadow Flicker may fall on or in a Non-Participating Property or on public roads or highways. Site plan and other documents and drawings shall show mitigation measures to eliminate potential impacts from shadow flicker, as identified in the Shadow Flicker Impact Analysis. Measures to eliminate all effects of

shadow flicker on all Non-Participating Property beginning at the property lines, such as programming the Utility-Scale WES to stop rotating during times when shadow crosses property lines, shall be required.

7. Substations and accessory buildings: Structures related or accessory to a Utility-Scale WES shall be subject to the dimensional and locational standards of structures in the zoning district in which they are located. Where structures are visible from Non-Participating Property, vegetation or manmade screening shall be required to minimize visual impact off-site.
8. Permits: All required local, county, state, and federal permits shall be obtained before the Utility-Scale WES begins operating, including, but not limited to, a tall structures permit pursuant to the Michigan Tall Structures Act (Act 259 of 1959, MCL 259.481 *et seq.*)
9. Appearance: All Utility-Scale WES must be painted a non-obtrusive, neutral color, such as beige, gray, or off-white and must be non-reflective. All bases and rotor blades of Utility-Scale WES must be the same color and must be consistent with the color of other Utility-Scale WES in the Township. No advertisements, graphics, or striping are permitted on the Utility-Scale WES. The Owner/Operator is encouraged to select anti-icing paint that prevents the formation of ice on the rotor blades of the Utility-Scale WES.
10. Lighting: Lighting of the Utility-Scale WES is limited to the minimum light necessary for safe operation. Utility-Scale WES may be lit only to the minimum extent required by the FAA.
11. Security Fencing.
 - a. Security fencing may be required by the Planning Commission to be installed around all electrical equipment related to the Utility-Scale WES, including any transformers. Fencing shall be at least seven feet tall and be composed of woven agricultural wire. Barbed and razor wire is prohibited.
 - b. A containment system shall surround any transformers in case of hazardous waste or oil spills.
 - c. Appropriate warning signs shall be posted at safe intervals at the entrance and around the perimeter of the Utility-Scale WES.
 - d. Gate posts and corner posts shall have a concrete foundation.
 - e. Gates shall be the same height and constructed of the same material as the fencing. Access, such as Knox box, shall be provided for emergency responders.

- f. The Township may allow or require a fence design to allow for the passage of wildlife upon a finding that adequate access control and visual screening will be preserved.
12. Noise.
- a. 40 dBA Lmax, as measured at the property line of the Participating Property, between the hours of 7:00 a.m. and 9:00 p.m.
 - b. 35 dBA Lmax, as measured at the property line of the Participating Property, between the hours of 9:00 p.m. and 7:00 a.m.
 - c. The Owner/Operator of the Utility Scale WES shall annually provide for a sound analysis or modeling, conducted by an auditory expert chosen by the Township, at the expense of the Owner/Operator.
13. Underground Transmission. Except for power switchyards, the areas within a substation, or for interconnection with a regulated transmission line, all power transmission, communication, or other lines, wires, or conduits from a Utility-Scale WES to any building or other structure shall be located underground and in compliance with current NEC standards. Burial depth shall be at a depth that causes no known environmental, land use, or safety issues, but not less than 6 feet below grade or deeper than drain tile on the Participating Property, whichever depth is greater.
14. Road Damage: The Owner/Operator shall inform the County Road Commission (CRC) and the Township of all the roads they propose to use as haul routes for construction, repair, or decommissioning for each Utility-Scale WES. This shall be done prior to beginning any work at any site. A third-party road inspector will be retained, with mutual approval of the Township, the Owner/Operator, and the CRC or the Michigan Department of Transportation (MDOT) if a state highway is involved. The road inspector will determine any precautions to be taken (including videotaping and physical inspections) during the process, to determine any damage that may be caused by Owner/Operator, and then determine the appropriate road standards and measures to be taken to repair the damage. The cost of the third-party road inspector and/or any other required third-party assistance, and of all repairs necessitated to restore the roads [and related property which may be damaged by the Owner/Operator], shall be the responsibility of the Owner/Operator, and shall in no case be the responsibility of the Township.
15. Fire Suppression: The Utility-Scale WES shall include a fire suppression system that is specifically designed to immediately suppress and extinguish fires in any part of the WES. The Owner/Operator shall provide documentation establishing the effectiveness of the fire suppression system and the results of a third-party independent inspection of the fire suppression system.
16. Battery Storage: Commercial grid storage batteries or capacitor banks storing or returning supplemental power to the grid are not permitted. Use of Batteries in

commercial applications is only permitted as emergency backup for safety lighting and related computer infrastructures.

17. Electronic Interference: A Utility-Scale WES must not interfere with any radio, television, or other communication systems. If the Township or the Owner/Operator of the Utility-Scale WES receive a complaint about communication interference, the Owner/Operator must resolve the interference immediately and provide proof that the interference has been resolved within 90 days.
18. Stray Voltage Assessments: No stray voltage originating from a Utility-Scale WES may be detected on any Participating Property or Non-Participating Property. 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 Participating Property. 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 Owner/Operator shall seek written permission from the property owners prior to conducting testing on such owners' property. Owner/Operator 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 Property shall not refuse the stray voltage testing if they have a MDARD registered livestock facility on the Participating Property.
19. Drainage: Drainage on Participating Property shall be maintained in a manner consistent with, or improved upon, existing natural drainage patterns. Any disturbance to drainage or water management practices shall be managed within the Participating Property and on-site in order to not negatively impact surrounding properties as a result of the development. This shall be maintained for the duration of the operation of the Utility-Scale WES and shall be able to be returned to pre-existing conditions following decommissioning. Any existing drainage tiles that are identified on Participating Property shall be shown on the as-built drawings submitted following construction. Prior to the start of construction, any existing drain tile shall be inspected by robotic camera and the imagery submitted to the Township for baseline documentation on tile condition. Any damage shall be repaired, and a report submitted to the property owner and Township. While the Utility-Scale WES is in operation, the Owner/Operator shall reinspect the drain tiles every two (2) years by robotic camera for any damage and shall repair any damage within 60 days of discovery. The Owner/Operator shall report the inspection, along with any damage and repair, to the Township within 90 days after each two-year deadline. The Township reserves the right to have the Building Inspector, County Drain Commissioner, or other agent present at the time of repair. WES support structures and/or foundations shall be constructed to preserve any drainage field tile or system.
20. Access Routes: Access drives are subject to the approval of the County Road Commission to the extent of the Road Commission's jurisdiction. All access drives and roads within the site shall be adequately maintained for emergency vehicle use, including winter maintenance.

21. As-Built Drawings: The Owner/Operator shall submit “as built” drawings with dimensions relative to Participating Property lines of all new structures including Utility-Scale WES and buried cable both inside and outside fenced areas upon completion and before any power is generated by any Utility-Scale WES. The as built drawings shall be a scale of 1 inch = 200 feet.
22. Signs: Signs are permitted but shall comply with Section 8.3. Each Utility-Scale WES shall include at least one sign identifying the Owner/Operator and providing a 24-hour emergency contact telephone number.
23. Emergency Action Plan and Training: Before the Utility-Scale WES is operational, the Owner/Operator shall provide the necessary training, equipment, or agreements specified in the application to Township or other emergency personnel.
24. Decommissioning and/or Abandonment:
 - a. If a Utility-Scale WES is abandoned or otherwise non-operational for a period of six months, the Owner/Operator shall notify the Township and shall remove the Utility-Scale WES within six months after the date of abandonment. Removal requires receipt of a demolition permit and full restoration of the site in accordance with the provisions of this Section and to the satisfaction of the Zoning Administrator. The site shall be filled and covered with topsoil and restored to a state compatible with the surrounding vegetation. The requirements of this subsection also apply to a Utility-Scale WES that is never fully completed or operational if construction has been halted for a period six months.
 - b. The decommissioning plan shall be written to provide security to the Township equal to at least 125% of the cost to remove and dispose of all Utility-Scale WES, removal of all wiring, footings, and pilings, (regardless of depth), and restoration of the land to its original condition. The value of decommissioning shall be determined by a third-party financial consultant or engineer selected by the Township and paid for by the Owner/Operator. The cost of decommissioning shall be exclusive of any estimated salvage value. The decommissioning security shall be paid in cash to the Township. Once the value of decommissioning is determined, it shall be updated on a periodic basis of not less than every 2 years and additional security shall be required based on the average of the Consumer Price Index published from time to time by the Bureau of Labor Statistics for the preceding 2 years.
 - c. All abandonment and decommissioning work shall be done when soil is dry.
 - d. Participating Property shall be restored to its original topography within three hundred sixty-five (365) days of abandonment or decommissioning. An extension may be granted if a good faith effort has been demonstrated and any delay is not the result of actions or inaction of the Owner/Operator.

- e. If land balancing is required, all topsoil will be saved and spread evenly over balanced area according to the existing topography map provided at the time of application.
 - f. An annual report shall be provided to the Zoning Administrator showing continuity of operation and the Owner/Operator shall notify the Zoning Administrator if the use is to cease, prior to decommissioning, or abandonment.
 - g. Continuing Obligations: Failure to keep any required financial security in full force and effect at all times while a Utility-Scale WES exists or is in place shall constitute a material and significant violation of the special land use permit, and this Ordinance, and will subject the Owner/Operator (jointly and severally, if more there is more than one owner or operator) to all remedies available to the Township, including any enforcement action, civil action, request for injunctive relief, and revocation of the special land use permit.
 - h. The Township shall have the right to seek injunctive relief to effect or complete decommissioning, as well as the right to seek reimbursement from the Owner/Operator for decommissioning costs in excess of the amount deposited in escrow and to file a lien against any real property of the Owner/Operator for the amount of the excess, and to take all steps allowed by law to enforce said lien.
 - i. At the time of decommissioning, the Planning Commission may allow deviations from the above decommissioning requirements following notice and a public hearing in accordance with Section 103 of the Zoning Enabling Act.
25. Complaint Resolution: Utility-Scale WES shall provide a complaint resolution process, as described below:
- a. Participating Property upon which a Utility-Scale WES is located shall have signs posted with contact information to collect complaints.
 - b. A log shall be kept by the Owner/Operator of all complaints received and shall be available to Township officials for review at the Township's request.
 - c. The Owner/Operator shall respond to complainants within ten (10) business days and shall provide notification to the Zoning Administrator.
 - d. Any resolution shall include lawful and reasonable solutions consistent with this Ordinance, which shall also be provided to the Zoning Administrator. If the mitigation plan is determined to be satisfactory, the Owner/Operator must implement the mitigation within 30 days.
 - e. If the Owner/Operator fails to implement the mitigation plan, the Planning Commission shall hold a public hearing for the purpose of considering revocation of the special land use permit pursuant to the process under Section 13.06.E of this Ordinance. If the Owner/Operator implements the mitigation plan prior to the hearing date, the hearing may be cancelled.

- f. If the Owner/Operator requests that the Zoning Board of Appeals review the complaint it must do so within thirty (30) days following the date the Owner/Operator is notified of the complaint. Upon the timely request of the Owner/Operator, the Zoning Board of Appeals shall hold a public hearing and shall hear evidence from both the complainant, and the Owner/Operator. Following the public hearing, the Zoning Board of Appeals shall make one of the following determinations:
 - i. The Owner/Operator is in compliance with the Ordinance and all conditions of approval, and no further action is needed.
 - ii. The Owner/Operator is out of compliance with either the Ordinance, or the conditions of approval, or both, and the Owner/Operator must submit a mitigation plan to the Zoning Administrator within 60 days. If no mitigation plan is submitted, the Zoning Administrator shall notice a public hearing of the Planning Commission for the purpose of revoking the special land use permit. If the special land use permit is revoked, the abandonment process shall begin.
 - g. The Owner/Operator shall provide an annual report to the Zoning Administrator that details all complaints received, the status of complaint resolution, and actions taken to mitigate complaints.
26. Required Escrow Account: The Owner/Operator of a Utility-Scale WES shall be required, as a condition of the operation, to fund an escrow account in the amount of \$15,000 for investigation of complaints, including but not limited to, noise, glare, maintenance, shadow flicker, vibrations, ice throws, lighting, stray voltage, signal interference, and drainage. The escrow established by this subsection may be used at the discretion of the Township to pay for third-party investigative services. Funds shall be deposited with the Township Treasurer, or with a third-party fiduciary, at the discretion of the Township. When the escrow account balance is below \$5,000 the Township shall notify the Owner/Operator and the Owner/Operator shall replenish the account to an amount of \$15,000 within 45 days.
27. Maintenance and Repair:
- a. Each Utility-Scale WES shall be kept and maintained in good repair and condition at all times and the site shall be neat, clean, and free of refuse, waste, or unsightly, hazardous, or unsanitary conditions. All Utility-Scale WES damaged beyond repair or use shall be replaced and removed from the project site within seven (7) days and shall be disposed of off-site in accordance with any state or federal requirements.
 - b. If the Zoning Administrator or Planning Commission determines that a Utility-Scale WES fails to meet the requirements of this Ordinance or the special land use permit, the Zoning Administrator or Planning Commission shall provide notice to the Owner/Operator of the non-compliance, and the Owner/Operator has 14 days to cure the violation. If the violation is a safety hazard as determined by the Zoning

Administrator or Planning Commission, then the Owner/Operator has 7 days to cure the violation. If the Owner/Operator has not remedied non-compliance issues in the aforementioned time periods, the Owner/Operator shall immediately shut down the Utility-Scale WES and shall not operate, start or restart the Utility-Scale WES until the issues have been resolved. If the Owner/Operator fails to bring the Utility-Scale WES into compliance, the Township may seek relief at law or equity to abate the nuisance and may also issue a municipal civil infraction citation. Each violation for which the Owner/Operator is deemed responsible shall result in a \$500.00 fine.

- c. The Owner/Operator shall keep a maintenance log on each Utility-Scale WES, which shall be available for the Township's review within 48 hours of such request.
 - d. At the time of the Special Land Use application, the Owner/Operator shall submit two (2) third-party contractor bids for construction of all fencing, landscaping, and drainage improvements associated with the utility scale wind energy system. A performance bond in the amount of 125% of the higher bid shall be provided to the Township to ensure completion. The Township may use the bond to complete or repair any landscaping, fencing, or drainage infrastructure (including drain tiles).
28. Extraordinary Events: If the Utility-Scale WES experiences a failure, fire, leakage of hazardous materials, personal injury, or other extraordinary or catastrophic event, the Owner/Operator shall notify the Township within 8 hours.
29. Annual Report: The Owner/Operator shall submit a report on or before January 1 of each year that includes all of the following:
- a. Amount of electric generation;
 - b. Current proof of insurance with the Township and Participating Property owner(s) shown as named insured;
 - c. Verification of financial security; and
 - d. A summary of all complaints, complaint resolutions, and extraordinary events.

Additionally, the Owner/Operator shall appear before the Planning Commission annually to report on the Utility-Scale WES and address questions or concerns from the Planning Commission.

30. Inspections: The Township may inspect a Utility-Scale WES at any time by providing 24 hours advance notice to the Owner/Operator.
31. Transferability: A special land use permit for a Utility-Scale WES is transferable to a new owner. The new owner shall register its name, Federal Employer Identification Number, and business address 30 days prior to the transfer date with the Township and shall comply with this Ordinance and all approvals and conditions issued by the Township.

- a. In the event of a sale or transfer of ownership and/or operation of the wind facility, the original security bond or escrow shall be maintained throughout the entirety of the process and shall not be altered. The estimated costs of decommissioning shall be resubmitted, and the security bond adjusted to account for the new estimate.
 - b. Any proposed amendments to the approved site plan of the special land use permit shall be submitted to the Zoning Administrator pursuant to Section 7.9 of the Zoning Ordinance and, except as provided below, shall follow the process therein.
32. Amendments:
- a. Major site plan amendments shall follow the same process for the original approval, including a public hearing and include any of the following:
 - i. Changes of the location of turbines, fencing, buildings, or ancillary equipment by 10 feet or more.
 - ii. Any increase in the height of wind turbines.
 - iii. Any variance request.
 - iv. Any other change not included below as a minor site plan amendment.
 - b. Minor site plan amendments may be approved by the Zoning Administrator and include changes of the location of a Utility-Scale WES, fencing, buildings, or ancillary equipment by less than 10 feet.
33. Remedies. If an Owner/Operator fails to comply with this Ordinance, the Township, in addition to any other remedy under this Ordinance, shall revoke the special land use permit and site plan approval after giving the Owner/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.
- C.** Utility-Scale WECS Under PA 233: On or after November 29, 2024, once PA 233 of 2023 is in effect, then the following provisions apply to Utility-Scale WECS with a nameplate capacity of 100 megawatts or more. Utility-Scale WECS with a nameplate capacity of 100 megawatts or more shall only be permitted as a special land use in the Renewable Energy Overlay District as shown on the Palmyra Township Zoning Map.

To the extent the following provisions conflict with the provisions in Sections 8.14(A)-(B), these provisions control as to Utility-Scale WECS with a nameplate capacity of 100 megawatts or more. All provisions in Sections 8.14(A)-(B) that do not conflict with this subsection C remain in full force and effect and shall be applicable to all Utility-Scale WECS regardless of nameplate capacity. The following provisions do not apply if PA 233 of 2023 is repealed, enjoined, or otherwise not in effect, and do not apply to Utility-Scale WECS with a nameplate capacity of less than 100 megawatts.

1. Setbacks. Utility-Scale WECS must comply with the following minimum setback requirements, with setback distances measured from the center of the base of the wind tower:

Setback Description	Setback Distance
Occupied community buildings and dwellings 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 center line 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 center line of the easement containing the overhead line

2. Shadow Flicker. Each wind tower must be sited such that any occupied community building or nonparticipating residence will not experience more than 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 must not exceed the height allowed under the Determination of No Hazard to Air Navigation by the Federal Aviation Administration under 14 CFR part 77.
4. Noise. The Utility-Scale WECS must not generate a maximum sound in excess of 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 National Standards Institute.
5. Lighting. The Utility-Scale WECS must be equipped with a 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. The Township may grant a temporary exemption from the requirements of this subparagraph if installation of appropriate light-mitigating technology is not feasible. A request for a temporary exemption must be in writing and state all of the following:
 - a. The purpose of the exemption.
 - b. The proposed length of the exemption.

- c. A description of the light-mitigating technologies submitted to the Federal Aviation Administration.
 - d. The technical or economic reason a light-mitigating technology is not feasible.
 - e. Any other relevant information requested by the Township.
6. Radar Interference. The Utility-Scale WECS must meet any standards concerning radar interference, lighting (subject to subparagraph 5), or other relevant issues as determined by the Township.
7. Environmental Regulations. The Utility-Scale WECS must comply with applicable state or federal environmental regulations.
8. Host Community Agreement. The applicant for a special land use permit for a Utility-Scale WECS 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 WECS owner must pay the Township \$2,000.00 per megawatt of nameplate capacity. The payment shall be used as determined by the Township for police, fire, public safety, or other infrastructure, or for other projects as agreed to by the local unit and the applicant.

Section 6 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 7. Repealer.

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.

Section 8. Effective Date.

This Ordinance takes effect 7 days after a notice of its adoption is published.