

SOLAR AND WIND ENERGY ZONING

Hancock, MI

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Purpose and Intent

The purpose of this chapter is to establish guidelines for the promotion, appropriate placement, and use of solar energy systems, including solar energy panels, and wind energy systems, including turbines. The chapter differentiates accessory use and industrial use for both types of systems.

Applicability. This section applies to any small-scale solar or wind energy system as defined by this Ordinance. This section ONLY applies to solar energy collectors with surface areas greater than five (5) square feet (solar) AND to solar or wind systems mounted greater than eight (8) feet above the ground.

This section does NOT apply to a stand-alone solar or wind energy systems used to power a single device or specific piece of equipment such as lawn ornament, yard or stair lights, decorative lighting, weather station, battery trickle charger, thermometer, clock, pond pump, or other similar devices.

Solar and Wind Energy System Types

Accessory Use: An ACCESSORY SOLAR OR WIND ENERGY SYSTEM is a small unit that is incidental and subordinate to the primary use of the land parcel, used to supply power for on-site consumption (net metering is allowed if the energy company participates). Solar or wind accessory-use systems are permitted in all districts, subject to setback and height restrictions for accessory structures in their respective districts, and siting limitations as set out below. Accessory-use systems of either type shall not be erected, constructed, installed, or modified unless a City of Hancock Solar and Wind Zoning Permit has been issued to the owner(s) or operator(s).

Industrial Use: An INDUSTRIAL SOLAR OR WIND ENERGY SYSTEM is one or many large units whose purpose is the generation of power for power generation itself (*i.e.*, a “solar farm” or “wind farm”), solely or principally intended to produce electricity for sale to a utility and/or other customers for off-site consumption. Industrial-use systems shall not be erected, constructed, installed, or modified unless a City of Hancock solar and wind zoning permit has been issued to the owner(s) or operator(s).

- Industrial-use **solar** systems shall be a permitted *only* in I-1 Industrial districts and with a Special Use Permit and full site review.
- Industrial-use **wind** systems (*i.e.*, utility grid wind energy system) are not permitted in any zoning district.

Zoning Table

P = permitted; C = Conditional; X = not permitted

ENERGY SYSTEM	ACCESSORY USE	INDUSTRIAL USE
SOLAR	<p>P in all districts</p> <p><i>Zoning permit required</i></p>	<p>C in I-1 district only</p> <p><i>Special Use Permit required</i></p> <p><i>Site Review required</i></p>
WIND	<p>P in all districts</p> <p><i>Zoning permit required</i></p>	<p>X in all districts</p>

General Requirements

All solar and wind energy systems, including support structures, shall comply with all applicable state construction, electrical, and mechanical codes and building permit requirements.

All solar and wind energy system installations shall conform to the State of Michigan Electrical Code.

All solar and wind energy system installations are subject to all State of Michigan requirements for interconnection (e.g., Michigan Public Service Commission and Federal Energy Regulatory Commission standards), if interconnected.

All applications for a wind or solar energy system shall conform to the provisions of city ordinance requirements with respect to tree removal. An applicant shall locate a wind or solar energy system so that tree removal is minimal to the extent practical.

All wind energy systems shall comply with Federal Aviation Administration (FAA) requirements, the Michigan Airport Zoning Act, the Michigan Tall Structures Act, and all other airport overlay zoning regulations.

Solar and Wind Energy System Permit Application Requirements

All solar and wind energy system installations require appropriate building and electrical permits from Houghton County.

All accessory or industrial solar and wind energy system construction projects require a Solar and Wind Zoning Permit, for which a complete site plan and other necessary documents and drawings shall be submitted to the City of Hancock. Wind energy systems, in particular, require an approved site plan review approved by the Hancock Zoning Administrator.

Fees for an Solar and Wind Zoning Permit application and for site plan review shall be established and, from time to time, amended by city council approved resolution.

Accessory Solar Energy System Requirements

Ground-mounted solar energy systems should be located in the side or rear yards, subject to all property setback requirements of accessory structures, but if that requirement cannot be reasonably met, the Zoning Administrator may approve alternative site-specific placement.

Examples where the Zoning Administrator may approve front yard placement include, but are not limited to, situations where placement in the rear or side yard will: **a)** substantially decrease the efficiency of the solar energy system due to orientation or topography, shading by the main building, or accessory structures, or vegetative shading from the subject lot or adjoining lots; OR **b)** interfere with septic system, accessory structures, or accessory uses.

Accessory solar energy systems shall be permitted as ground arrays in accordance with the following:

- (1) Ground array structures over 12 ft. height require approval by the city during permit review.
- (2) Ground array structures are counted as lot coverage and are subject to maximum coverage and minimum open space requirements in their zoning district.
- (3) Ground arrays shall be located so that any glare is nonintrusive and is directed away from any other properties.
- (4) Solar collectors shall be placed so as not to shade any existing solar collector or adjoining property.
- (5) Solar energy systems shall not be used for displaying any advertising except for reasonable identification of the manufacture or operator of the system.

Rooftop-mounted solar energy systems shall be permitted in any zoning district such that the total height of the solar array and building does not exceed height restrictions for that type of building in that zoning district. The placement of the solar panels shall not result in a total height including building and panels greater than what is permitted for the principle building in the zoning district which they are located, with the exception of pre-existing structures already at or above the height limit for their zoning district, in which case the solar energy system, including solar panels, shall not exceed a height of ten (10) inches above the rooftop.

Façade-mounted solar energy systems shall be permitted in any zoning district and should be located such that they are not visible from right-of-way or public easement, but if that requirement cannot be reasonably met, the Zoning Administrator may approve alternative site-specific placement. Examples where the Zoning Administrator may approve placement visible from right-of-way or public easement include, but are not limited to, situations where alternate placement would **a)** substantially decrease the efficiency of the solar energy system due to orientation or topography, shading by other structures or vegetation from the subject lot or adjoining lots; OR **b)** interfere with or be interfered by accessory structures or accessory uses.

Accessory Wind Energy System Requirements

All on-site use wind energy systems and towers, including small structure-mounted wind energy turbines (SSMWETs), are considered as accessory use if they meet the following criteria:

- (1) All wind systems shall be designed to primarily serve the energy needs of a home or small business.
- (2) All wind systems structures should meet the minimum setbacks for on-site accessory structures. The setback shall be measured from the furthest outward extension of all moving parts.

- (3) Accessory wind systems in the industrial (I-1) district may employ blades subject to a ground clearance of at least 20 feet above the ground (at the highest point of the natural grade within 30 feet of the base of the tower) and, in addition, at least 20 feet above any outdoor surfaces intended for human use, such as balconies or roof gardens.
- (4) No more than one ground-mounted wind energy system shall be permitted per property, except for industrial district (I-1) zoned properties, which may have more than one ground-mounted wind energy system per property, subject to required standards.
- (5) Noise emanating from an on-site use wind energy system and tower shall not exceed nuisance sound levels at all property lines as per city zoning sound ordinance.
- (6) All on-site use wind energy systems and structures shall not be artificially lighted, except to the extent required by the FAA or other applicable authority, or otherwise necessary for the reasonable safety and security thereof.
- (7) No advertising (including flags, streamers, or decorative items) are permitted on these structures, except for the identification of the manufacturer.
- (8) All wind energy system, including anemometers, shall not interfere with any electromagnetic communication signals (transmission or reception) such as, but not limited to, radio, telephone, television, satellite, or emergency communications systems.

Requirements specifically relating to Accessory SSMWETs

- (9) All SSMWETs shall conform to height restrictions for structures within their district.
- (10) SSMWETs shall be permitted as a rooftop installation with engineered verification of roof load calculations.
- (11) The number of rooftop SSMWETs are only limited by the structural considerations of the previous clause.

Solar and Wind Energy System Public Inquiries and Complaint Resolution

The Planning Commission shall approve a process to respond to public inquiries and resolve complaints from nearby residents concerning the site location selection, construction, and operation of an on-site use solar or wind energy system, including anemometer towers. The public inquiries and complaints resolution process established by the Planning Commission shall require an aggrieved nearby property owner or renter of real estate alleging that an on-site use solar or wind energy system or anemometer tower is not in compliance with the requirements of this chapter, including noise provisions, to notify the city manager, in writing, regarding public inquiries and/or the concerns and complaints regarding the alleged ordinance violation. The City Manager may require the assistance of the Zoning Administrator and/or Police Department officers to investigate if the complaint filed by the aggrieved party warrants an investigation be performed to determine if an ordinance violation is deemed sufficient to file a formal complaint with the city attorney for law enforcement prosecution action purposes.

Solar and Wind Energy System Abandonment and Decommissioning

Accessory-use solar and wind systems do not require a decommissioning plan.

Industrial-scale solar systems shall have a decommissioning plan in place at the time of application. Upon removal of a ground array solar energy system, the site shall be cleaned, restored to blend with the existing surrounding vegetation at the time of removal.

The Planning Commission shall be responsible for approving decommissioning plans indicating:

- (1) The anticipated life of the project.
- (2) The estimated decommissioning costs net of salvage value in current dollars.
- (3) The method of ensuring that funds will be available for decommissioning and restoration of the site location.
- (4) The anticipated manner in which the project will be decommissioned and the site location restored.

The end of useful life for decommissioning purposes shall be defined as when no electricity is generated for a continuous time period of 12 months.

The owner of solar and wind energy systems shall then complete decommissioning within 12 months *after* the end of the useful life of the project. The Zoning Administrator or Planning Commission may issue a "Notice of Abandonment" to the owner. The notice shall be sent via regular mail to the property owner of record. Upon request of the owner(s), operator(s) or assignees of the energy system, and for good cause, the Planning Commission may grant a reasonable extension of time for completing the decommissioning.

All decommissioning expenses shall be completely the responsibility of the owner(s) or operator(s). Failure by the owner(s) or operator(s) to complete decommissioning within the 12-month time period, after violation may result in the city council designating a contractor to complete decommissioning with all the expenses thereof charged to the violator and to become a lien against the parcel.

Penalties

Anyone violating the provisions of this chapter shall be deemed guilty of a misdemeanor with penalty to be determined and listed in the city's schedule of fines.

Definitions

Anemometer is a temporary wind speed indicator constructed for the purpose of analyzing the potential for utilizing a wind energy turbine at a given site. This includes the tower, base plate, anchors, cables and hardware, wind direction vanes, booms to hold equipment, data logger, instrument wiring, and any telemetry devices that are used to monitor or transmit wind speed and wind flow characteristics over a period of time for either instantaneous wind information or to characterize the wind resource at a given location.

Anemometer tower means a freestanding tower containing instrumentation such as anemometers that is designed to provide present moment wind data for use by the supervisory control and data acquisition (SCADA) system which is an accessory land use to a utility grid wind energy system is an aggregation of parts including the base, tower, anemometer or wind speed recorder, wind direction vanes, data logger, and accessory equipment such as any telemetry devices, etc., in such configuration as necessary to monitor or transmit wind speed and wind flow characteristics over a period of time.

Decommissioning is the process of terminating operation and completely removing a wind energy turbine system and all related buildings, structures, foundations, access roads, and equipment.

FAA means the common acronym for the Federal Aviation Administration.

Nacelle means the component of a wind energy system that sits atop the tower and houses the turbine. It also refers to the structures that create the warp bubble on a warp-capable starship.

Net-metering is a special metering and billing agreement between utility companies and their customers, which facilitates the connection of renewable energy generating systems to the power grid.

On-site use wind energy system and tower means a land use for generating electric power from wind and is an accessory use that is intended to primarily serve the needs of the consumer at that site and does not include those located on industrial district zoned parcels.

Operator means the individual or entity, including their respective successors and assigns that have equity interest in the on-site use wind energy system and tower as a lessee of the real property parcel on which the wind energy turbine (WET) is located on in accordance with this chapter.

Owner is the individual or entity, including their respective successors and assigns that have equity interest or own the on-site use wind energy turbine (WET) in accordance with this chapter.

Rotor means an element of a wind energy system that acts as a multi-bladed airfoil assembly, thereby extracting through rotation, kinetic energy directly from the wind.

Rotor diameter is the cross-sectional dimension of the circle swept by the rotating blades of a wind energy turbine (WET) with a multiple-bladed airfoil assembly of a wind energy system that extracts through rotation kinetic energy directly from the wind.

Shadow flicker is the moving shadow, created by the sun shining through the rotating blades of a wind energy turbine (WET) and means alternating changes in light intensity caused by the moving blade of a wind energy system casting shadows on the ground and stationary objects, such as,

but not limited to, a window at a dwelling. The amount of shadow flicker created by a wind energy turbine (WET) is calculated by a computer model that takes into consideration turbine location, elevation, tree cover, location of all structures, wind activity, and sunlight.

Small structure-mounted wind energy turbine (SSMWET) converts wind energy into electricity through the use of equipment which includes any base, blade, foundation, generator, nacelle, rotor, tower, transformer, vane, wire, inverter, batteries, or other components used in the system. A SSMWET is attached to a structure's roof, walls, or other elevated surface. The SSMWET has a nameplate capacity that does not exceed ten kilowatts. The total height does not exceed 15 feet as measured from the highest point of the roof, excluding chimneys, antennae, and other similar protuberances.

Solar cell means any device that directly converts solar radiation into thermal, chemical, or electrical energy through the process of photovoltaics and usually is mounted on solar panels.

Solar collector means a photovoltaic cell, panel or array, or a heated air or water collection device, which relies on solar radiation as an energy source for the generation of thermal, chemical, or electrical energy, i.e., solar cells or solar panels.

Solar energy system means a collection system (i.e., solar cells or solar panels) and all associated equipment which converts solar energy into a usable thermal, chemical, or electrical energy through an aggregation of parts including any base, mounts, tower, solar collectors, and accessory equipment such as utility interconnections and solar storage batteries, etc.

Solar panel means a structure containing one or more receptive cells, the purpose of which is to convert solar energy into usable electrical energy by way of a solar energy system.

Total height is the vertical distance measured from the ground level at the base of the tower to the uppermost vertical extension of any blade, or the maximum height reached by any part of the wind energy turbine (WET).

Turbine means the rotating component of a wind energy system that converts kinetic energy from the wind into mechanical or electrical energy, or the generator.

Wind energy system means a land use for generating power by use of wind; utilizing use of a wind turbine generator and includes the turbine, blades, and tower as well as related electrical equipment. This does not include wiring to connect the wind energy system to the grid.

Wind energy turbine (WET) is any structure-mounted, small, medium, or large wind energy conversion system that converts wind energy into electricity through the use of a wind generator and includes the nacelle, rotor, tower, and pad transformer, if any.