

**SHIAWASSEE COUNTY
CORUNNA, MICHIGAN**

**RENEWABLE ENERGY DISTRICT ZONING ORDINANCE AMENDMENT
ORDINANCE NO. 24-01-01**

[An ordinance adopted pursuant to the provisions of the Michigan Zoning Enabling Act (Public Act 110 of 2006, as amended) to provide for a renewable energy zoning district; to establish requirements for zoning approval of renewable energy projects; to define terms related to renewable energy projects; to provide for severability, repeal, publication and an effective date; and for other purposes.]

THE COUNTY OF SHIAWASSEE, MICHIGAN HEREBY ORDAINS:

Section 1. Short Title.

This Ordinance shall be known and cited as the Renewable Energy District Zoning Ordinance Amendment and may be referred to herein as the “Ordinance” or this “Ordinance.”

Section 2. Amendment.

This Ordinance amends the Zoning Ordinance of Shiawassee County (effective February, 27, 2003, as amended, and hereinafter referred to as the “Zoning Ordinance”).

Section 3. Section 2.1.1.

The following is added to Section 2.1.1. of the Zoning Ordinance:

RE Renewable Energy

Section 4. Section 2.4.7.

The following is added to the Zoning Ordinance as Section 2.4.7.F:

The one renewable energy district recognizes production of energy from alternative and renewable sources, such as through solar and wind, is a viable land use in Shiawassee County and therefore shall be considered where there is a demonstrated need, located within reasonable proximity to distribution of energy facilities, and where other uses are low-density or not conflicting by nature. The location, development and operation of such systems are to be regulated in a manner that takes into consideration locational needs of the use, relationship to surrounding uses and densities of land uses, future restoration of property to a productive use and to in general protect the public health, safety and welfare.

Section 5. Section 2.25.

The following is added as Section 2.25:

Article 2, Section 2.25 RE DISTRICT: RENEWABLE ENERGY

2.25.1 Intent and Purpose: It is the intent and purpose of this district to recognize that the production of

energy from alternative and renewable sources, such as through solar and wind, is a viable land use in Shiawassee County and therefore shall be considered where there is a demonstrated need, located within reasonable proximity to distribution of energy facilities, and where other uses are low-density or not conflicting by nature. The location, development and operation of such systems are to be regulated in a manner that takes into consideration locational needs of the use, relationship to surrounding uses and densities of land uses, future restoration of property to a productive use and to in general protect the public health, safety and welfare.

2.25.2 Permitted Uses: The uses allowed by right, by right with conditions and by Special Use Permit are listed on Table 2-1, Section 2.26.3.

2.25.3 Accessory Buildings, Structures and Uses: Accessory uses as listed in Table 2-2, Section 2.26.4 are permitted with any additional requirements as listed on the Table.

2.25.4 Regulations for Development and Operation: See Article 4, Section 4.3.79.

Section 6. Section 2.26.3 and 2.26.4.

The tables attached hereto as Exhibit A replace tables 2-1 and 2-2 in their entirety.

Section 7. Section 4.3.

Sections 4.3.76 and 4.3.78 are deleted in their entirety and reserved for future use. The following is added as Section 4.3.79:

Section 4.3.79 Renewable Energy Facilities

A. Approval Required

1. Commercial WECS and SES are permitted by issuance of final site plan by the Planning Commission in the RE, Renewable Energy District. If a Commercial WECS or SES project involves siting Commercial WECS in multiple townships, a separate final site plan is required for those Commercial WECS or SES within each Township under the jurisdiction of this Ordinance. An application for final site plan shall contain information required pursuant to Article 14 for final site plan approval, and other information as required in this Section.
2. In the event it is necessary that a WECS Testing Facility be erected to monitor meteorological conditions for the life of a Commercial WECS project, such WECS Testing Facility shall be included as part of the final site plan approval process for the Commercial WECS regardless of any previous approvals for special use permit.

B. General Standards and Information Required. The following general standards and information requirement shall apply to all proposed Commercial WECS and SES:

1. Baseline Information and Studies.
 - a. Project Description and Rationale. Identify the type, size, rated power output, performance,

safety and noise characteristics of the system including the transmission line/grid connection for the project. Identify the project construction time frame, project life, development phases (and potential future expansions) and likely markets for the generated energy.

- b. Migratory and Game Birds. An avian study is required to be conducted by a qualified professional to determine any potential impacts that a Commercial WECS or SES facility may present to migratory and game birds. The study and its results must provide assurances that a Commercial WECS or SES does not negatively impact the path of migratory birds or the viability of game birds.
- c. Endangered Species/Wildlife Study. An endangered species and general wildlife study is required and is to be conducted by a qualified professional to determine any potential impacts the Commercial WECS or SES may present to endangered species or wildlife in general. The study must provide assurances that the Commercial WECS or SES does not negatively impact endangered species or disrupt wildlife sustainability in general.
- d. Sound Study. An applicant for a Commercial WECS and SES shall provide a study and report declaring the ambient and potential sound created by a Commercial WECS or SES. The study should specifically address sound created by a Commercial WECS or SES at Non-Participating Parcel boundaries; along property lines between Participating and Non-Participating Parcels and at structures intended for human occupancy.

The study and report must be produced with the most current protocol for ANSI S12.9, Part 3, ANSI S12.100 and other applicable ANSI standards and methodology for the measurement of sound to the extent that those standards and methods are applicable to providing accurate and substantive information for review by the Planning Commission. This study and report must be certified by a qualified and certified acoustician and include the following:

- i. A description and map of the existing land uses and structures within one (1) mile (measured from the boundary of the area composed of all Participating Parcels) of a proposed Commercial WECS and SES. The description and map shall include the location of structures, their use or uses, distances from a source of sound associated with a WECS and SES and ambient decibel readings (including the date and time when measurements are taken) for each identified land use and structure described and mapped.
 - ii. A description and map of the sound producing features of each Commercial WECS and SES, including the range of decibel levels expected (measured in dB(A) and the basis for the expectation.
 - iii. A detailed description of the proposed sound control features for each Commercial WECS and SES, including specific measures to minimize sound to meet requirements herein.
- e. Shadow Flicker/Glare Impact Analysis. The applicant shall provide a study identifying through modeling the potential impact of shadow flicker and/or glare that may be caused by a Commercial WECS or SES and the expected durations of the shadow flicker or glare from sun-rise to sun-set over the course of a calendar year.
 - f. Transportation Plan. Provide a proposed access plan during construction and operational phases. Show proposed project service road ingress and egress locations onto adjacent public

roads and the layout of the facility service road system. Describe proposed mitigation efforts to ensure viability of public roads, estimates of cost for those mitigation efforts, and estimates of cost for restoration of any public road to predevelopment viability.

- g. **Emergency Response Plan.** Provide a plan for addressing emergency response from local authorities related to the project. Such plan shall include detailed accounting of potential sources of fire, debris, or other materials and events that would potentially cause harm to the general public or emergency responders. Local emergency authorities shall also be provided detailed information as to best practices and standards for responding to emergency events.
 - h. **Reclamation Analysis.** Identify impacts on water, soil and air quality resulting from intended development of a Commercial WECS or SES. The applicant shall provide for testing of above items prior to development and post-development, and shall incorporate data obtained into decommissioning plan to ensure restoration of property to pre-use status or alternative declared viability. This plan shall also provide a waste disposal description anticipated at the end of use. Such description shall include an accounting of material deemed hazardous, general rubbish, and recyclable. The reclamation analysis shall be utilized to determine compliance with remediation and restoration requirements following the end of the use.
 - i. **Impact on Agriculture and Farmland.** Identify and classify any farmland that will be impacted by the project. Specifically, provide information as to whether any portion of the project will impact or otherwise reduce the availability for agricultural operations of farmland classified as “important farmland” under the Farmland Protection Policy Act, and related regulations at 7 C.F.R. § 657.5 (this includes prime farmland, unique farmland, additional farmland of statewide importance and additional farmland of local importance).
2. **Safety Measures.** The following safety measures are to be implemented for Commercial WECS and SES.
- a. **Controls and Brakes.** All Commercial WECS shall be equipped with manual and automatic controls to limit rotation of blades to a speed below the designed limits of the Commercial WECS. A Professional Engineer must certify that the rotor and over-speed control design and fabrication conform to applicable design standards.
 - b. **Installation Certification.** The Professional Engineer shall certify that the construction and installation of the Commercial WECS and SES meets or exceeds the manufacturer’s construction and installation standards.
 - c. **Climb Prevention.** All Commercial WECS and SES must be unclimbable by design or protected by anti-climbing devices.
 - d. **Fire and Other Risk.** All Commercial WECS and SES must adhere to all applicable electrical codes and standards, and shall remove fuel sources, such as vegetation, from the immediate vicinity of electrical equipment and connections.
 - e. **Interference.** It shall be the responsibility of the applicant to submit acceptable documentation to determine if the improvement would in any way cause interference with microwave transmissions, residential television reception or radio reception and to prevent such interference from occurring.

- f. Waste. All solid and hazardous wastes, whether generated from supplies, equipment parts, packaging, operation or maintenance of the Commercial WECS and SES shall be removed from the site immediately and disposed of in a manner consistent with all local, state, and federal rules and regulations.
 - g. Liability Insurance. The owner(s) or operator(s) of the Commercial WECS and SES shall maintain a current liability insurance policy, in amounts deemed acceptable to the Planning Commission, through a licensed and reputable insurance carrier to cover installation and operation.
 - h. The owner or operator shall notify the Shiawassee County Zoning Administrator in writing within twenty-four (24) hours of an occurrence of a Commercial WECS or SES collapse, failure, fire, collector or feeder line failure, or injury to person or property.
3. Height.
- a. Commercial WECS shall not exceed four hundred and fifty (450) feet in height.
 - b. Compliance with FAA regulations, the Michigan Airport Zoning Act and the Michigan Tall Structures Act shall be verified by the applicant as a condition of final approval.
 - c. Commercial SES structures associated with such facilities shall be restricted to a maximum height of sixteen (16) feet when oriented at maximum tilt.
 - d. Sub-stations and associated utility poles shall be exempt from height restrictions.
4. Area and Separation Requirements
- a. A Commercial SES petitioned for site plan approval shall not have a development area in excess of one hundred twenty (120) acres. Commercial SES development area acreage shall be calculated as all areas where above ground improvements, such as solar panel fixtures, generators, interior drives and other features actively utilized to generate electricity or to provide maintenance for the improvements. Such development area does not include setback areas, bermed areas, fencing, exterior drives, etc. that are not part of the actively utilized component of the operation.
 - b. A Commercial WECS petitioned for site plan approval shall not have a development area acreage in excess of one hundred twenty (120) acres. Commercial WECS development area acreage shall be calculated as the height of each individual turbine as the diameter of a circle and the acreage calculated within that dimension for each turbine in the development. Such development area does not include setback areas, or drives that are not part of the actively utilized component of the operation or utilized by the property owner for other purposes, such as access for agricultural purposes.
 - c. The development area of a Commercial WECS or Commercial SES that does not exceed the above area requirement shall not be closer than one and a half (1.5) miles from another development area for a Commercial WECS or Commercial SES that does not exceed the above area requirement. The applicable distance for purposes of this subsection is calculated by finding the distance between the nearest two points, each lying on their respective development area boundary lines, between two development areas.

5. Non-Participating Parcel Setbacks

- a. All Commercial WECS shall maintain a setback from a Non-Participating Parcel property line a distance equal to or greater than three hundred fifty (350) percent of its height as measured from the base of the structure to a Non-Participating Parcel property line.
- b. All Commercial SES shall maintain a setback from a Non-Participating Parcel property line three hundred and thirty (330) feet as measured from the base of a structure to a Non-Participating Parcel property line.

6. Participating Parcel Setbacks

- a. Commercial WECS and SES shall not be subject to property line setbacks between Participating Parcels excepting where a right-of-way is located between properties or bisecting a property whereas setbacks from a right-of-way below shall be utilized.
- b. All Commercial WECS shall maintain a setback of one hundred (100) percent of its height as measured from the base of the structure to the exterior wall of a principal or accessory structure on a Participating Parcel that is used for residential, commercial or assembly purposes.
 - i. For accessory structures, the Planning Commission may, at its discretion, allow a setback that is less than one hundred (100) percent of a Commercial WECS height as measured from the base of the structure to the exterior wall of accessory structures on a Participating Parcel, depending on the current use of such accessory structures and potential impact on the use of those accessory structures.
- c. All Commercial SES shall maintain a setback of one hundred (100) feet as measured from the base of the structure to the exterior wall of a principal or accessory structure on a Participating Parcel that is used for residential, commercial or assembly purposes.
 - i. For accessory structures, the Planning Commission may, at its discretion, allow a setback that is less than fifty (50) feet as measured from the base of the structure to the exterior wall of accessory structures on a Participating Parcel, depending on the current use of such accessory structures and potential impact on the use of those accessory structures.

7. Public Rights-of-Way.

- a. All Commercial WECS must be setback a distance equal to or greater than one hundred (100) percent of the height of the structure as measured from the base of the structure to a public road or railroad right-of-way and fifty (50) percent from a drain right-of-way. If the right-of-way is also associated with a Non-Participating Parcel, the more stringent setback shall apply.
- b. All Commercial SES must be setback a distance equal to or greater than two (200) feet from a public road right-of-way irrespective of the participating status of the property adjoining at the centerline of the right-of-way.
- c. Existing Utility Lines. All Commercial WECS and SES must be setback a distance equal to

or greater than one hundred (100) percent of the height of the structure as measured from the base of the structure to an existing above-ground public electric power line, telephone line or under-ground gas transmission line, unless said utility owner provides a waiver of such setback. Utility lines implemented as part of the application for a Commercial WECS, or those utility lines installed after the approval Commercial WECS, shall be exempt from meeting this requirement.

C. Specific Requirements- The following specific requirements shall be applied to all Commercial WECS and SES. Information obtained from Baseline studies and required information shall document intended compliance, as well as serve to be the basis of future operation and compliance.

1. Sound. The noise generated from a Commercial WECS or SES shall not exceed forty (40) dB(A) LAMax (not to be calculated as an average) as measured at the closest Non-Participating property line to the WECS or SES. This sound pressure level may be exceeded during short-term events such as utility shortages or severe windstorm. If the ambient sound pressure level exceeds forty (40) dB(A), the standard shall be the ambient dB(A) plus five (5) dB(A) LAMax (not to be calculated as an average).
2. Shadow Flicker/Glare. Commercial WECS and SES shall be designed, sited, operated, and equipped with proven technology to eliminate shadow flicker or glare on any Non-Participating Parcel or public right-of-way.
3. Commercial SES shall utilize berming to screen and buffer from Non-Participating Parcels and public road rights-of-way. This may include a combination of berming and landscaping, but a berm is required regardless of proposed landscaping. The berm shall be constructed two (2) feet or greater in height than the proposed equipment or giving consideration to adjacent topography, of sufficient dimension to obscure visibility of the improvements from Non-Participating Parcels and the public road right-of-way, excepting necessary ingress and egress points for maintenance and emergency access. Berming shall be at a slope and stability to be mowed and contain vegetative species native to Michigan. A Landscaping, Screening and Buffering Plan shall be reviewed as part of the site plan pursuant to standards set forth in the Ordinance.

D. Decommissioning. Commercial WECS and Commercial SES proposals must contain a Decommissioning Plan acceptable to the Planning Commission to ensure that structures and appurtenances are properly decommissioned upon the end of their operational life, cessation of use, or determination that WECS and SES facilities are determined abandoned.

1. A Decommissioning Plan shall be submitted for review and approval detailing how facilities and improvements will be decommissioned, a Professional Engineer's estimated cost of decommissioning, the financial resources to be used to accomplish decommissioning, and the name of the entity securing the Decommissioning Guarantee (as defined below) to be payable upon failure of the owner or operator to fully implement the Decommissioning Plan upon cessation of use or a determination Abandonment.
 - a. The Decommissioning Plan shall also include an agreement between the owner or operator and the County that includes, but is not limited to, the following conditions:
 - i. The financial resources for decommissioning ("Decommissioning Guarantee") shall be in the form of a surety bond (with Shiawassee County as obligee) or a letter of credit with a replenishment obligation (with Shiawassee County as beneficiary). The

Decommissioning Guarantee will remain in place at all times a Commercial WECS and Commercial SES is operating and continue after operations cease until the Planning Commission certifies that the Decommission Plan has been fully completed.

- ii. The Decommissioning Guarantee amount shall be one hundred fifty percent (150%) of the estimated removal and restoration cost, with an annual increase by the Consumer Price Index (“CPI”). The Planning Commission may require independent verification, at the cost of the owner or operator, of the adequacy of this amount from a Professional Engineer selected by the Planning Commission.
 - iii. The Planning Commission shall review the amounts guaranteed for removal, site restoration, and administration costs annually, to ensure they are adequate for these purposes. The Planning Commission as part of the final site plan approval may reasonably increase the Decommissioning Guarantee amount, no more frequently than annually, to reflect any increase in estimated costs for removal, site restoration, and administration costs that exceeds the annual CPI increase for the applicable period.
 - iv. Shiawassee County shall have access to the Decommissioning Guarantee amount for the express purpose of completing decommissioning under the Decommissioning Plan. If decommissioning is not completed by the owner or operator within one (1) year of termination of the project, with termination defined as Abandonment or cessation of operations, action shall be taken against Decommissioning Guarantee for payment of all costs and administrative fees (including, but not limited to, legal fees) associated with Shiawassee County implementing the Decommissioning Plan.
 - v. Shiawassee County (including its employees, agents and designees) is granted the right of entry onto the site, pursuant to reasonable notice to the property owner and owner or operator the WECS or SES to effect or complete decommissioning pursuant to the Decommissioning Plan.
 - vi. The County is granted the right to seek injunctive relief to effect or complete decommissioning, as well as the County’s right to seek reimbursement from the owner or operator of the WECS or SES for decommissioning costs in excess of the Decommissioning Guarantee, and to file a lien against any real estate owned by the owner or operator, 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.
2. If it is alleged by the Zoning Administrator that a Commercial WECS or SES has been abandoned, the Planning Commission shall provide written notice to the owner or operator of a hearing before the Planning Commission, during which the owner or operator may appear with or without representation, to consider evidence that the Commercial WECS or SES has been abandoned. If a determination is made that the Commercial WECS or SES is abandoned, the Planning Commission shall provide the owner and/or operator with notice of such determination and the resulting obligations of the owner and/or operator.
- a. Within sixty (60) days of the above hearing where the Planning Commission has determined that a Commercial WECS or SES is abandoned, the owner or operator shall commence implementation of the Decommissioning Plan, and obtain a demolition permit to remove the improvements.

- i. Failure to obtain a demolition permit within the time period provided in this subsection shall be grounds to trigger payment of the Decommissioning Guarantee amount and for the County to remove the Commercial WECS or SES at the owner's and/or operator's expense.
 - ii. If a WECS or SES is repaired, a Professional Engineer (hired at the expense of the owner or operator) shall certify the safety of the Commercial WECS or SES prior to the resumption of operation.
 3. Decommissioning shall include removal of all equipment associated with the Commercial WECS or SES, including all materials above ground and below ground to a depth of four (4) feet below average grade where footings and other buried improvements were installed. The site shall be restored to a condition that reflects the specific character of the site including topography, vegetation, soils, and drainage and the Reclamation Analysis submitted at time of application.
 4. Restoration shall include: road repair, if any, and all re-grading, soil stabilization, and re-vegetation necessary to return the subject property to a stable condition consistent with conditions existing prior to establishment of the Commercial WECS or SES. Upon written request by the property owner, access drives and associated drainage improvements, if any, may continue to exist.
 - a. The restoration process shall comply with all federal state, and county regulations, including but not limited to local erosion control, soil stabilization and/or runoff requirements or ordinances and shall be completed within one (1) year of termination of the project, with termination defined as Abandonment or cessation of operations.
- E. Enforcement: The enforcement of the Ordinance shall be the responsibility of the Shiawassee County Zoning Administrator, or his or her designee, or as otherwise appointed, directed, or hired by the Board of Commissioners.
1. An owner or operator, landowner, firm, association, corporation or representative agent of any Commercial WECS or SES that is found by Shiawassee County to be in violation this Article, Section, Ordinance, applicable site plan approval, or to be Abandoned or unsafe as defined in this Ordinance:
 - a. Shall provide abatement by shut down, repair, or removal of the Commercial WECS or SES upon written notification from the Zoning Administrator (or other County designee).
 - b. Shall be subject to all enforcement mechanisms available to the County.
 - c. May be subject to revocation of site plan or other approvals for excessive and continued violations as provided for in this Ordinance, and required to reimburse Shiawassee County for cost(s) and expenses of obtaining other relief including a temporary or permanent injunction; such reimbursement may include costs and reasonable attorney fees.
 2. Annual Inspection. All Commercial WECS and SES shall be inspected annually by a Professional Engineer as selected and funded by the Owner and/or Operator of WECS/SES and acceptable to the Community Development Director to certify that each structure is in good working condition and not a hazard to the public. An annual report shall be submitted to the Planning Commission.

3. Should an aggrieved Shiawassee County resident allege that a Commercial WECS or SES is not in compliance with the requirements of this Ordinance, the procedure shall be as follows:
 - a. Complaints must be submitted to the Zoning Administrator, or his or her designee, in writing from the affected resident, and include their name, address, contact information. If the affected resident does not own the property allegedly being subjected to violations of the Ordinance, the name, address and contact information for the owner of that parcel shall be provided.
 - b. Upon investigation by the Zoning Administrator, or his or her designee, if a complaint is deemed credible, the owner or operator of the Commercial WECS or SES shall be notified in writing. Within fourteen (14) calendar days of the date of notice, the owner(s) and/or operator shall provide a statement of compliance or non-compliance. An annual escrow account (reviewable on an annual basis) shall be established sufficient to pay for independent investigations conducted by qualified professionals acceptable to the County to determine compliance with the requirements of this Ordinance.
 - c. If the Commercial WECS and SES is found to be in violation of the Ordinance and/or this Section, the owner or operator shall take immediate action to bring the Commercial WECS or SES into compliance, or cease operation until compliance can be maintained. In the event the owner(s) and/or operator fails or refuses to bring the Commercial WECS or SES into compliance within ten (10) days thereafter, the County may seek any relief under this Ordinance or by law afforded to it.

F. Compliance with Federal Rules and Regulations.

1. It shall be the responsibility of the owner(s) or operator of the Commercial WECS and SES to complete the proper FAA applications and obtain the proper permits, where applicable, for the construction of such improvements.
2. Compliance with Additional Regulations. It shall be the responsibility of the owner(s) or operator of a Commercial WECS to contact the FAA regarding additional permits necessary or any other applicable Federal or State regulations for the installation, prior to final site plan approval by the Planning Commission. Documentation that applicable permits have been obtained and requirements of these agencies have been met must be supplied to the County Building Department prior to the issuance of construction permits.

G. Administrative Provisions Following Approval.

1. An approved Commercial WECS or SES site plan approval shall expire if construction has not commenced within twenty-four (24) months from the date of issuance. Commencement shall mean the erection of Commercial WECS or SES structures.
2. Amendment to Site Location Following Final Site Plan Approval. The Zoning Administrator may approve changes in location of Commercial WECS or SES as minor site plan modifications so long as such site location is not altered more than fifty (50) feet, continues to meet all regulations of this Section, and the improvement remains on the same parcel.

Section 8. Section 21.2.G.

The provisions in this section of the Zoning Ordinance under Wind Energy Systems and Solar Energy Systems are deleted in their entirety. The following is added to Section 21.2.G:

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- A. Abandoned or Abandonment shall mean any WECS or SES that is not operated or is found to be inoperable due to lack of repair, sustained damage or other cause for a continuous period of ninety (90) days.
- B. Ambient Sound Level shall mean the decibel measurement or dB(A) of background sound pressure level exceeded 90% of the time or L90 at a given location prior to the installation of a WECS.
- C. Decibel shall mean the unit of measurement used to express magnitude of sound pressure and sound intensity.
- D. dB(A) shall mean the sound pressure level in decibels in the “A” weighted scale defined by ANSI. A method for weighting the frequency spectrum to mimic the human ear.
- E. Freestanding or Ground-Mounted Solar Energy System shall mean any solar energy system that is directly installed in the ground and is not attached or affixed to an existing structure.
- F. Glare shall mean the reflection of light (either natural or manmade) by the WECS or SES.
- G. Height is defined as the vertical distance measured from the ground level at the base of the WECS or SES to the uppermost vertical extension (including any blade, or the maximum height reached by any part of the WECS, whichever is greater).
- H. Hub Height shall mean the vertical distance measured from ground level to the center of the turbine hub.
- I. LAMax shall mean the maximum sound level at an instant in time.
- J. Manual and Automatic Controls are mechanical measures to limit rotation of WECS blades so as not to exceed the designed limits of the conversion system.
- K. Participating and Non-Participating Parcels:
 - 1. Participating Parcel shall mean a parcel of record that is to be used, occupied, maintained, let, leased or authorized to be used for any purposes of developing a WECS or SES, including construction of improvements, providing access to improvements, or to meet requirements and regulations set forth herein.
 - 2. Non-Participating Parcel shall mean a parcel of record that is not a Participating Parcel.

- L. Photovoltaic (PV) Systems shall mean a solar energy system that produces electricity by the use of semiconductor devices, called photovoltaic cells that generate electricity whenever light strikes them
- M. Professional Engineer shall mean an engineer licensed in the State of Michigan, knowledgeable in all aspects of operation/ maintenance of wind turbines, and acceptable to the Shiawassee County Planning Commission.
- N. Rooftop and Building-Mounted SES shall mean any solar power system in which solar panels are mounted on top of the structure of a roof either as a flush-mounted system or as modules fixed to frames which can be tilted toward the south at an optimal angle.
- O. Shadow Flicker shall mean the alternating changes in light intensity caused by the moving blade of a WECS casting shadows on the ground and/or structures.
- P. Solar Energy System (“SES”) shall mean any equipment necessary to the process by which solar radiation is collected, converted into another form of energy, stored, protected from unnecessary dissipation and distributed. Solar energy systems consist primarily of solar thermal, photovoltaic and concentrated solar but may include other various experimental solar technologies.
1. Agricultural SES shall mean any SES that is accessory to a principal agricultural use located on the same lot, and is designed and built to serve the principal agricultural use. These systems shall not be utilized for any commercial sale of energy, except for the sale of surplus electrical energy back to the electrical grid.
 2. Commercial SES shall mean an electricity generating solar operation under common ownership, control or operation, and includes substations, testing facilities, transmission lines and other buildings accessory to such operation, whose main purpose is to supply electricity to the energy grid and off-site customers or consumers.
 3. Private SES shall mean any SES that is accessory to a non-agricultural principal use located on the same lot, and is designed and built to serve the principal use. These systems shall not be utilized for any commercial sale of energy, except for the sale of surplus electrical energy back to the electrical grid.
- Q. Solar-Thermal Systems shall mean a solar energy system which directly heats water or other liquids using sunlight. The heated liquid is used for such purposes as space heating and cooling, domestic hot water, and heating pool water.
- R. Sound Pressure shall mean the average rate at which sound energy is transmitted through a unit area in a specified direction. The pressure of the sound measured at a receiver.
- S. Sound Pressure Level shall mean the sound pressure mapped to a logarithmic scale and reported in decibels.
- T. Wind Energy Conversion System (“WECS”) shall mean any structural device (such as a wind generator, windmill, or wind turbine) that measures and/or converts wind into electricity through the use of specialized equipment, and includes both (1.) horizontal axis wind energy system design in which the shaft is parallel to the ground and the blades are perpendicular to the ground; and (2.) vertical axis wind energy system design where the rotating shaft is perpendicular to the

ground and the cups or blades rotate parallel to the ground. Also included in the definition are the associated improvements for the transmission of electrical energy to the electrical utility grid.

Forms of WECS include:

1. Agricultural WECS shall mean any WECS that is accessory to a principal agricultural use located on the same lot, and is designed and built to serve the principal agricultural use. These systems shall not be utilized for any commercial sale of energy, except for the sale of surplus electrical energy back to the electrical grid.
2. Private WECS shall mean any WECS that is accessory to a principal non-agricultural use located on the same lot, and is designed and built to serve the principal use. These systems shall not be utilized for any commercial sale of energy, except for the sale of surplus electrical energy back to the electrical grid.
3. Commercial WECS shall mean an electricity generating wind turbine operation under common ownership, control or operation, and includes substations, testing facilities, transmission lines and other buildings accessory to such operation, whose main purpose is to supply electricity to the energy grid and off-site customers or consumers.

U. WECS Testing Facility shall mean the structure and equipment erected and used to determine the potential for the placement of one or more WECS improvements and contains instrumentation, such as anemometers or other meteorological devices, designed to provide wind speeds and other data.

Section 9. Severability.

This Ordinance and its various parts, sections, subsections, phrases and clauses are severable. If any part, sentence, paragraph, section, subsection, phrase or clause is adjudged unconstitutional or invalid, it is hereby provided that the remainder of this Ordinance, its parts, sections, subsections, phrases, sentences and clauses are intended to be valid, irrespective of the fact that any one or more parts, sections, subsection, phrases, sentences or clauses be declared invalid.

Section 10. Repeal.

All other ordinances or parts of ordinances in conflict with the provisions of this Ordinance, except as herein provided, are hereby repealed only to the extent necessary to give this Ordinance full force and effect.

Section 11. Publication.

The Shiawassee County Director of Community Development shall cause notice of adoption of this Ordinance to be published in a local newspaper of general circulation the manner required by the Michigan Zoning Enabling Act. The Shiawassee County Director of Community Development shall provide any other required notice of adoption of this Ordinance that is required by law.

Section 12. Effective Date.

This Ordinance shall take effect seven (7) days after the applicable notice of adoption is published.