

ARTICLE XXII

SOLAR ENERGY SYSTEMS

2200 REGULATIONS FOR RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL SOLAR ENERGY SYSTEMS

The purpose of this article is to establish general guidelines for the locations of residential, commercial, and industrial solar energy systems to protect the public health, safety, comfort, and general welfare of the Township resident.

The Township recognizes in some specific instances, under carefully controlled circumstances it may be in the public interest to permit the placement of solar energy facilities within certain areas of the Township. The Township also recognizes the need to protect its residents from unnecessary and unreasonable visual and sound interference. Recognizing that such solar energy facilities may have a negative health, safety, welfare and / or aesthetic impact upon adjoining and neighboring uses. Article XXII seeks to:

- Protect residential and agricultural areas from potential adverse impact from Solar Energy Systems:
- Permit solar energy systems in selected areas by on-site residential, commercial, or industrial users, subject to the terms, conditions, and provisions hereof:
- Ensure the public health, welfare, and safety of the Township's residents in connection with Solar Energy Systems, and:
- Avoid potential damage to real and personal property from solar energy facilities or the failure of such facility structures and related operations.

2200.1 Recognizing the importance of clean, sustainable, and renewable energy sources, the Township permits the use of residential, commercial, and industrial solar energy systems under the following regulations to ensure the safety and welfare of all Township residents is met, and

2200.2 No solar energy system shall hereafter be located, constructed, repaired, extended, enlarged, converted, or altered without the full compliance with the terms of this Resolution. Said construction, alterations or modifications shall require a zoning permit.

2201 DEFINITIONS

ACCESS BUFFER: The distance from adjacent landowners' properties to the nearest solar energy facility, building or collector.

ACCESS ROADS: Provide construction and service access to each solar collection area.

ADVERSE VISUAL IMPACT: An unwelcome visual intrusion that diminishes the visual quality of an existing landscape.

ADJOINING PROPERTY LINE: The property boundary lines between the real property for the proposed installation of a solar energy system, subject of the Application and real property owned by another person, persons, or entity.

COMMERCIAL SOLAR ENERGY SYSTEM: A utility-scale facility of solar energy collectors with the primary purpose of wholesale or retail sales of generated electricity. Commonly referred to as solar farms.

DB(A): The sound pressure level in decibels. Refers to the "a" weighted scale defined by the American National Standards Institute (ANSI). A method for weighting the frequency spectrum to mimic the human ear.

DECIBEL: A logarithmic unit of measurement that expresses the magnitude of sound pressure and sound intensity.

ELECTRICAL COLLECTION SYSTEM: Consists of underground and overhead cables that carry electricity from and within groups of solar collectors and transmits it to a collection substation and point of interconnection switchyard, which transfers the electricity generated by the project to the regional power grid.

ELECTROMAGNETIC FIELD (EMF): A combination of invisible electric and magnetic fields of force. They can occur both naturally and due to human constructions.

GROUND-MOUNTED SOLAR ENERGY COLLECTOR: A solar energy collector that is not attached to and is separate from any building on the parcel of land on which the solar energy collector is located.

MEGAWATT: A unit used to measure power, equal to one million watts.

ON-SITE: A solar energy system designed to help meet the electrical needs within the limits of the area encompassed by the tract area or parcel of record on which the activity is conducted.

ROOF-MOUNTED SOLAR ENERGY COLLECTOR: A solar energy collector that is attached to a building's roof on the parcel of land including solar shingles.

SENSITIVE ENVIRONMENTAL AREAS: Any areas determined by the Ohio Department of Natural Resources that consist of unique or sensitive ecological, biological, or related ecosystems.

SOLAR COLLECTOR: A device or combination of devices, structure, or part of a device or structure that transforms direct solar energy into thermal, chemical, or electrical energy and that contributes significantly to a structure's energy supply.

SOLAR ENERGY: Radiant energy (direct, diffuse, and reflected) received from the sun. Total Width Total Height Solar Panel Racking Structure Existing Ground Level.

SOLAR ENERGY SYSTEM: A solar collector or other device or structural design feature of a structure that relies upon sunshine as an energy source and can collect, distribute, and store (if appropriate to the technology) the sun's radiant energy for a beneficial use. This being either Residential, Commercial or Industrial Use.

SOLAR PANEL: A panel consisting of an array of solar cells used to generate electricity directly from sunlight.

UTILITY GRID SOLAR ENERGY SYSTEM: A Utility Grid Solar Energy System is defined as an energy generation facility or area of land principally used to convert solar energy to electricity for resale at a profit.

WETLANDS: Lands on which water covers the soil or is present either at or near the surface of the soil or within the root zone, all year or for varying periods of time during the year, including during the growing season.

2202 PERMITTED USE

- a. Roof and Ground Mounted Solar Energy Systems are permitted in all Agricultural, Residential, Commercial, and Industrial Zoning Districts, as well as in a Flood Plain Hazard District.
- b. A Utility Grid Solar Energy Systems – (under 50 megawatts) shall only be permitted in Industrial Zoned Districts within the unincorporated territory of Shawnee Township and subject to the applicable zoning regulations. A Utility Grid Solar Energy System shall conform to all application & site plan requirements as well as all related regulations for utility grid solar energy systems, to include but not limited to a decommissioning plan when the system is no longer deemed to be in operation.
- c. A Utility Energy Zone may be identified and specifically developed in an area in the Township as determined by the Shawnee Township Board of Trustees. This site shall be a designated area for any future development of solar, wind turbine, or other energy generating production.
- d. Right to Appeal to Board of Zoning Appeals - Applicants who believe any section of this article is too restrictive, or unobtainable do have the right to file for a variance to the Shawnee Township Board of Zoning Appeals. In addition, the applicant has the further right to appeal the decision of the Shawnee Township Board of Zoning Appeals to the Allen County Common Pleas Court for further review and hearing on the matter.

2203 GENERAL REQUIREMENTS

2203.1 General Requirements of Solar Energy Systems.

- a. Solar energy systems are considered accessory uses, and subject to permitting requirements by the Zoning Inspector. Commercial and industrial solar energy systems and utility grid solar energy systems are subject to permitting by the Zoning Inspector as well as Lima/Allen County Building Department.

- b. Solar energy system may be installed on any surface of an existing structure, provided such installation does not result in violation of the permitted height requirements of Sections 1900 and 1901.
- c. Within all zoning districts, solar energy systems shall be repaired, replaced, or removed within 30 days of becoming non-functional.
- d. The installation of a Solar Energy System shall not negatively impact adjacent properties with additional or excessive storm water run-off and or drainage.
- e. All panels shall have tempered, non-reflective surfaces and shall comply with all Federal, State, and local construction & electrical codes.
- f. Panels and building mounts shall be installed per manufacturer's specifications.

2203.2 A solar energy ground mounted system may be installed as free-standing system, provided it meets all requirements for setback distances for accessory structures in that district. Construction shall not be installed within the road right-of-way or an easement.

2203.3 Solar Panels or Systems shall be installed so there is minimum glare onto adjacent properties or towards the road right-of-way.

2204 REGULATIONS FOR ROOF MOUNTED & GROUND MOUNTED SOLAR ENERGY SYSTEMS

Solar Panels, either free-standing, building mounted or roof mounted, shall be permitted in all districts with zoning requirements related to visual appearance and appropriate safeguards.

2204.1 Application and Site Plan Requirements

In all districts, the applicant shall submit to the Zoning Inspector, along with a zoning permit application, and a site plan containing the following information:

- a. Property lines and physical dimensions of the applicant's property. The property lines shall be established by a registered land surveyor or county/state judge.
- b. Location, dimensions, and types of all existing major structures on the property.
- c. Location of the proposed solar energy system, foundations, guide wires and associated equipment.
- d. Location of easements, setbacks, obstructions, and the area with square footage provided of the solar array area.
- e. The right of way, of any public road that is contiguous with the property. To include limited access, railways, transportation easements and/or any other private or publicly recorded easement for the means of public use (such as bike, hiking or walk tails.)
- f. Solar Energy System specifications, including manufacturer, and model.
- g. Electrical components in sufficient detail to allow for a determination that the manner of installation conforms with the (most current edition of the) National Electrical Code.
- h. The (schematic design, preliminary design, and final) design and site plan (studies, calculations, etc.) must be stamped by a professional engineer licensed to practice in the State of Ohio.

2204.2 Roof and Building Mounted Solar Energy System Requirements:

- a. Permitted Location. In residential and commercial zoning districts a roof or building mounted solar energy system may be located on the roof of the principal or accessory structure. Building mounted solar energy systems may be located on the side or rear of the structure. Said side/rear ground mounted panels must receive approval of the Township Fire Chief so as not to adversely impact access to the primary structure (or the safety and/or well-being of fire/rescue personnel) as it relates to emergency fire/rescue response.

- b. Height Limitation. Solar energy collectors shall not project more than two-(2) feet above highest point of roof or exceed maximum building height limitations allowed in that zoning district.
- c. Placement.
 - i. In residential zoned locations, the placement of the roof or building mounted solar energy system shall not be located on the front slope of a pitched roof and shall not be visible from the street front or side street of the residence. Solar energy collectors shall not be located within three-(3) feet of any peak, eave, or valley to maintain adequate accessibility.
 - ii. For commercial applications, solar collectors shall be a minimum of 6 feet from any peak, eave, or valley to allow for accessibility per Ohio Fire Code. (Additionally, panel placement shall be done to allow for compliance to any/all applicable OSHA regulations for access/movement across said rooftop.)
 - iii. Roof and Building Mounted Solar Energy Collectors shall be such a weight to be safely supported by the building. A solar energy system shall not exceed 50 percent of the footprint of the principal building served. In addition, the property owner may be required to provide written proof that the panels proposed to be constructed can/will be able to be supported either by the existing buildings current structural construction, additional structural elements installed to account for the additional panel and mounting weight, and additional weight added by snow events.
 - iv. No solar energy system shall be mounted or affixed to any freestanding wall or fence.
 - v. All ground-mounted solar energy systems shall be placed or if a tracking mount is utilized, is programed so that concentrated solar radiation or glare does not project onto nearby structures or roadways.
- d. Maximum area coverage. A solar energy system shall not exceed 50 percent of the footprint of the principal building served.
 - i. Permitting. A zoning permit is required for any ground-mounted solar energy system and for the installation of any thermal solar energy system.
 - ii. Site Plan. Site plan is required along with application per Article 2204.1 (a through h).

2204.3 Ground Mounted Solar Energy System Requirements:

- a. Permitted Location. Ground-mounted solar energy systems are only be permitted behind the rear building line of the principal building or structure. On corner lots ground mounted solar energy system shall be permitted within the side yard, and subject to corner lot set-back distance requirements for the street or roadway where construction site is located. Placement at roadway intersections shall be done so in a manner which provides adequate sighting distances for motorists to observe on-coming traffic and comply with the Ohio Department of Transportation's requirements for sight-distance.
- b. Height Limitation. Ground-mounted solar energy collectors shall not exceed ten-(10) feet in height measured from the average ground (elevation of adjacent and undisturbed ground) at the base of such equipment. The height of the ground-mounted solar energy collector shall be measured from ground level to the highest point of the solar panel.
- c. Placement.
 - i. For Agricultural, Residential, Commercial, and Industrial Zoned Districts, a ground mounted solar energy system shall have a minimum set back distance of fifteen-(15) feet from all property lines.
 - ii. There shall be a minimum of twenty-five-(25) foot distance from all-natural features including water courses, wooded lots, streams, wetlands, and 100-year floodplain locations. If located in a floodplain or an area of known localized flooding, all panels, electrical wiring, automatic transfer switches, inverters, etc. shall be located above the base flood elevation.

- iii. A ground-mounted system shall not be located over a septic system, leach field area or identified reserve area unless approved by the health department.
- iv. All ground-mounted solar energy systems shall be placed so that concentrated solar radiation or glare does not project onto nearby structures or roadways.
- v. A ground mounted solar energy system shall have, to the extent required by the zoning authority, a visual buffer of natural vegetation, plantings, earth berms, and/or fencing that minimizes impacts of the solar energy system on the visual character to adjoining property owners.
- d. Maximum area coverage. A solar energy system shall not exceed 50 percent of the footprint of the rear yard area being served.
- e. Permitting. A zoning permit is required for any ground-mounted solar energy system and for the installation of any thermal solar energy system.
- f. Site Plan. Site plan is required along with application per Article 2204.1(A through H).

2205 REGULATIONS FOR UTILITY GRID SOLAR ENERGY SYSTEMS

A Utility Grid Solar Energy System (UGSES) is designed and built to commercially provide electricity to the electric utility grid. A UGSES shall only be permitted in Industrial Districts. In districts where permitted, a "utility grid solar energy system, facility, or solar farm", shall be subject to the following regulations:

2205.1 Application and Site Plan Requirements:

The applicant shall submit to the Zoning Inspector, along with a zoning permit application, and a site plan (developed by an Ohio registered professional engineer (signed/stamped) containing the following information: A plot and development plan drawn in sufficient detail to clearly describe the following:

- a. Physical dimensions of the property, existing structures, and proposed structures. (Property lines shall have been determined by a professional Ohio registered land surveyor.)
- b. Location of existing and proposed structures.
- c. Location of the proposed Solar Energy System, foundations, guide wires and associated equipment.
- d. Location of easements, setbacks, obstructions, and square footage of the solar array area.
- e. The right of way, of any public road that is contiguous with the property.
- f. Existing topography. (As determined by a professional Ohio registered surveyor).
- g. Existing wetlands. (As determined by a professional Ohio registered engineer).
- h. Proposed grading, removal of natural vegetations and relocation of wetlands (if applicable).
- i. Setbacks distances indicated from roadways, properties, property lines, major structures, etc.
- j. Proposed ingress and egress roadways, entrances / exists, interior roads, etc. (all ingress/egress shall accommodate any/all public vehicles which may enter onto the site).
- k. Proposed safety fencing to prevent trespassing.
- l. Manufacturer's specifications and recommended installation methods for all major equipment, including solar panels, mounting systems, and foundations for poles or racks Inverters).
- m. The number of panels to be installed.

- n. Waterlines, Fire Hydrant Locations, Sewer Lines and Utility Lines identified.
- o. A description of the method of connecting the array to a building or substation.
- p. Utility interconnection data and a copy of written notification to the utility of the proposed connection.
- q. Specific information of the type, size, height, rated power output of each proposed unit, performance, safety, and glare characteristics of each solar unit and accompanying equipment, if any.
- r. A soil boring report. (Performed by a professional Ohio registered geotechnical engineer).
- s. Storm Water Prevention Plan (SWP3) application submitted and approved by Allen County Engineer.
- t. Any additional information as normally required by the Township as part of this zoning resolution.
- u. A storm water management plan addressing how additional surface water will not adversely impact local, county, state, or federal waterways.

2205.2 Additional Documentation Requirements

In addition to requirements for information to be provided during the site plan review and development permitting process, the facility shall not be approved for operation until the following additional documentation is submitted:

- a. Copy of all lease agreements and solar access easements.
- b. Transference of Ownership Letter shall be submitted by the current Solar Energy System owner indicating that should the Solar Energy Facility / Solar Farm be sold to another private or public utility all specifications, requirements and terms and conditions applied by the Zoning Commission and Board of Trustees shall transfer with the new owner(s) and shall remain in force and effect.
- c. The applicant shall submit, based on the most current and accurate information reasonably available a topography drawing of the property that indicates how stormwater drains from the property, identifies the location of discharge points or areas, and identifies conditions present on the property that may contribute to significant soil erosion.
- d. List of protected wildlife that maybe on the property (if any). If protected wildlife is on the property, then a Wildlife Impact Statement from Ohio Department of Natural Resources shall be submitted; comprising of the potential impact to neighboring wildlife and any protected animals or endangered wildlife is in the area.
- e. Where interconnection to an electric utility grid is proposed, the applicant shall submit evidence that the electrical utility provider has been informed of the customer's intent to install an interconnection with the local electric utility grid. A copy of the approval from the local utility must also be provided before operation of an interconnected facility will be authorized.
- f. All reasonable expenses incurred by the Shawnee Township Zoning Commission, The Shawnee Township Board of Zoning Appeals, and the Shawnee Township Board of Trustees to review and certify the UGSES project plan shall be paid for by the applicant.
- g. A Performance Surety Bond shall be provided by the applicant or owner/operator to assure repairs to public roads which may be damaged by the construction of the UGSES project. The amount of this bond will be determined by mutual agreement of the applicant, owner or operator and the Shawnee Township Board of Trustees.
- h. The manufacturer's engineer and another qualified engineer, who is certified in the State of Ohio shall certify that the foundation and design of the solar panels is within accepted professional standards, given local soil and climate conditions.

- i. Any UGWES project shall abide by all applicable fees, charges and expenses as stated in the Shawnee Township Fee Schedule. This shall include but not limited to Zoning Commission or Board of Appeal Fees, Plan Review Fees, Fees for Project and Building Square Footage Fee, Fence Construction Fees and any other fees required to be paid for development of this project.
- j. Decommissioning Bond in the amount determined by the Owner/Operator and Board of Trustees to offset costs for removing all site materials, such as solar collectors, mountings, hardware, buildings, fencing, and all other infrastructures.
- k. Shawnee Township Board of Trustees may require other studies, reports, certifications, and/or approvals be submitted by the applicant to ensure compliance with this section.

2205.3 Utility Grid Solar Energy System – General Requirements

- a. Mounting System. Solar panels or solar arrays shall be mounted onto a pole, rack, or suitable foundation, in accordance with manufacturer specifications, to ensure the safe operation and stability of the system. The mounting structure (fixed or tracking capable) shall be comprised of materials approved by the manufacturer, which are able to fully support the system components, in accordance with applicable building permit requirements. Electrical components of the facility shall meet applicable electrical code requirements, and all electrical wires and lines less than 100 KV that are used in conjunction with the solar energy facility shall be installed underground. Multiple mounting structures shall be spaced apart at the distance recommended by the manufacturer to ensure safety and maximum efficiency.
- b. Setbacks. A Utility Grid Solar Energy System / Facility and its appurtenant components and structures shall be so maintained and situated to provide that no portion thereof shall be closer to the center of the nearest road pavement that one-hundred-(100) feet.

In addition, a solar energy facility and its appurtenant components and structures shall be set back a minimum of one-thousand-(1000) feet from all property lines.

- c. Height Limitation. Freestanding solar panels or solar arrays shall not exceed 25 feet in height as measured from the grade at the base of the structure to the highest point.
- d. Placement. When located in agricultural zoning districts, the solar energy facility shall be located as much as possible to minimize impacts on prime agricultural soils. If located in a floodplain or an area of known localized flooding, all panels, electrical wiring, automatic transfer switches, inverters, etc. shall be located above the base flood elevation. Components of the facility shall not be located over a septic system, leach field area or identified reserve area unless approved by the Health Department. (If grading activities occur in flood plain areas, all grading (cut/fill) shall be performed within the same sub-drainage area. No cut may be taken and disposed of outside of the sub-drainage area and no fill may be brought in from outside of the sub-drainage area of said flood plain.)
- e. Screening. The facility shall be fully screened from adjoining properties and adjacent roads using the natural topography, or by installation of an evergreen buffers capable of reaching a height of six feet within three years of planting, with at least 75 percent opacity at the time of planting to an extent that is reasonably practical.
- f. Security Fencing is required for the safety and security of the area and to prevent unauthorized access. Fencing shall be chain link industrial fence fabric with a height no less than ten-(10) feet. An additional three-(3) feet maybe installed on the top of the fence with three wires of barbed wire material facing outward towards roadways and structures. Anti-climb material shall be utilized for sensitive areas of the project site. Access gates and equipment cabinets must be locked when not in use. An emergency means of entry and lighting for first responders needing immediate access to facility shall be developed by owner and local fire authority.
- g. Noise. Inverter noise shall not exceed 40 dBA, measured at the property line. Inverters shall be off and silent after dark.

- h. Glare and Lighting. The solar energy system components shall be designed with an antireflective coating or at least shall not produce glare that would constitute a nuisance to occupants of neighboring properties, aircraft, or persons traveling adjacent or nearby roads. If lighting is required, it shall be activated by motion sensors, fully shielded and downcast type where the light does not spill onto any adjacent properties or into the night sky.
- i. Maintenance and Upkeep Standards. Systems shall be maintained in accordance with manufacturer's specifications. The owner and operator of the facility shall maintain the facility, including all buffer screening, in compliance with the approved plans and shall keep the facility free from overgrown vegetation, weeds, trash and debris.
 - i. Repairs to solar panels and as an example after storm damage, shall be completed in a timely and reasonable fashion, but no later than 30 days after the event or as notified by officials.
 - ii. In addition, the solar energy facility / solar farm shall be maintained in good condition and free of hazards, including but not limited to faulty wiring, loose fastenings, painting, structural repairs, and integrity of security measures. In the event of a violation of any of the foregoing provisions, the zoning inspector shall give written notice to the owner specifying the violation to the owner, and corrective action needed.
 - iii. Fence lines shall be maintained, and repaired in a timely fashion, not to exceed 30 days after being notified by local officials. Fence lines shall be kept free of overgrown weeds, trash, refuse or other debris.
 - iv. The owner or operator is responsible for the cost of maintaining the solar energy facility / solar and any access road(s), though out the complex unless accepted as a public way by the Township.
- j. Weed Control / Plantings. The owner or designated individual of the Solar energy facility or solar farm shall have a weed prevention plan submitted to the Township to ensure the area remains free and clear of overgrown vegetation, noxious weeds, briars, and other forms of uncontrolled vegetation.
- k. Signage. A sign of no less than four square feet must be displayed in an easily noticed area from a public roadway indicating an address and toll-free telephone number, answered by a person twenty-four hours per day, seven days per week, for emergency calls and information inquires. No UGSES panel or any part thereof, no fence surrounding the UGSES site, or any building or structure located upon the UGSES site may include or display any advertising sign, banner, insignia, graphics, or lettering.
- l. Local Fire Department. The applicant, owner or operator shall submit to the local Fire Department a copy of the site plan. Upon request of the local Fire Department, the owner or operator shall cooperate with the Fire Department to develop an emergency response plan.
- m. Climb Protection. All UGSES platforms must be unclimbable by design or protected by anti-climbing devices.
- n. Liability Insurance. The owner or operator of each UGSES facility shall maintain a current general liability policy covering bodily injury and property damage with limits of at least three million dollars per occurrence.
- o. Compliance with Other Standards. All power and communication lines running between banks of solar panels and to electric substations or interconnections with buildings shall be buried underground. Exemptions may be granted by the Shawnee Township Zoning Commission in instances where shallow bedrock, water courses, or other elements of the natural landscape interferes with the ability to bury lines.

2205.4 Decommissioning Plan:

- a. Decommissioning plan shall be reviewed and updated as necessary every five-(5) years with the Owners, Board of Trustees and other stakeholders associated with this project.

- b. The owner of a solar electrical system is required to notify in writing the Board of Trustees for Shawnee Township within 90 days prior to discontinuation of the operation. The solar electrical system shall be perceived to be discontinued or abandoned if no electricity is generated by such system for a period of 3 continuous months.
- c. The solar electrical system owner shall be notified in writing that they have twelve-(12) months in which to dismantle and remove the system including all solar related equipment or apparatuses related thereto included but not limited to buildings, cabling, electrical components, roads, foundations, and other facilities from the property. If the owner fails to dismantle and/or remove the solar electrical system within the established time frames, the Township may complete the decommissioning at the owner's expense.
- d. As part of the decommissioning plan, all associated infrastructures shall be removed from the facility. This includes but not limited to removal of all infrastructure associated with the project. This includes but not limited to removal of all solar panels, solar panel support structures, structural bases, fencing, storage units, supply buildings, etc. In addition, the soil shall be returned to viable agricultural use, to include spading and tillage of hardened soil.