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NANDY THOMASON, RECORDER

STARKE COUNTY, KNOX, IN

RECORDED AS PRESENTED

07/08/2019 08:17:08AM

\$0.00

ORDINANCE NO. 2019-10

**SOLAR ENERGY ORDINANCE**

Section 1. Commercial Solar Energy Systems, is added to read as follows:

The Commercial Solar Energy Systems Standards apply to the following zoning district:

**AGRICULTURE**

- A. Purpose. It is the purpose of these performance standards to enable Starke County to: regulate the permitting of commercial solar energy systems; be informed of the placement of commercial solar energy systems; preserve and protect public health and safety; allow for the orderly development of land; and protect property values in Starke County. The terms, conditions and regulates set forth herein may be enforced through the issuance and enforcement of a Location and Improvement Permit
- B. Commercial Solar Energy Systems (CSES) and Private Residential Solar Energy Systems (PRSES) are defined in section 3 of this ordinance
- C. Permitted Districts. Subject to issuance of a Location and Improvement Permit (hereinafter "Permit") a CSE may located as follows only:  
  - Zoning District Agriculture
- D. Parcel Line Setbacks. Any CSES equipment, excluding any security fencing, poles, roads, and wires, necessary to connect to facilities of the electric utility, must be set back in accordance with the accessory structure standards for the zoning district. Ground mounted Solar Panels/arrays shall be set back a minimum of 50 feet from any adjoining property line and a minimum of 100 feet from the center of any public road. These setbacks shall not apply between adjoining participating parcels. Additionally, such CSES Equipment must be set back a minimum of 200 feet from the foundation of a primary dwelling unit located on a parcel not participating in the CSES. These setbacks may be waived in writing by adjacent property owners.
- E. Height Limit. The height of any CSES ground mounted solar equipment is limited to 35 feet, as measured from the highest natural grade below each solar panel. If a switchyard or substation is required to connect the project to the electrical grid, the switchyard's/substation's design, including height will be in accordance with applicable electrical codes.
- F. Noise Limit. A noise study shall be performed and Included in the application. Noise caused by an operational CSES shall not exceed 55 dBA above background, as measured at a dwelling unit measured on an hourly average basis (Leq) (1hour). These limits may be waivable by any adjoining property owners.
- G. Landscape Buffer. Evergreens shall be placed along the perimeter of the CSES (outside of the fence), including along road frontage. This requirement shall not apply between adjoining participating parcels. This requirement may be waived by an adjoining property owner, but no waiver applies along road frontage.
- H. Application Procedure. Applications for CSES permits shall be filed on forms provided by the Zoning Administrator.
- I. Application and Permits.

Any CSES shall be required to submit a preliminary/conceptual commercial site plan to the Technical Advisory Committee for review. Such review shall occur within 30 days of filing.

Once an application has been approved, an Improvement Location Permit shall be issued. The following shall also be required:

1. Solar System specifications, including typical manufacturer and model and maximum spatial extent (height and fence lines).
2. Preliminary array/module design and site plans with the maximum spatial extent of the CSES and its perimeter fence indicated.
3. Certification that layout, design, and installation conform to and comply with all applicable industry standards, such as the National Electrical Code (NEC) (NFPA-70), the American National Standards Institute (ANSI), the Underwriter's Laboratories (UL), the American Society for Testing & Materials (ASTM), the Institute of Electric & Electronic Engineers (IEEE), the Solar Rating & Certification Corporation (SRCC), the Electrical Testing Laboratory (ETL), and other similar certifying organizations, the Federal Aviation Administration (FAA), the Indiana Building Code (IBC), and any other standards applicable to solar energy systems. The manufacturer specifications for the key components of the CSES shall be submitted with the application.
4. All ground-mounted electrical and control equipment for CSES shall be labeled and secured to prevent unauthorized access.
5. All CSES shall be installed so as not to cause significant wire or wireless communication signal disturbance.
6. All CSES shall be designed to avoid concentrated and prolonged glare onto abutting structures and roadways.
7. All ground-mounted electrical and control equipment for CSES shall be fenced to prevent unauthorized access. The solar array and/or modules shall be designed and installed to prevent access by the public, and access to same shall be through a locked gate.
8. To the greatest practical extent, all electrical wires and utility connections for CSES shall be installed underground, except for transformers, inverters, switchyards/substations, and controls. The Planning Director will take into consideration prohibitive cost and site limitations in making his or her determination.
9. Exterior lighting for CSES shall be limited to that required for safety, inspection/repair/maintenance, and operational purposes.
10. All signs, other than the manufacturer's or installer's identification, appropriate warning (including safety and trespassing) signs, or owner identification on a solar panel array and/or modules, building, or other structure associated with a CSES, shall be prohibited.
11. The CSES applicant shall certify that the applicant will comply with the utility notification requirements contained in Indiana law and accompanying regulations through the Indiana Public Utility Commission, unless the applicant intends, and so states on the application, that the system will not be connected to the electricity grid.
12. Prior to the start of construction, a Decommissioning Agreement must be executed by the applicant which stipulates that decommissioning of the entire facility will begin upon the occurrence of twelve consecutive months of no power generation at the facility. In order to facilitate and ensure appropriate removal of the energy generation equipment of a CSES when it reaches the end of its useful life, or if the applicant ceases operation of the facility, applicants must file a decommissioning agreement which details the means by which decommissioning will be accomplished and the timeline for

completion. This agreement must include a description of implementing the decommissioning, a description of the work required, a cost estimate for decommissioning, a schedule for contributions to a decommissioning fund, and a demonstration of financial assurance. Salvage value shall be considered in determining decommissioning cost. In the event of a force majeure or other event which results in the absence of electrical generation for twelve months, by the end of the twelfth month of non-operation the applicant must demonstrate to Starke County that the project will be substantially operational producing electricity with-in twenty-four months of the force majeure or other event. If such a demonstration is not made to Starke County's satisfaction the decommissioning must be initiated eighteen months after the force Majeure or other event. The County considers a force Majeure to mean fire, earthquake, flood, tornado, or other acts of God and natural disasters, and war, civil strife or other similar violence. The operator of any CSES shall secure and provide a performance bond, escrow deposit, or other financial assurance in a form acceptable to the County in an amount determined by a third-party engineering firm to ensure the proper decommissioning and removal of the CSES. The applicant will have the financial assurance mechanism in place prior to the start of the construction and will re-evaluate the decommissioning cost and financial assurance at the end of years five, ten and fifteen. Every five years after the start of construction, updated proof of acceptable financial assurance must be submitted to Starke County for review. Proof of acceptable financial assurance will be required prior to the start of commercial operation.

13. The site plan should be submitted in accordance with the plan requirements of the Starke County Storm Drainage, Erosion and Sediment Control Ordinance (Rule 5)
  14. Drainage Board approval shall be required for all CSES and must be located a minimum of 75 feet from any county ditch and shall not be built over any county tile lines.
  15. Must follow same rules as building in a flood plain, including raising elevation of structures if deemed necessary.
  16. Applicant agrees to pay all attorney fees and costs in the enforcement of the terms of this ordinance.
- J. Public Improvements and Repairs
1. Road Capacity. During construction, roads shall remain open at all times except for periods of time less than twenty (20) minutes unless notice is provided as required here. Expected loss of capacity (i.e., temporary closures) greater than twenty (20) minutes shall require notice to neighboring and affected property owners at least twenty-four (24) hours prior to the temporary closure, and either a detour to be established or personnel to redirect traffic to alternate routes during the temporary closure unless closed for the day by the Starke County Highway Department. Any necessary temporary closures and proposed detours shall be made known to the Highway Department at least twenty-four (24) hours prior to the temporary closure or as otherwise agreed.
  2. Commitment to Avoid Disruptions; Responsibility for Damage. In addition to a surety, the CSES operator shall sign an affidavit indicating they will compensate Starke County for any and all damage to public roads caused by CSES construction vehicles or traffic and shall strive to avoid:
    - a. Damage to roads;
    - b. Unreasonable disruption of vehicular circulation around the development site; and

- c. Unreasonable disruption of power or other utility services to surrounding areas.
- K. **Public Notice.** The CSES operator shall identify all State highways and local roads to be used in the transport of equipment and parts for construction of the CSES. It shall also prepare a time line and phasing plan for construction and identify any known road closures. This information shall be released to the local newspapers as notice to persons who may be affected. This information shall also be conveyed to local law enforcement, emergency services, public school corporations, the United States Postal Service , and the regional office of the Department of Transportation.
- L. **As-Built Plans Requirement.** Upon completion of all development, the exact measurements of the location of utilities and structures erected during the development are necessary for public record and shall therefore be recorded. The applicant, owner, or operator shall submit a copy of the Final Construction Plans (as-Built plans), as amended, to the Planning Administrator with the exact measurements thereon shown. The Planning Administrator, after being satisfied that the measurements are substantially the same as indicated on the originally approved final plans, shall approve, date and sign said Construction Plans for the project, which the applicant, owner, or operator shall then record.
- M. **Change in Ownership.** It is the responsibility of the owner or operator listed in the application to inform the Advisory Plan Staff of all changes in ownership and operation during the life of the project, including the sale or transfer of ownership or operation.

Section 2. Location Improvement Permit Fees, is amended by the addition of Solar Energy System Fees as follows:

- 1. **CSES Permits**
  - a. Fees applicable to Site Plan submittal will also be required, as well as any and all other permits as required by Starke County.
  - b. An ILP application for a CSES permit shall be accompanied by a fee of:
 

i.	0-10 kilowatts	\$150.00
ii.	11-50 kilowatts	\$300.00
iii.	51-100 kilowatts	\$600.00
iv.	101-500 kilowatts	\$1,200.00
v.	501-1,000 kilowatts	\$2,750.00
vi.	1,001-2,000 kilowatts	\$6,000.00
vii.	Over 2,000 kilowatts	\$6,000.00 + 200.00 for each additional 1000 kw
  - c. Maximum Fee of \$30,000.00
- 2. **PRSES Permits.** Application shall be accompanied by an accessory use fee of \$150.00.

Section 3. Definitions:

“Commercial Solar Energy Systems (CSES)” means an area of land or other area used by a property owner, multiple property owners, and/or corporate entity for a solar collection system principally used to capture solar energy, convert it to electrical energy or thermal power, and supply electrical or thermal power, primarily or solely for off-site utility grid use, and consisting of one or more free-standing ground-mounted, solar arrays or modules, battery storage facilities, solar related equipment, and ancillary improvements, including substations. CSES are a minimum of 10 acres in total area.

"Private Residential Solar Energy Systems (PRSES)" means an area of land or other area used for a solar collection system principally used to capture solar energy convert it to electrical energy or thermal power, and supply electrical or thermal power, primarily or solely for on-site residential use, and consisting of one or more free-standing, ground or roof mounted, solar arrays or modules, or solar related equipment, intended to primarily reduce on-site consumption of utility power and/or fuels. PRSES shall be permitted in all zoning districts and shall be treated as accessory structures in each zoning district in which they are erected. The maximum size of PRSES is limited to the maximum size allowed for an accessory structure in each zoning district (other accessory structures shall not be included in maximum size calculations).

Section 4. This Ordinance is effective upon passage this 17 of June 2019

Starke County Plan Commission Public Hearing Held On May 15, 2019

Recommended and Approved By The Starke County Plan Commission On May 15, 2019

Presented To The Starke County Commissioners On June 17, 2019

This Ordinance shall be effective upon its passage and posting of law.

Dated this 17 day of June, 2019.

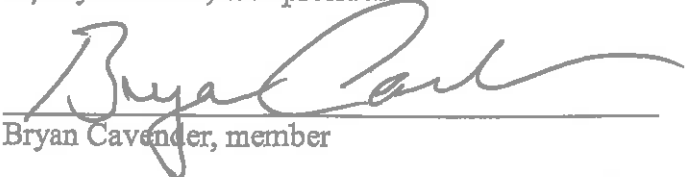
Starke County Board of Commissioners.



Charles Chesak, president



Kathryn Norem, vice president



Bryan Cavender, member

Attest:

  
Rachel Oesterreich, Auditor



## WIND ENERGY CONVERSION SYSTEMS SITE REGULATIONS

### 1.0 PURPOSE, INTENT, AND ADMINISTRATION

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#### Purpose

The purposes of this Chapter are to:

- a. Assure that any development and production of wind-generated electricity in Starke County is safe and effective;
- b. Facilitate economic opportunities for local residents; and
- c. Promote the supply of wind energy in support of Indiana's alternative energy sources potential and other such economic development tools.

#### Intent

It is the intent of the Wind Energy Conversion Systems (WECS) site regulations to provide a regulatory scheme for the construction and operation of WECS in the county; subject to reasonable restrictions these regulations are intended to preserve the health and safety of the public.

#### Administration

This ordinance shall be administered by the Starke County Planning and Zoning Administrator under the direction of the Starke County Planning Commission. The Starke County Planning Commission shall approve and issue all WECS permits. The Starke County Board of Zoning Appeals shall hear and decide all variations from this ordinance.

### 1.1 APPLICABILITY

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The provisions of this Chapter are applicable to those areas which allow wind energy conversion systems (WECS), govern the sites of WECS and substations that generate electricity to be sold to wholesale or retail markets, or that generate electricity for private use. A reasonable attempt shall be made to notify all property owners within the defined area of the WECS project prior to making application for a WECS permit. Notification may be done by media, separate mailings, or through the public notice requirements prescribed by IC 5-3-1 as amended from time to time. Said notice shall inform land owners of the intent to build any WECS and/or WECS Project.

### 1.2 PROHIBITION

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No applicant shall construct, operate, or locate a wind energy conversion system (WECS) within Starke County without having fully complied with the provisions of this Chapter.

### 1.3 CONFLICT WITH OTHER REGULATIONS

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Nothing in this Chapter is intended to preempt other applicable state and federal laws or regulations, including compliance with all Federal Aviation Administration rules and regulations and shall comply with the notification requirements of the Federal Aviation Administration. Nor are they intended to interfere with, abrogate, or annul any other ordinance, rule, or regulation, statute or other provision of law. In the event that any provision of these regulations imposes restrictions different from any other ordinance, rule, regulation, statute, or provision of law, the provisions that are more restrictive or that imposes higher standards shall govern.

### 1.4 DEFINITIONS

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For the purposes of this Ordinance, the following definitions shall apply:

1. **WECS – Wind Energy Conversion System:** An electrical generating facility comprised of one or more wind turbines and accessory facilities, including but not limited to: power lines, transformers, substations, and metrological towers, which operate by converting the kinetic energy of wind into electrical energy. The energy maybe used on-site or distributed into the electrical grid.
2. **Wind Turbine:** A wind turbine is any piece of electrical generating equipment that converts the kinetic energy of blowing wind into electrical energy through the use of airfoils or similar devices to capture the wind.
3. **Commercial or Utility WECS:** Any WECS that is exclusively designed and built to provide electricity to the electric utilities power grid as an ongoing commercial enterprise or for commercial profit, and is over the size of 900kW.
4. **Micro- WECS:** Micro- WECS are WECS of 1kW or less that are used to power accessory machinery or buildings in a remote area where it is not feasible or cost effective to connect to a utility company.
5. **Non-Commercial or Industrial WECS:** Any WECS of less than 900kW but more than 40kW that is used for the purpose of supplying electric for use to a business or commercial enterprise, it may be connected to a utility power grid.
6. **Residential WECS:** Any WECS that is connected to a residence for the purpose of supplying electric for it's own use, and may be connected to the utility company through net-metering and not be of a size larger than 40kW.
7. **Aggregated Project:** Aggregated projects are those which are developed and operated in a coordinated fashion, but which have multiple entities separately owning one or more of the individual WECS within the larger project. Associated infrastructure such as power lines and transformers that service the facility may be owned by a separate entity but are also included as part of the aggregated project.
8. **Feeder Line:** Any power line that carries electrical power from one or more wind turbines or individual transformers associated with individual wind turbines to the point of interconnection with the electric power grid, in the case of interconnection with the high voltage transmission systems the point of interconnection shall be the substation serving the WECS.
9. **Meteorological Tower:** For the purposes of the Wind Energy Conversion System Ordinance, meteorological towers are those towers which are erected primarily to measure wind speed and directions plus other data relevant to site development of a



WECS. Meteorological Towers do not include towers and equipment used by airports, the Indiana Department of Transportation, or other similar applications to monitor weather conditions.

10. **Property Line:** The boundary line of the area over which the entity applying for a WECS permit has legal control for the purposes of installing a WECS. This control may be attained through fee title ownership, easement, or other appropriate contractual relationship between the project developer and landowner.
11. **Public Conservation Lands:** Land owned in fee title by State or Federal agencies and managed specifically for (grassland) conservation purposes, including but not limited to State Wildlife Management Areas, State Parks, State Scientific and Natural Areas, Federal Wildlife Refuges and Waterfowl Production Areas. For the purposes of this section public conservation lands will also include lands owned in fee title by non-profit conservation organizations. Public conservation lands do not include private lands upon which conservation easements have been sold to the public agencies or non-profit conservation organizations.
12. **Rotor Diameter:** The diameter of the circle described by the moving rotor blades.
13. **Substations:** Any electrical facility designed to convert electricity produced by wind turbines to a voltage greater than 35,000 (35,000 KV) for interconnection with high voltage transmission lines shall be located outside of the road right of way.
14. **Total Height:** The highest point above ground level reached by a rotor tip or any other part of the WECS.
15. **Tower:** Towers include vertical structures that support the electrical generator, rotor blades, or meteorological equipment.
16. **Tower Height:** The total height of the WECS exclusive of the rotor blades.
17. **Transmission Line:** Those electrical power lines that carry voltages of at least 69,000 volts (69 KV) and are primarily used to carry electric energy over medium to long distances rather than directly interconnecting and supplying electric energy to retail customers.
18. **Default:** Any violation of the requirements of the approved application.

## 1.5 ZONING REGULATIONS

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### Location

Commercial, Non-commercial, and Micro WECS will be permitted, or not permitted, in various zoning districts as prescribed by the Official Schedule of Uses (Appendix A).

### Height

#### A. Non-Commercial WECS or Meteorological Towers

Any Non-commercial WECS Towers or Meteorological Towers greater than two hundred (200) feet in height shall require a variance approval.

#### B. Commercial WECS or Operational Support Meteorological Towers

For Commercial WECS Towers and Operational Support Meteorological Towers there are no limitations on height, except those height limitations imposed by Federal Aviation Administration rules and regulations.

C. Micro WECS

No Micro WECS Tower shall exceed sixty (60) feet in height.

**1.6 SETBACK REQUIREMENTS**

**Minimum setback distances for COMMERCIAL WECS TOWERS**

Distance from a...	Minimum Setback Distance
Property line, measured from the center of the WECS Tower to the property line	The length of one blade of the WECS Tower being placed on such property.  (i) The setback requirement is waived if the affected adjoining landowners sharing the common property line are Participating Landowners.  (ii) A WECS Tower may be placed up to the property line, if a fully executed and recorded written waiver agreement is secured from the affected adjoining Non-Participating Landowner.
Residential dwellings, measured from the center of the WECS Tower to the nearest corner of the structure	One thousand (1,000) feet. <sup>1</sup>
Public road right-of-way, measured from the center of the WECS Tower to the edge of the right-of-way	1.1 times the total height of the WECS Tower (where the blade tip is at its highest point), provided that the distance is no less than three hundred and fifty (350) feet <sup>2</sup>
Other rights-of-way, such as railroads and public utility easements, measured from the center of the WECS Tower to the edge of the right-of-way	1.1 times the total height of the WECS Tower (where the blade tip is at its highest point), provided that the distance is no less than three hundred and fifty (350) feet
Public conservation lands, measured from the center of the WECS Tower to the nearest point of the public conservation land in question	Seven hundred and fifty (750) feet

<sup>1</sup> The setback for residential dwellings shall be reciprocal in that no residential dwelling shall be constructed within one thousand (1,000) feet of a COMMERCIAL WECS Tower, measured from the center of the WECS Tower to the nearest corner of the structure.

<sup>2</sup> The setback shall be measured from future public rights-of-way width if a planned public road improvement or expansion is known at the time of application.

Distance from a...	Minimum Setback Distance
Wetlands, as defined by the U.S. Army Corps of Engineers, measured from the center of the WECS Tower to the nearest point of the wetland in question	As determined by a permit obtained from the Army Corps of Engineers
Yellow and Kankakee River measured from the center of the WECS Tower to the shoreline	One-half (1/2) mile
Incorporated limits of a municipality, measured from the center of the WECS Tower to the corporate limits	Fifteen hundred (1,500) feet
Above-ground electric transmission line, measured from the center of the WECS Tower	1.1 times the total height (where the blade tip is at its highest point)

**Commercial WECS Power Collection and Transmission System**

**a. WECS Substation**

For all Substations, setbacks from property lines are waived if the affected adjoining landowners sharing the common property line are all Participating Landowners.

**a. Poles**

For all poles carrying overhead wiring connecting Commercial WECS Towers to a Substation for connection to a utility's electric transmission line, there is no setback requirements from property lines as long as the poles are located within a recorded easement for such purpose.

**Minimum setback distances for NON-COMMERCIAL and MICRO WECS TOWERS**

Distance from a...	Minimum Setback Distance
Property line, measured from the center of the WECS Tower to the property line	1.1 times the total height of the WECS Tower (where the blade tip is at its highest point), provided that the distance is no less than the required yard setback prescribed for that district
Residential dwellings, measured from the center of the WECS Tower to the nearest corner of the structure	1.1 times the total height of the WECS Tower (where the blade tip is at its highest point)
Public road right-of-way, measured from the center of the WECS Tower to the edge of the right-of-way	1.1 times the total height of the WECS Tower (where the blade tip is at its highest point), provided that the distance is no less the required yard setback prescribed for that district <sup>9</sup>

Distance from a...	Minimum Setback Distance
Other rights-of-way, such as railroads and public utility easements, measured from the center of the WECS Tower to the edge of the right-of-way	1.1 times the total height of the WECS Tower (where the blade tip is at its highest point), provided that the distance is no less than the required yard setback prescribed for that district
Public conservation lands, measured from the center of the WECS Tower to the nearest point of the public conservation land in question	Seven hundred and fifty (750) feet
Wetlands, as defined by the U.S. Army Corps of Engineers, measured from the center of the WECS Tower to the nearest point of the wetland in question	As determined by a permit obtained from the Army Corps of Engineers
Yellow and Kankakee River measured from the center of the WECS Tower to the shoreline	One half (1/2) of a mile
Above-ground electric transmission lines, measured from the center of the WECS Tower	1.1 times the total height of the WECS Tower (where the blade tip is at its highest point)

**Horizontal extension for Non-commercial and Micro WECS**

The furthest horizontal extension (including guy wires) shall not extend into a required setback by the zoning district or be closer than twenty (20) feet to any primary structure, or public right-of-way easement for any above-ground telephone, electric transmission or distribution lines.

**Minimum setback distances for all Meteorological Towers**

Distance from a...	Minimum Setback Distance
Property line, measured from the center of the Meteorological Tower to the property line	1.1 times the total height of the Meteorological Tower, provided that the distance is no less than the required yard setback  (l) The setback requirement is waived if the affected adjoining landowners sharing a common property line are Participating Landowners
Residential dwellings, measured from the center of the Meteorological Tower to the nearest corner of the structure	1.1 times the total height of the Meteorological Tower
Public road right-of-way, measured from the center of the Meteorological Tower to the edge of the right-of-way	1.1 times the total height of the Meteorological Tower, provided that the distance is no less than the required yard setback <sup>4</sup>

<sup>3</sup> The setback shall be measured from future public rights-of-way width if a planned public road improvement or expansion is known at the time of application.

Distance from a...	Minimum Setback Distance
Other rights-of-way, such as railroads and public utility easements, measured from the center of the Meteorological Tower to the edge of the right-of-way	1.1 times the total height of the Meteorological Tower, provided that the distance is no less than the required yard setback

**Horizontal extension for all Meteorological Towers**

The furthest horizontal extension (including guy wires) shall not extend into a required setback by the zoning district or be closer than twenty (20) feet to any primary structure, or public right-of-way easement for any above-ground telephone, electric transmission or distribution lines.

**1.7 SAFETY DESIGN AND INSTALLATION STANDARDS**

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**Equipment type**

**a. Turbines**

All turbines shall be constructed of commercially available equipment.

**b. Meteorological Towers**

All Meteorological Towers may be guyed.

**c. Experimental, or proto-type equipment**

Experimental or proto-type equipment still in testing which do not fully comply with industry standards may be approved by the Board of Zoning Appeals per the variance process established by this Ordinance.

**Industry standards and other regulations**

All WECS shall conform to applicable industry standards, as well as all local, state and federal regulations. An applicant shall submit certificate(s) of design compliance that wind turbine manufacturers have obtained from Underwriters Laboratories, Det Norske Veritas, Germanishcher Lloyd Wind Energie, or an equivalent third party.

**Controls and brakes**

**a. Braking system**

All WECS Towers 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. Stall regulation shall not be considered a sufficient braking system for over speed protection.

**b. Operation mode**

All mechanical brakes shall be operated in a fail-safe mode.

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<sup>4</sup> The setback shall be measured from future public rights-of-way width if a planned public road improvement or expansion is known at the time of application.

**Electrical components**

**a. Standards**

All electrical components of all WECS shall conform to applicable local, state and national codes, and any relevant national and international standards.

**b. Collection cables**

All electrical collection cables between each WECS Tower shall be located underground wherever possible.

**c. Transmission lines**

All transmission lines that are buried should be at a depth consistent with or greater than local utility and telecommunication underground lines standards or as negotiated with the land owner or the land owner's designee until the same reach the property line or a substation adjacent to the property line.

**Color and finish**

In addition to all applicable Federal Aviation Administration requirements, the following shall also apply:

**a. Wind turbines and towers**

All wind turbines and towers that are part of a WECS shall be white, grey, or another non-obtrusive color.

**b. Blades**

All blades shall be white, grey, or another non-obtrusive color. Blades may be black in order to facilitate deicing.

**c. Finishes**

Finishes shall be matte or non-reflective.

**d. Exceptions**

Exception may be made for all Meteorological Towers, where concerns exist relative to aerial spray applicators.

**Warnings**

**a. Commercial WECS**

The following notices shall be posted for all Commercial WECS:

1. A sign or signs shall be posted on the pad-mounted transformer and the Substation(s) warning of high voltage.
2. Private roads providing access to Commercial WECS shall have posted an Emergency-911 address road sign.

**b. Guy wires and anchor points**

For all guyed towers, one of the following warning mechanisms shall be used for each anchor point:

**1. Visible or reflective objects**

Visible and reflective objects, such as flags, plastic sleeves, reflectors, or tape placed on the anchor points of guy wires and along the innermost guy wires up to eight (8) feet above the ground.

**2. Visible Fencing**

Visible fencing not less than four (4) feet in height installed around anchor points of guy wires.

**c. Non-commercial WECS and Micro WECS**

The following notices shall be clearly visible on all Non-commercial WECS and Micro WECS Towers and accessory facilities:

1. "No Trespassing" signs shall be attached to any perimeter fence.
2. "Danger" signs shall be posted at the height of five (5) feet on WECS Towers and accessory structures.
3. A sign shall be posted on the WECS Tower showing an emergency telephone number.
4. The manual electrical and/or over speed shutdown disconnect switch(es) shall be clearly labeled.

**d. Meteorological Towers**

Consideration shall be given to paint aviation warnings as required by the Federal Aviation Administration on all Meteorological Towers.

**Climb prevention**

All Commercial WECS Tower designs shall include features to deter climbing or be protected by anti-climbing devices such as:

- a. Fences with locking portals at least six (6) feet in height; or
- b. Anti-climbing devices fifteen (15) feet vertically from the base of the WECS Tower; or
- c. Locked WECS Tower doors.

**Blade clearance**

The minimum distance between the ground and any protruding blades(s) utilized on all Commercial WECS Towers shall be twenty-five (25) feet, as measured at the lowest point of the arc of the blades. The minimum distance between the ground and any protruding blade(s) utilized on all Non-commercial or Micro WECS Towers shall be a minimum of fifteen (15) feet, as measured at the lowest point of the arc of the blades, provided the rotor blade does not exceed 20 feet in diameter. In either instance, the minimum distance shall be increased as necessary to provide for vehicle clearance in locations where over-sized vehicles might travel.

**Lighting**

- a. Intensity and frequency

All lighting, including lighting intensity and frequency of strobe, shall adhere to but not exceed requirements established by Federal Aviation Administration permits and regulations.

b. Shielding

Except with respect to lighting required by the Federal Aviation Administration, lighting may require shielding so that no glare extends substantially beyond any WECS Tower.

**Materials handling, storage and disposal**

a. Solid wastes

All solid wastes whether generated from supplies, equipment, parts, packaging, operation or maintenance of the WECS, including old parts and equipment related to the construction, operation and/or maintenance of the WECS shall be removed from the site promptly and disposed of in accordance with all federal, state, and local laws.

b. Hazardous materials

All hazardous materials or waste related to the construction, operation and/or maintenance of any WECS shall be handled, stored, transported and disposed of in accordance with all applicable local, state and federal laws.

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**1.8 OTHER APPLICABLE STANDARDS**

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**Guyed wire anchors**

No guyed wire anchors shall be allowed within any required public road right-of-way setback.

**Sewer and water**

All facilities or structures that are part of the WECS Project shall comply with the existing septic and well regulations as required by the Starke County Health Department and/or the State of Indiana Department of Public Health.

**Noise and vibration**

The noise level of Non-commercial WECS shall be no greater than sixty (60) decibels measured from the nearest residence. This level may only be exceeded during short-term events such as utility outages and/or severe wind storms. All other noise and vibration levels shall be in compliance with all county, state and federal regulations.

**Utility Interconnection**

The WECS, if interconnected to a utility system, shall meet the requirements for interconnection and operate as prescribed by the applicable regulations of the electrical utility, as amended from time to time.

**Signage**

All signs pertaining to a WECS Project must comply with the Starke County Sign Ordinance, with the following exceptions.



a. Surface area

No sign shall exceed sixteen (16) square feet in surface area.

b. Height

No sign shall exceed eight (8) feet in height.

c. Manufacturer's or owner's company name and/or logo

The manufacturers or owner's company name and/or logo may be placed upon the compartment containing the electrical equipment.

d. Development signs

An identification sign relating to the WECS Project development may be located on each side of the total WECS Project area, provided that there are no more than four (4) signs located on any one WECS Project site.

e. Other signs and logos

No other advertising signs or logos shall be placed or painted on any structure or facility that is part of the WECS Project.

**Feeder lines**

Feeder lines installed as part of any WECS shall not be considered an essential service. To wit, all communications and feeder lines installed as part of any WECS shall be buried underground wherever possible.

**Other appurtenances**

No appurtenances other than those associated with the WECS construction, operations, maintenance, decommissioning/removal, and permit requirements shall be connected to any WECS Tower except those that have been granted a conditional use by the Starke County Board of Zoning Appeals.

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## 1.9 OPERATION AND MAINTENANCE

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**Physical modifications**

In general, any physical modification to any WECS that alters the mechanical load, mechanical load path, or major electrical components shall require re-certification. Like-kind replacements shall not require re-certification. Therefore, prior to making any physical modification, the owner or operator shall confer with the Starke County Planning and Zoning Administrator to determine whether the physical modification requires re-certification.

**Interference**

Prior to construction, a communications study to minimize interference with public or public serving utility microwave transmissions shall be completed. If necessary, the applicant, owner and/or operator shall mitigate interference with electromagnetic communications, such as radio, telephone, microwaves, or television signals caused by

any WECS. In addition, the applicant, owner, and/or operator shall comply with the following:

a. Pre-construction

The applicant shall complete a communications study prior to construction so as to minimize interference with any public or public serving utility microwave transmissions.

b. Post-construction

If, after construction of the WECS, the owner or operator receives a written complaint related to interference with the broadcast of residential television, telecommunication, communication or microwave transmissions, the owner or operator shall take reasonable steps to mitigate said interference. Interference with private telecommunications systems such as GPS shall be between the company and the complainant.

c. Failure to remedy a complaint

if an agreement to remedy a known interference is not reached within ninety (90) days, appropriate action will be taken, which may result in requiring the WECS to become inactive. This does not apply to interference with private telecommunications systems.

**Declaration of public nuisance**

Any WECS thereof declared to be unsafe by the Starke County Planning and Zoning Administrator by reason of inadequate maintenance, dilapidation, obsolescence, fire hazard, damage or abandonment is hereby declared to be a public nuisance and shall be abated by repair, rehabilitation, demolition or removal in accordance with the approved Decommissioning Plan.

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**1.10 DECOMMISSIONING PLAN**

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Prior to receiving an Improvement Location Permit and Building Permit under this Ordinance, the County and the applicant, owner and/or operator shall formulate a decommissioning plan outlining the anticipated means and cost of removing a WECS at the end of their serviceable life or upon becoming a discontinued or abandoned use to ensure that the WECS is properly decommissioned.

**Content**

A decommissioning plan shall include, at a minimum, language to the following:

a. Assurance

Written assurance must be provided to insure that the WECS will be properly decommissioned upon the completion of the project life or in the event that the WECS project is abandoned.

**b. Cost estimates**

The applicant shall provide a contractor cost estimate for demolition and removal of the WECS. The cost estimates shall be made by a competent party: such as a professional engineer, a contractor capable of decommissioning or a person with suitable expertise or experience with decommissioning WECS.

**c. Financial assurance**

Applicant will provide financial assurance in an amount at least equal to said demolition and removal contractor cost estimate, through the use of a bond, letter of credit or other security acceptable to the County, for the cost of decommissioning each WECS Tower and related improvements constructed under the permit. Said security will be released when each WECS Tower is properly decommissioned as determined by Starke County.

**d. Abandonment by the owner or operator**

In the event of abandonment by the owner or operator, the applicant will provide an affidavit to Starke County Planning and Zoning Administrator representing that all easements and/or leases for WECS Towers shall contain terms that provide financial assurances, including access to the salvage value of the equipment, for the property owners to ensure that the WECS Towers are properly decommissioned within one (1) year of expiration or earlier termination of the WECS Project.

**Discontinuation and abandonment**

**Discontinuation**

All WECS shall be considered a discontinued use after one (1) year without energy production, unless a plan is developed and submitted to the Starke County Planning and Zoning Administrator outlining the steps and schedule for returning the WECS to service.

**Removal**

An applicant's obligations shall include removal of all physical material pertaining to the project improvements to no less than a depth of four (4) feet below ground level within three hundred sixty-five (365) days of the discontinuation or abandonment of the WECS or WECS Project, and the restoration of the project area to as near as practicable the condition of the site immediately before construction of such improvements. Removal obligations shall be completed by the owner or by the Starke County Planning and Zoning Administrator at the owner's expense.

**Written notices**

Prior to implementation of the existing procedures for the resolution of such complaints, the appropriate County body shall first provide written notice to the owner and/or

operator, setting forth the alleged default(s). Such written notice shall provide the owner and/or operator a reasonable time period not to exceed sixty (60) days, for good faith negotiations to resolve the alleged default(s).

#### **Costs Incurred by the County**

If the County removes a WECS Tower and appurtenant facilities, it may sell the salvage to defray the costs of removal. The permittee or grantor grants a license to Starke County to enter the property to remove a WECS Tower and appurtenant facilities pursuant to the terms of an approved decommissioning plan.

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### **1.11 LIABILITY INSURANCE**

The owner or operator of any WECS shall maintain a current general liability policy covering bodily injury and property damage and shall be required to name Starke County as an additional insured with dollar amount limits per occurrence, in the aggregate, and a deductible, all terms of which are suitable to the County.

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### **1.12 APPLICATION PROCEDURES**

Permits and variances shall be applied for and reviewed under the procedures established by this Ordinance and shall include the following information:

#### **Applications for All Wind Energy Conversion Systems**

An application for all WECS shall include the following information:

a. **Contact information of project applicant**

The name(s), address(es), and phone number(s) of the applicant(s), as well as a description of the applicant's business structure and overall role in the proposed project.

b. **Contact information of current project owner**

The name(s), address(es), and phone number(s) of the owner(s), as well as a description of the owner's business structure and overall role in the proposed project, and including documentation of land ownership or legal control of the property on which the WECS is proposed to be located. The Starke County Planning and Zoning Administrator shall be informed of any changes in ownership.

c. **Contact information of project operator**

The name(s), address(es), and phone number(s) of the operator(s), as well as a description of the operator's business structure and overall role in the proposed project.

d. **Legal description**

The legal description, physical address, and general location of the project must be included.

e. **Project description**

**Starke County Zoning Ordinance WECS Site Regulations**

A WECS Project Description, including to the extent possible, information on each wind turbine proposed, including:

1. Number of turbines
2. Type
3. Name plate generating capacity
4. Tower height
5. Rotor diameter
6. Total height
7. Anchor base
8. The means of interconnecting with the electrical grid
9. The potential equipment manufacturer(s)
10. All related accessory structures.

**f. A site layout plan**

A site layout plan drawn to appropriate scale, showing distances including all applicable setback requirements and certified by a registered land surveyor.

**g. Engineering certification**

For all WECS, the manufacturer's engineer or another qualified registered professional engineer shall certify, as part of the building permit application that the foundation and tower design of the WECS is within accepted professional standards, given local soil and climate conditions. An engineering analysis of the WECS Tower showing compliance with the applicable regulations and certified by a licensed professional engineer shall also be submitted. The analysis shall be accompanied by standard drawings of the wind turbine structure, including the tower, base, and footings.

**h. Proof of correspondence and cooperation with wildlife agencies**

For the purposes of preventing harm to migratory birds and in compliance with the Migratory Bird Treaty Act, the applicant shall provide written documentation that he or she is in direct correspondence and cooperation with the U.S. Fish and Wildlife Service and the Indiana Department of Natural Resources.

**i. Any other item reasonably requested by the Starke County Planning and Zoning Administrator.**

**Applications for Non-commercial Wind Energy Conversion Systems**

In addition to the application requirements listed under application procedures. Applications for Non-commercial WECS shall also include the following information:

**a. Demonstration of energy need**

The primary purpose of the production of energy from a Non-Commercial WECS shall be to serve the energy needs of that tract. The applicant(s) shall demonstrate how much energy is needed and how the proposed size and number of the WECS Towers fulfills this need. Net-metering may be allowed, but shall not be the primary intent of the WECS.

**b. Statement of Federal Aviation Administration compliance**

A statement of compliance with all applicable Federal Aviation Administration rules and regulations, including any necessary approvals for installations within close proximity to an airport.

**c. Utility notification**

No Non-commercial WECS shall be installed until evidence has been given that the local utility company has been informed of the customer's intent to install an interconnected customer-owned generator. Off-grid systems shall be exempt from this requirement.

**d. Compliance with National Electrical Code**

A line drawing of the electrical components must be provided. It must show enough 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.

**Applications for Commercial Wind Energy Conversion Systems**

In addition to the application requirements listed the application procedures section. Applications for All Wind Energy Conversion Systems and applications for Commercial WECS shall also include the following information:

**a. A preliminary site layout plan**

In place of the site layout plan described above under the application procedures section. Applications for a Commercial WECS shall include a preliminary site layout plan with distances drawn to an appropriate scale illustrating the following:

1. Property lines, including identification of adjoining properties;
2. The latitude and longitude of each individual WECS Tower, along with individual identification of each WECS Tower;
3. Dimensional representation of the structural components of the WECS Tower construction including the base and footings;
4. WECS access roads;
5. Substations;
6. Electrical cabling;
7. Ancillary equipment;
8. Primary structures within one quarter (1/4) mile of all proposed WECS Towers;
9. Distances from each individual WECS Tower to each setback requirement;
10. Location of all public roads which abut, or traverse the proposed site;

11. The location of all above-ground utility lines within a distance of two (2) times the height of any proposed WECS structure;
12. The location of any historic or heritage sites as recognized by the Division of Historic Preservation and Archeology of the Indiana Department of Natural Resources, within one (1) mile of a proposed WECS Tower
13. The location of any wetlands based upon a delineation plan prepared in accordance with the applicable U.S. Army Corps of Engineers requirements and guidelines, within one (1) mile of a proposed WECS Tower.
14. Topographic map  
A USGS topographical map, or map with similar data, of the property and the surrounding area, including any other WECS Tower within a ten (10) rotor distance, but no less than a one quarter (1/4) mile radius from the proposed project site, with contours of not more than five (5) foot intervals.
15. Noise profile
16. Location of all known WECS Towers within one (1) mile of the proposed WECS Tower, including a description of the potential impacts on said WECS Tower and wind resources on adjacent properties.
17. Copy of the Communications Study

#### **Applications for all Meteorological Towers**

Applications for all Meteorological Towers shall include the following information:

1. A copy of the written agreement where the landowner has authorized the placement of a Meteorological Tower on their property.
2. A preliminary site layout plan with distances drawn to an appropriate scale including the following:
  3. Property lines, including identification of adjoining properties
  4. The latitude and longitude of each individual Meteorological Tower
  5. Dimensional representation of the structural components of the tower construction, including the base and footings
  6. Electrical cabling
  7. Ancillary equipment
  8. Required setback lines
9. Location of all public roads which abut, or traverse the proposed site
10. The location of all above-ground utility lines within a distance of 2 times the height of any proposed tower
11. The location of all underground utility lines
12. Any other items reasonably requested by the Starke County Planning Commission.
13. Variance approval if any Non-commercial Meteorological Tower is greater than 200 feet in height

**Aggregated project applications**

Aggregated projects may jointly submit a single application and be reviewed under joint proceedings, including notices, hearing, and reviews and as appropriate, approvals.

**Fees**

- a. Commercial WECS Towers, Non-commercial WECS Towers, Micro WECS Towers, Meteorological Towers, and any accessory buildings,

As prescribed by the County's Official Schedule of Fees.

- b. Aggregated WECS Projects

Applications will be assessed fees for each construction phase within a single project, as prescribed by the County's Official Fee Schedule.

**Permits**

- a. Commercial WECS Towers, Non-commercial WECS Towers, Micro WECS Towers, Meteorological Towers, and any accessory buildings

1. All application requirements as stated in, APPLICATION PROCEDURES shall be completed before any Improvement Location Permit or Building Permit is issued.

2. A copy of all Memorandum of Agreements signed by Participating Landowners authorizing the placement of the identified WECS Towers on landowners property and/or adjoining properties.

3. A fully executed setback waiver agreement, if applicable, signed by Non-participating Landowners for adjoining properties.

- b. Aggregated WECS Projects

For aggregated projects, Improvement Location Permits and Building Permits will be issued individually for each WECS Tower or Meteorological Tower.

**1.13 PRE-CONSTRUCTION REQUIREMENTS**

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Prior to the issuance of any Improvement Location Permit, the following shall be submitted to and reviewed by the Starke County Planning and Zoning Administrator, who shall certify that the following are in compliance with all applicable regulations:

**FAA permit application**

A Federal Aviation Administration permit application.

**Decommissioning plan**

A decommissioning plan as described above.

**Economic Development, Drainage, and Road Use and Maintenance Agreements**

An Economic Development Agreement, a Drainage Agreement, and a Road Use and Maintenance Agreement approved by the County Commissioners. The agreements shall be developed in conjunction with the Starke County Economic Development office



and copies provided to the Starke County Planning and Zoning Administrator. These agreements must be signed before any Building Permit is issued. The Drainage Agreement must prescribe or reference provisions to address crop and field tile damages.

**Erosion control plan**

An erosion control plan developed in consultation with the Natural Resources Conservation Services (NRCS), and any storm water quality management plan adopted by the applicable jurisdiction.

**Utility plan**

A utility plan drawn to the same scale as the site layout plan illustrating the location of all underground utility lines associated with the total WECS Project.

**Avoidance and mitigation of damages to public infrastructure**

In addition to complying with the approved Road Use and Maintenance Agreement, an applicant, owner, or operator proposing to use any county road(s), for the purpose of transporting any component of a Commercial WECS Project and/or equipment for construction, operation or maintenance of a Commercial WECS Project, shall comply with the following pre-construction requirements.

**a. Identification of roads and services**

All roads and services that will be used for construction and maintenance purposes shall be identified. If the route includes a public road, it shall be approved by the Starke County Highway Superintendent.

**b. Pre-construction survey**

The applicant shall conduct a pre-construction baseline survey acceptable to the Starke County Highway Superintendent to determine existing road conditions for assessing potential future damage. The survey shall include photographs, or video, or a combination thereof, and a written agreement to document the condition of the public facility.

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**1.14 CONSTRUCTION REQUIREMENTS**

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During construction, the applicant shall demonstrate that the following requirements are being met:

**Dust control**

Reasonable dust control measures shall be required by the County during construction of a Commercial WECS Project.

**Drainage**

Reasonable storm water best management practices as required by the approved Drainage Plan/Agreement on file with the Starke County Surveyor.

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### **1.15 POST-CONSTRUCTION REQUIREMENTS**

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Post-construction, the applicant shall comply with the following provisions:

#### **Road Repairs**

Any road damage caused by the construction of project equipment, the installation of the same, or the removal of the same, shall be repaired as per the Road Use and Maintenance Agreement approved by the County Commissioners. The Starke County Highway Superintendent may choose to require either remediation of road repairs upon completion of the project or is authorized to collect fees for oversized load permits. Further, a corporate surety bond in an amount to be fixed by a professional engineer may be required by the Starke County Highway Superintendent to insure the county that future repairs are completed to the satisfaction of the unit of local government. The cost of bonding is to be paid by the applicant.

#### **As-Built Plans Requirement**

Where upon completion of all development, the exact measurements of the location of utilities and structures erected during the development are necessary for public record and shall therefore be recorded. The applicant, owner, or operator shall submit a copy of the Final Construction Plans (as-built plans), as amended, to the Starke County Planning and Zoning Administrator with the exact measurements thereon shown. The Starke County Planning and Zoning Administrator, after being satisfied that the measurements are substantially the same as indicated on the originally approved final plan(s), shall approve, date and sign said Construction Plans for the project, which the applicant, owner, or operator shall then record.

#### **Change in ownership**

It is the responsibility of the owner or operator listed in the application to inform the Starke County Planning and Zoning Administrator of all changes in ownership and operation during the life of the project, including the sale or transfer of ownership or operation.

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### **1.16 APPLICABILITY AND EFFECTIVE DATE**

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Starke County Zoning Ordinance WECS Site Regulations

This ordinance shall be enforced by the Starke County Planning Commission. All portions of former ordinances in conflict herewith are hereby repealed and superseded. This ordinance shall become in force and effect from and after its adoption and insertion in the Starke County Code Book of Ordinances

Starke County Planning Commission Public Hearing Held On June 16, 2010

Recommended and Approved by the Starke County Planning Commission On June 16, 2010

Presented to the Starke County Commissioners On June 21, 2010

Approved by the Starke County Commissioners On July 19, 2010

Dated 7/19/10

Daniel Bridegroom  
Daniel Bridegroom

Kathy Norem  
Kathy Norem

Jennifer Davis  
Jennifer Davis



Attest:  
Michaelene J. Houston  
Michaelene J. Houston, Auditor

**STARKE COUNTY PLANNING COMMISSION  
APPENDIX A FOR WECS ORDINANCE**

1. **COMMERCIAL OR UTILITY WECS**-----Generating more than 900 kw are allowed in Agriculture zoned districts and HI, LI, I with planning commission approval.
2. **NON-COMMERCIAL OR INDUSTRIAL WECS**-----Generating less than 900 kw or more than 40 kw are allowed in these zoning districts AG, HI, LI, I, GB, LB with planning commission approval.
3. **MICRO WECS**-----Generating less than 1 kw are an allowable use in all districts except R-3 which will need approval from the planning commission.
4. **RESIDENTIAL WECS**----Generating more than 0 kw but less than 40 kw are allowed in all areas as long as set backs are in compliance.