16. MISCELLANEOUS

SECTION 1601. WIND ENERGY CONVERSION SYSTEMS

1. **Intent and Purpose.** The purpose of this ordinance is to establish regulations for wind energy systems with the intention to strike an appropriate balance for the need for clean, renewable energy resources and the necessity to protect the health, safety, and welfare of the general public. This ordinance shall set standards for both large scale wind commercial energy facilities and small wind energy systems designed to serve the needs of home, small business, or farm.

2. **Definitions as applied to this section:**

Applicant – A person, partnership, corporation or other legal entity seeking approval of a Wind Energy Facility.

Avian Analysis– for the purposes of this ordinance an avian study means a study of the nesting and migration patterns of birds and flyways which may affect the location of a wind energy facility.

Blade Glint – the intermittent reflection of the sun off the surface of the blades or any other moving part of a WPG.

County – shall mean the County of Saginaw.

Decommissioning – shall mean the termination of use of a wind energy facility or portion of a facility.

FAA – shall mean the Federal Aviation Administration.

Facility Owner – means the person/entity that owns or has operational control of a LWECS, SWECS, WPG or MET tower.

Hub Height – shall mean, when referring to a WPG, the distance measured from the ground level to the center of the WPG hub.

Inhabited Structure – shall mean a permanent building existing prior to the installation of a wind energy conversion facility, which is used for human or animal habitation.

Internal Property Line – A property line not on or bordering a roadway.

Kilowatt (Kw) – a unit of electricity equal to 1,000 watts.

Large Wind Energy Conversion System (LWECS) or Wind Energy Facility shall mean any electricity generating facility consisting of one or more wind powered generators under common ownership or operation control, whose main purpose is to supply electricity to off-site

customer(s). It includes substations, MET Towers, cables and wires and other buildings accessory to such facility. A single wind powered generator may be referred to as a large-scale wind energy system.

LWECS – see Large Wind Energy Conversion System

Met (Anemometer) Tower - means a tower, including any anchor, base, base plate, boom, cable, electrical or electronic equipment, guy wire, hardware, indicator, instrument, telemetry device, vane or wiring, that is used to collect or transmit meteorological data, including wind speed and wind flow information, in order to monitor or characterize wind resources for a wind site assessment for possible installation of wind energy conversion facilities or on-site wind energy systems.

Michigan Tall Structure Act (Act 259 of 1959) – A Michigan law governing the height of structures in proximity to airport related uses and is included as a standard of this ordinance by reference.

Non-Participating Property – shall mean real property that is not part of wind energy system by contract or ownership.

Receptor – a receptor is a specific location such as an inhabited structure, or roadway from which a shadow flicker analysis study shall be completed to indicate duration of shadow flicker and total number of hours per year anticipated.

Shadow Flicker – a repeating cycle of changing light intensity when shadows caused by rotating blades or other moving parts of a WPG pass over an object or across a window.

Small-Scale Wind Energy Conversion System (SWECS) – a single or combination of multiple wind powered generators sized to serve the needs of the on-site consumer for a home, farm or small business.

Sound Pressure Level – the level of sound produced by the rotating blades of a wind energy system; the spinning generator; and the moving gears as measured in dBA from a property line, specific location or distance.

Stray Voltage – means any voltage or current existing between two points, where none is expected which may be contacted by persons, animals and/or equipment.

SWECS – see Small-scale wind energy conversion system.

Total Height – The vertical distance from median ground level surrounding any structure to the highest possible point of the structure, either fixed or moving.

Township – means the Township of Richland.

Waiver Agreement – means a signed statement between the owner of a Wind Energy Facility and a Non-Participating Property Owner releasing rights of this ordinance relating to setbacks from internal property lines.

Wind Powered Generators (WPG) – Any device which uses natural air movement to generate electricity.

Wind Energy Facility Site Plan Review – The process used to review a proposed wind energy facility.

WPG – see Wind Powered Generator

3. Small-Scale Wind Energy Conversion Systems:

A. SWECS as a Use-By-Right.

1 On a parcel or parcels under common ownership less than one acre in area, a SWECS shall be permitted as a use-by-right in all zoning districts if the total rated capacity of the system is 10kW or less and no portion of the SWECS exceeds forty-five (45) feet above grade.

2 On a parcel or parcels under common ownership one acre or more in area, a SWECS shall be permitted as a use-by-right in all zoning districts if the total rated capacity of the system is 10kW or less and no portion of the SWECS exceeds seventy-five (75) feet above grade.

B. SWECS which require a Special Use Permit.

Any Small-Scale Wind Energy Conversion System which does not satisfy the restrictions to be a Use-By-Right as defined above, shall require a Special Use Permit. A SWECS with a maximum height of over 150 Feet shall be considered a Large-Scale Wind Energy Conversion System.

C. Requirements:

1. All SWECS must receive a building permit and site-plan approval prior to construction, installation, relocation or modification. The property owner or his legal representative must apply for and receive the building permit. Site plans for SWECS which qualify as a use-by-right are eligible for administrative approval.
2. SWECS and related structures, shall be a non-reflective, color, such as white, gray or black. The appearance of the system and all accessory structures shall be maintained throughout the life of the unit.
3. SWECS may not contain commercial signage, banners, tags or advertising logos, except for the identification of the WPG manufacturur and unit specifications for regulatory purposes.
4. For parcels less than one acre the SWECS height shall be limited to forty-five (45) ft. above grade. For property sizes of one acre or more, the SWECS height shall be limited to one hundred fifty (150) ft. above grade.

5. A maximum of one (1) Wind Powered Generator shall be permitted for any parcel one (1) acre or smaller. A maximum of two (2) Wind Powered Generators shall be permitted for any parcel greater than one (1) acre.

6. No part of the SWECS may extend closer than 1.2 times the installed height to the property lines, overhead utility or transmission lines or other dwellings.

7. SWECS shall not exceed 45 dBA or the lowest ambient sound level between the hours of 9:00 PM and 9:00 AM as measured along any adjacent property line where the adjacent parcel is used for residential purposes. The level, however, may be exceeded during short-term events such as utility outages and/or severe wind storms.

8. All components of the SWECS shall have been approved under the Emerging Technologies program of the California Energy Commission or any other small wind certification program recognized by the American Wind Energy Association. Non-certified small wind powered generators must submit a description of the safety features of the WPG prepared by a registered mechanical engineer.

9. Building permit applications for SWECS shall be accompanied by standard drawings of the wind powered generator structure, pole connection details and minimum wall strength requirements. An engineering analysis of any tower or mounting showing compliance with the International Building Code and certified by a licensed professional engineer shall also be submitted. This analysis is frequently supplied by the manufacturer. Wet stamps shall not be required.

10. SWECS must comply with applicable FAA regulations, including any necessary approvals for installations close to airports.

11. Building permit applications for SWECS shall be accompanied by a line drawing of the electrical components in sufficient detail to allow for a determination that the manner of installation conforms to the National Electrical Code. This information is frequently supplied by the manufacturer.

12. No SWECS shall be installed until evidence has been given that the utility company has been informed of the customers intent to install an interconnected customer-owned generator. Off-grid systems shall be exempt from this requirement.

13. The applicant(s) of all SWECS, shall comply with all applicable State construction and electrical codes and local building permit requirements. The owner must have received the required inspections from a State licensed inspector showing that the wind energy system complies with all applicable codes before placing it into operation. Inter-connected (on-grid) systems must comply with the Michigan Public Service Commission Standards.

14. The vertical distance from the ground level to the tip of a wind powered generator blade on a SWECS WPG, when the blade is at its lowest point, must be at least twenty-five (25) feet.

15. Individual wind powered generators shall be located so that the level of noise produced by WPG operation shall not exceed 50 dB (A), measured at any site along the property line, except that the level of noise generated by a WPG operation may exceed 50 dB (A) during short term events such as power outages and severe wind storms. If the generator is installed in an area of already higher sound levels, the ambient sound level plus 5dB(A) shall be used.

16. All wind powered generators shall have braking, governing, or a feathering system to prevent uncontrolled rotation or over speeding. All wind towers shall have lightning protection. All ground mounted electrical and control equipment must be labeled and secured to prevent unauthorized access. A tower may not have step bolts or a ladder within eight (8') feet of the ground that is readily accessible to the public.

4. Large Wind Energy Conversion Systems.

A. Special Use. Large-Scale Wind Energy Conversion Facility shall be permitted in Agricultural Districts as a special use.

B. Principal or Accessory Use - A large-scale wind energy facility and related accessory uses may be considered either principal or accessory uses. A different existing use or an existing structure on the same parcel shall not preclude the installation of a Wind Energy Facility or a part of such facility on such parcel. Wind Energy Facilities that are constructed and installed in accordance with the provisions of this ordinance shall not be deemed to constitute the expansion of a nonconforming use or structure.

C. Application Process

The application for a LWECS shall follow the procedures for a special use permit and a site plan review as defined in this zoning ordinance, including the submission of all documentation required for those reviews. The following additional documentation shall be included and/or be utilized as standards when preparing, submitting and reviewing an application for a LWECS. A site plan that differs from these standards can be approved only upon the review of the Planning Commission and approval from the Township Board that the modification is in the best interest of the Township and the Applicant.

1. **Avian Analysis -** The applicant may be required to submit an avian study to identify and assess the potential impact of a proposed wind energy facility upon wildlife and endangered species. Sites requiring special scrutiny include bird refuges and other areas where birds are highly concentrated, bat hibernacula, wooded ridge tops that attract wildlife, sites that are frequented by federally listed endangered species of birds and bats, significant bird migration path ways, and areas that have landscape features known to attract

large numbers of raptors. The analysis shall indicate whether a post construction wildlife mortality study will be conducted and, if not, the reasons why a study does not need to be conducted.

2. **Complaint Resolution Plan** -The owner/operator of a LWECS shall provide a complaint resolution process to address any formal complaints filed with the Township Manager. The Wind Farm Operator shall acknowledge the receipt of the complaint within seven (7) days of notification of the complaint and shall resolve the complaint or provide a resolution plan with a resolution date within 30 days of the complaint. A resolution date beyond the thirty (30) day resolution deadline requires the operator to obtain approval from the Planning Commission.
3. **Decommissioning Plan** – Applicant shall provide a decommissioning plan as defined in this section.
4. **Map** – Applicant shall provide a map identifying all participating parcels and any parcels with waver agreements in place.
5. **Codes** - Any approval for Wind Energy Facilities shall require the applicant to provide a post-construction certification that the project complies with applicable codes and industry practices.
6. **Change of ownership -** The owner/operator of a LWECS shall provide the Township Planning Commission with formal notification of any change in ownership or contact information

D. Design Requirements

1. **Obstructions to Air Traffic** - WPGs which exceed two hundred (200) feet in total height, are considered obstructions to air traffic and shall be subject to the approval of the Federal Aviation Administration (FAA).

2. **Visual Appearance, Lighting; Power lines.**

a) WPGs shall be mounted on tubular towers. The appearance of WPGs, towers and buildings shall be maintained throughout the life of the wind energy facility pursuant to industry standards.
b) Blade Glint is prohibited. WPGs and tubular towers shall be painted a non-reflective, non-obtrusive color, such as gray, white, or off-white. The applicant shall submit a paint sample that demonstrates the color, texture and gloss of the proposed surface coating. The applicant shall also submit a certification by the manufacturer stating that the proposed surface coating will not create a reflective surface conducive to blade glint.
c) Wind Energy Facilities shall not be artificially lighted, except to the extent required by the FAA, the Tall Structures Act, other applicable authority, or as otherwise necessary for the reasonable safety and security thereof.
d) All WPG towers which are required by the FAA to have an obstruction lighting system, shall implement Aircraft Detection Lighting Systems,

as defined in Federal Aviation Administration Advisory Circular number 70/7460-1L, or similar technology as allowed by FAA regulations.

e) No part of a Wind Energy Facility shall be used for displaying any advertising except for reasonable identification of the manufacturer or operator of the Wind Energy Facility.

f) The electrical connection shall be placed underground within the interior of each parcel at a depth designed to accommodate the existing agricultural land use to the maximum extent practicable. The collection system may be placed overhead adjacent to County roadways, near substations or points of interconnection to the electric grid or in other areas as necessary. Any underground line on an internal parcel must maintain a 100-foot setback from the parcel lines.

g) All electrical components of the wind energy facility shall conform to the relevant and applicable local, state, and national codes, and relevant and applicable international standards.

3. **Setbacks, Separation and Security.**

a) Inhabited structures: Each WPG or MET Tower shall be setback from the nearest residence, or other inhabited structure, a distance no less than the greater of two thousand five hundred (2500) feet or one and one-half (1.5) times the total height of the WPG. A lesser setback may be approved if the intent of this paragraph would be better served thereby. A reduced setback shall be considered only with written approval from the owner of the inhabited structure.

b) Property line setbacks: Excepting locations of public roads, drain rights-of-way and parcels with inhabited structures, Wind Energy Facilities and MET Towers shall not be subject to a property line setback, except as provided below for a non-participating property owner. Any underground line on an internal parcel must maintain a 100-foot setback from the parcel lines.

c) WPG and access roads shall be located so as to minimize the disruption to agricultural activity and, therefore, the location of towers and access routes is encouraged along internal property lines. Where a WPG location is proposed nearer to an internal property line than the greater of two thousand five hundred (2500) feet or one and one-half (1.5) times the total height of the WPG, an easement shall be established on the abutting parcels.

d) Waiver Agreement: Where a proposed WPG or MET tower would be located along side an internal property line adjacent to a non-participating property owner, the owner of a LWECS shall obtain a waiver agreement with the adjacent property owner for the siting location. Otherwise a setback of no less than the greater of two thousand five hundred (2500) feet or one and one-half (1.5) times the

total height of the WPG shall apply from the non-participating property line.

e) Public Roads: Each WPG shall be set back from the nearest public road a distance no less than two thousand five hundred (2500) feet or one and one-half (1.5) times its total height, whichever is greater, determined at the nearest boundary of the underlying right-of-way for such public road.

f) Communication and electrical lines: each WPG shall be setback from the nearest above-ground public electrical power line or telephone line at distance no less than greater of two thousand five hundred (2500) feet or one and one-half (1.5) times its total height, whichever is greater, determined from the existing power line or telephone line.

g) Tower separation: WPG/tower separation shall be based on Industry standards, manufacturer recommendations and characteristics [prevailing wind, topography, etc.] of the particular site location. At a minimum, there shall be separation between WPG of not less than 2.5 times the maximum diameter of any component on the tower or WPG. Documents shall be submitted by the developer/manufacturer confirming specifications for WPG/tower separation.

h) The LWECS shall be designed to minimize disruption to farm land activity

i) Following the completion of construction, the applicant shall certify that all construction is completed pursuant to the Wind Energy Special Use Permit and, in addition, that appropriate security will be in place to restrict unauthorized access to LWECS.

j) The vertical distance from the ground level to the tip of a blade on a WPG, when the blade is at its lowest point must be at least seventy-five (75) feet.

k) A large-scale WPG is generally limited to 400 feet in total height, but the Township Planning Commission may waive the height limitation where adjustment of the total height is in the interest of the Township and the Applicant.

l) MET towers and attached equipment are limited to 199 feet in height.

E. Operating Requirements

1) Sound Pressure Levels.

a) Audible noise or the sound pressure level from the operation of the LWECS shall not exceed fifty (50) dBA, or the ambient sound pressure level plus five (5) dBA, whichever is greater, for more than ten percent (10%) of any hour, measured at any residence, or other occupied structure, existing on the date of the approval of the Wind Energy Facility Special Use Permit. The applicant shall be able to provide sound pressure level measurements from a reasonable number of sampled locations at the perimeter and in the interior of the Wind Energy Facility to demonstrate compliance with this standard.

b) The ambient noise level shall be expressed in terms of the highest whole number sound pressure level in dBA, which is exceeded for more than five (5) minutes per hour. Ambient noise levels shall be measured at a building's exterior of potentially affected residences or other occupied structures. Ambient noise levels shall be measured when wind velocities are sufficient to allow WPG operations, provided that wind velocities are less than thirty (30) mph at the ambient noise level location.

c) In the event that allowable noise levels of a Wind Energy Facility are exceeded, a waiver to said levels may be approved provided that the following has been accomplished:

   a. Written statements from the affected property owner(s) has been obtained stating that they are aware of the Wind Energy Facility and the noise limitations imposed by this ordinance, and that they are not opposed to the Township's granting of a waiver to the maximum sound pressure level limits otherwise allowed.

   b. A permanent noise impact statement must be recorded in the Saginaw County Register of Deeds office which describes the burdened properties, and which advises all subsequent owners of the burdened property that noise levels in excess of those otherwise permitted by this ordinance may exist on or at the burdened property.

2) **Shadow Flicker.**

a) The applicant of a LWECS shall be required to conduct an analysis on potential shadow flicker at nearby occupied structures. Any analysis shall identify the receptor locations of shadow flicker that may be caused by the project and the expected durations of the flicker at each receptor from sun-rise to sun-set over the course of a year. All existing occupied structures, structures permitted for construction and roadways shall be identified within the model as receptors.

b) WPGs shall be sited such that shadow flicker will not fall directly on a receptor or provide written documentation describing measures that shall be taken to eliminate or mitigate the problem. Shadow flicker expected to fall on a roadway may be acceptable if all of the following conditions are satisfied:

   a. The flicker will not exceed 10 hours per year at any one receptor measured as the sum of those times during which shadow flicker occurs during any calendar year.

   b. The traffic volumes are less than 500 vehicles per day on the affected roadway.

   c. The flicker will not fall onto an intersection of public roadways.

3) Repair - Any component of the LWECS which is damaged or becomes inoperative shall be repaired in a timely manner. All visible evidence of said damage shall be removed within 180 days.

F. **Signal Interference.**
No LWECS shall be installed in any location where its proximity with existing fixed broadcast, retransmission, or reception antennas for radio, television, or wireless phone or other personal communications systems would produce electromagnetic interference with signal transmission or reception. No component of an LWECS shall be installed in any location along the major axis of an existing microwave communications link where its operation is likely to produce electromagnetic interference in the link's operation.

G. **Safety.**

1) All WPGs shall be equipped with a redundant braking system. This includes both aerodynamic over speed controls (including variable pitch, tip, and other similar systems) and mechanical brakes. Mechanical brakes shall be operated in a failsafe mode. Stall regulation shall not be considered a sufficient braking system for over speed protection.

2) All collection system wiring shall comply with all applicable safety and stray voltage standards.

3) All towers shall have lightning protection.

4) WPG towers shall not be climbable on the exterior.

5) All access doors to WPGs and electrical equipment shall be lockable.

6) Appropriate warning signs shall be placed on towers, electrical equipment, and entrances.

7) The owner/operator of a LWECS shall post and maintain, at each WPG, a 24 hour a day manned telephone number in case of emergency.

8) All sub-stations shall be fenced to prevent public access and shall be installed to a height of not less than eight (8) feet.
9) The Facility Owner shall submit bi-annual inspection reports to the Planning Commission or its designated officer confirming compliance with applicable codes and industry practices

H. Decommissioning

1. The applicant shall provide a documented plan which details the removal methodology and cost for the project. The plan shall include at a minimum:
   a) A written description of the proposed service life.

b) An estimated cost to remove and restore the site to original condition, signed by a contractor familiar with the type of work or a registered professional engineer,
c) An acknowledgment that a full cash deposit of 150% of the expected decommissioning cost shall be provided to the township before issuance of required permits.
d) An acknowledgement that the estimate of the decommissioning cost shall be updated and reviewed at a minimum of every three (3) years. The cash deposit amount shall be adjusted by the change in the decommissioning cost.
e) An acknowledgement that cash deposit may be utilized by the township if the project is abandoned, or site restoration is not completed within six (6) months of end of service life.
f) Certification of compliance with all county, state and federal regulations/laws.
g) Certification of compliance with other conditions established by the township planning commission as part of the special use permitting process.

2. Any foundation shall be removed to a minimum depth of four (4) feet below grade, by the owner of the facility or its assigns. Following removal, the location of any remaining WPG foundation shall be identified on a map as such and recorded with the deed to the property with the Saginaw County Register of Deeds

3. Any access roads shall be removed, cleared, and graded by the facility owner or its assigns, unless the property owner requests in writing a desire to maintain the access road. The Township will not be assumed to take ownership of any access road unless through official action of the Township Board.

4. No bond or other form of surety is acceptable in lieu of cash. Upon satisfactory removal and restoration as determined by the Richland Township Board of Trustees, any excess cash deposits will be returned by the township to the depositing entity.

I. Indemnification

The owner of a LWECS shall defend, indemnify, and hold harmless the Township and their officials from and against all claims, demands, losses, suits, causes of action, damages, injuries, costs, expenses, and liabilities whatsoever including attorney fees arising out of the acts or omissions of the operator concerning the operation of the LWECS without limitation, whether said liability is premised on contractor tort.