

CITY OF KIRTLAND

ORDINANCE NUMBER 23-O-17

AN ORDINANCE AMENDING CODIFIED ORDINANCE SECTION 1468.05 RELATING TO SOLAR ENERGY, AND DECLARING AN EMERGENCY.

WHEREAS, Ordinance No. 18-O-31 was passed on May 29, 2019, adopting Chapter 1468 of the Kirtland Codified Ordinances, particularly §1468.05 relating to the regulation of solar energy within the City of Kirtland; and

WHEREAS, the City had performed a thorough review of the current solar energy standards and wishes to update said ordinance.

NOW, THEREFORE, BE IT ORDAINED by the Council of the City of Kirtland, County of Lake, State of Ohio, that:

SECTION I: Codified Ordinance Section 1468.05, entitled “Solar Energy,” is hereby amended as set forth in Exhibit “A” attached hereto and made a part hereof as though fully set forth herein at length.

SECTION II: That the heretofore existing 1468.05 of the Codified Ordinances of the City of Kirtland, previously enacted and in force, be amended by the passage of this ordinance, and is hereby replaced as set forth in Section I hereinabove.

SECTION III:

(a) It is found and determined that all formal actions of this Council concerning and relating to the passage of this Ordinance were adopted in an open meeting of this Council, and that all deliberations of this Council and of any of its committees that resulted in such formal action were in meetings open to the public, in compliance with all legal requirements including Section 121.22 of the Ohio Revised Code.

(b) This Ordinance is hereby declared to be an emergency measure necessary for the immediate preservation of the public health, safety and welfare of the City, and for the further reason to regulate the construction and use of solar energy within the City; wherefore, this Ordinance shall be in full force and effect immediately upon its passage by the affirmative vote of five members of Council and approval by the Mayor, otherwise this Ordinance shall be in effect from and after its adoption at the earliest period allowed by law.

First Reading: _____
Second Reading: _____
Third Reading: _____

DATE PASSED: _____

President of Council

Submitted to the Mayor for his
Approval on this _____ day of
_____, 2023.

ATTEST:

Approved by the Mayor this _____ day
of _____, 2023.

Clerk of Council
Amend 1468.05 -- Solar Energy

Mayor Kevin F. Potter

1468.05 SOLAR ENERGY

(a) **Scope and Purpose.** This regulation applies to all solar energy installations within the City of Kirtland. If any ordinances are in conflict with this section, the regulations found herein shall prevail. The City has adopted this regulation for the following purposes:

1. **Comprehensive Plan Goals.** To meet the goals of the Comprehensive Plan and to preserve the health, safety and welfare of the community by promoting the safe, effective and efficient use of solar energy systems. The solar energy standards specifically implement the following goals from the Comprehensive Plan:

- a. Encourage the use of local renewable energy resources, including appropriate applications for wind, solar, and biomass energy.
- b. Promote sustainable building design and management practices to serve current and future generations.
- c. Assist local businesses to lower financial and regulatory risks and improve their economic, community, and environmental sustainability.
- d. Efficiently invest in and manage public infrastructure systems to support development and growth.

2. **Infrastructure.** Distributed solar photovoltaic systems will enhance the reliability and power quality of the power grid and make more efficient use of Kirtland's electric distribution infrastructure.

3. **Local Resource.** Solar energy is an underused local energy resource, and encouraging the use of solar energy will diversify the community's energy supply portfolio and reduce exposure to fiscal risks associated with fossil fuels.

4. **Improve Competitive Markets.** Solar energy systems offer an additional energy choice to consumers and will improve competition in the electricity and natural gas supply market.

(b) **Definitions.** For the purposes of this regulation, the following terms shall have the meaning herein as indicated:

1. **Agrioltaics** – A solar energy system co-located on the same parcel of land as agricultural production, including crop production, grazing, apiaries, or other agricultural products or services.

2. **Building-integrated Solar Energy Systems** – A solar energy system that is an integral part of a principal or accessory building, rather than a separate mechanical device, replacing or substituting for an architectural or structural component of the building. Building-integrated systems include but are not limited to photovoltaic or hot water solar energy systems that are contained within roofing materials, windows, skylights, and awnings.

3. Commercial Solar Project – Any project where the primary purpose is to generate power for use on site of a business, industry, or farm.

4. Community Solar Garden – A solar energy system that provides retail electric power (or a financial proxy for retail power) to multiple community members or businesses residing or located off-site from the location of the solar energy system. Also referred to as shared solar.

5. Community Solar– Any solar project where the primary purpose is for community benefit. This would include municipal, school, and parks projects.

6. For Profit System – Any system where the power or heat is sold or transferred to another individual or entity for profit.

7. Grid-intertie Solar Energy System — A photovoltaic solar energy system that is connected to an electric circuit served by an electric utility company.

8. Ground-mounted – a solar energy system mounted on a rack or pole that rests or is attached to the ground. Ground-mounted systems can be either accessory or principal uses.

9. Net-Metering – A process where a solar project interacts with the local utility grid providing surplus power to the grid and acquiring needed power from the grid utilizing a utility interconnection agreement.

10. Off-grid Solar Energy System — A photovoltaic solar energy system in which the circuits energized by the solar energy system are not electrically connected in any way to electric circuits that are served by an electric utility company.

11. Passive Solar Energy System – Includes architectural components and methods of construction specifically designed to utilize passive lighting, solar heating, cooling, temperature modulation, heat storage, or seasonal shading and cooling without transforming it to another form of energy or transferring the energy via an active device.

12. Photovoltaic System – A solar energy system that converts solar energy directly into electricity.

13. Reflector – An active or passive device or structure that redirects solar energy to a photovoltaic array, solar thermal collector or other structure.

14. Renewable Energy – Any energy source that is naturally replenished including but not limited to solar, wind, hydro, wave, tide, and geothermal.

15. Renewable Energy Appliance – Any piece of equipment or systems that are intended to collect, direct, convert or store renewable energy. It is the intent of this ordinance to

recognize that renewable energy appliances are much like many other appliances (heat pumps, utility meters and infrastructure, generators, etc.) and within practical limitations should be regulated in a similar manor.

16. Renewable Energy Easement, Solar Energy Easement — An easement that limits the height or location, or both, of permissible development on the burdened land in terms of a structure or vegetation, or both, for the purpose of providing access for the benefited land to wind or sunlight passing over the burdened land. This may also include safety zones as may be required by local code that cannot be adequately met on the benefited property alone, such as but not limited to wind tower fall zones. These easements may be provided by the burdened land for a fee or free of charge.

17. Residential Solar Project – Any project where the primary purpose is to generate power for the onsite use of the residence. This would also include apartments.

18. Roof-mount – a solar energy system mounted on a rack that is fastened to or ballasted on a structure roof. Roof-mount systems are accessory to the principal use.

19. Roof Pitch — The final exterior slope of a roof calculated by the rise over the run, typically but not exclusively expressed in twelfths such as 3/12, 9/12, 12/12.

20. Solar Access — Access to direct sunlight on a lot or building, including access across adjacent parcel air rights, for the purpose of capturing direct sunlight to operate a solar energy system. This access may be further defined by levels of obstruction, duration, times of the day or year or other similar parameters.

21. Solar Carport – A solar energy system of any size that is installed on a carport structure that is accessory to a parking area, and which may include electric vehicle supply equipment or energy storage facilities.

22. Solar Collector — A device, structure or a part of a device or structure for which the primary purpose is to transform solar radiant energy into thermal, mechanical, chemical, or electrical energy. The collector does not include frames, supports, or mounting hardware.

23. Solar Daylighting – Capturing and directing the visible light spectrum for use in illuminating interior building spaces in lieu of artificial lighting, usually by adding a device or design element to the building envelope.

24. Solar Energy – Radiant energy received from the sun that can be collected in the form of heat or light by a solar collector.

25. Solar Energy System – A device, array of devices, or structural design feature, the purpose of which is to provide for generation or storage of electricity from sunlight, or the

collection, storage and distribution of solar energy for space heating or cooling, daylight for interior lighting, or water heating.

26. Solar Hot Air System – (also referred to as Solar Air Heat or Solar Furnace) – A solar energy system that includes a solar collector to provide direct supplemental space heating by heating and re-circulating conditioned building air. The most efficient performance includes a solar collector to preheat air or supplement building space heating, typically using a vertically mounted collector on a south-facing wall.

27. Solar Hot Water System – A system that includes a solar collector and a heat exchanger that heats or preheats water for building heating systems or other hot water needs, including residential domestic hot water, pool heating and hot water for commercial processes.

28. Solar Mounting Devices – Racking, frames, or other devices that allow the mounting of a solar collector onto a roof surface or the ground.

29. Solar Resource – A view of the Sun or energy from the Sun from a specific point on a lot or building that may be defined by the level of obstruction and/or the daily or monthly duration and that is typically measured in watts per square meter or lumens.

30. Solar Thermal – Any system whose primary purpose is to collect, concentrate or store solar heat through a solar collector or other apparatus for hot water heating, space heating, inducing a convection current, or process heating.

31. Stand Alone Solar – A solar installation where there is no connection to the local utility grid. Power is either used directly by the site or stored on site for future use.

32. Utility Scale Solar Project – Any project where the primary purpose is generation and sale to a third party. This would also include projects owned by an electric utility itself.

(c) Permitted Accessory Uses.

1. Ground-mounted solar energy systems greater than one thousand (1,000) square feet, for-profit systems, for-profit electric vehicle charging stations shall require the approval of a conditional use permit pursuant to subsection (d) “Conditional Use Permits” as found in this ordinance. All other solar energy systems, subject to certain requirements as set forth below, are a permitted accessory use in all zoning districts where structures of any sort are allowed. Solar carports are a permitted accessory use on surface parking lots in all districts regardless of the existence of another building. Electric vehicle charging equipment are a permitted accessory use on or adjacent to approved parking surfaces in all districts. Solar energy systems that are permitted accessory uses and do not meet the following design standards will require a variance by the Board of Zoning Appeals.

2. Height. Solar energy systems must meet the following height requirements:

- a. Building-mounted or roof-mounted solar energy systems shall not exceed the maximum allowed height in any zoning district. For purposes for height measurement, solar energy systems other than building-integrated systems shall be given an equivalent exception to height standards as building-mounted mechanical devices or equipment.
 - i. Ground- or pole-mounted solar energy systems shall not exceed 15 feet in height when oriented at maximum tilt.
 - ii. Solar carports in non-residential districts shall not exceed 20 feet in height unless they are a part of an approved multi-level parking garage.

3. Setback. Solar energy systems must meet the accessory structure setback for the zoning district and principal land use associated with the lot on which the system is located, except as allowed below.

- a. **Roof or Building-mounted Solar Energy Systems.** The collector surface and mounting devices for roof-mounted solar energy systems shall not extend beyond the exterior perimeter of the building on which the system is mounted or built, unless the collector and mounting system has been explicitly engineered to safely extend beyond the edge, and setback standards are not violated. Exterior piping for solar hot water systems shall be allowed to extend beyond the perimeter of the building on a side-yard exposure. Solar collectors mounted on the sides of buildings and serving as awnings are considered to be building-integrated systems and are regulated as awnings.
- b. **Emergency Responder Access –** System design must allow for first responder roof access of at least 18” around the array with the following exception: the array may extend to the edges of an existing roof if first responder access is available on an adjacent roof such as on the back side of a gabled roof with an open common attic or other interior space to the array roof. Any flat roof-mounted solar array above three hundred square feet that proposes continuous coverage of the structure’s roof and where roof access in any given area shall be obstructed by more than 75% shall first require approval from the Kirtland Fire Inspector.
- c. **Ground-mounted Solar Energy Systems.** Ground-mounted solar energy systems may not extend into the side-yard or rear setback when oriented at minimum design tilt, except as otherwise allowed for building mechanical systems.

4. Visibility. Solar energy systems in residential districts shall be designed to minimize visual impacts from the public right-of-way, as described in (c)(4)(a-d) herein, to the extent that doing so does not affect the cost or efficacy of the system. Visibility standards do not apply to systems in non-residential districts, except when in an historic building or an historic district, then visibility shall be reviewed as described in (c)(6) below.

- a. Building Integrated Photovoltaic Systems. Building integrated photovoltaic solar energy systems shall be allowed regardless of whether the system is visible from the public right-of-way, provided the building component in which the system is integrated meets all required setback, land use or performance standards for the district in which the building is located.
- b. Aesthetic Restrictions. Roof or ground-mounted solar energy systems shall not be restricted for aesthetic reasons if the system is not visible from the closest edge of the nearest public right-of-way other than an alley and if the system meets the following standards:
 - i. Roof-mounted systems on pitched roofs shall have the same finished pitch as the roof and be no more than six inches above the roof for photovoltaic and ten inches for thermal.
 - ii. For roof mounted systems on pitched roofs, designs where arrays are on the rear of a structure shall not allow the array to extend above the ridge of the structures roof, as to be visible from the public right-of-way.
 - iii. Roof-mount systems on flat roofs that are visible from the nearest edge of the front right-of-way shall not be more than five feet above the finished roof and are exempt from any rooftop equipment or mechanical system screening.
 - iv. Visible system racking, panels, frames, and conduits shall be selected to the greatest extent practically and economically viable to match the surrounding structure. All system panels must be selected to have the same framing and surface colors as to avoid unnecessary patterns or color variations in the finished system. Visible conduits and piping shall be avoided as practically possible. If conduits and piping cannot be hidden from public right-of-way view, they shall be painted to approximate the surrounding structure. Visible logos, and other messaging shall require prior approval from the Planning and Zoning Commission.
- c. Reflectors. All solar energy systems using a reflector to enhance solar production shall minimize glare from the reflector affecting adjacent or nearby properties. An engineered light study shall be required. In addition, depending on the size and scope of the project, FAA approval may also be required. Any solar energy system using a reflector to enhance solar

production shall require approval from the Planning and Zoning Commission.

- d. Underground Utilities. All ground-mounted solar energy systems shall require underground utilities.

5. Lot Coverage. A ground-mounted system's total collector area shall not exceed the building footprint of the principal structure.

- a. Ground-mounted systems shall be exempt from impervious surface standards if the soil under the collector is maintained in vegetation and not compacted.
- b. Ground-mounted systems shall not count toward accessory structure limitations.
- c. Solar carports in non-residential districts are exempt from lot coverage limitations.

6. Historic Buildings. If a solar energy system is visible from the public right of way and is located on a building or structure which has been officially designated by a federal, state, or local entity as an historic building, then it shall be subject to the review and approval by the Planning and Zoning Commission.

7. Plan Approval Required. All solar energy systems requiring a building permit or other permit from the City of Kirtland shall provide a site plan for review.

- a. Plan Applications. Plan applications for solar energy systems shall be accompanied by to-scale drawings. The drawings must show the location of the system on the building or on the property for a ground-mounted system, including the property lines. Elevation drawings must be included for any ground mounted installation or any installation that extends above six inches (for a photovoltaic system) or ten inches (for a solar thermal system) of the existing structure.
- b. Plan Approvals. Applications that meet the design requirements of this ordinance shall be granted administrative approval by the zoning official and shall not require Planning Commission review. Plan approval does not indicate compliance with Building Code or Electric Code. The applicant shall, however, provide the Zoning Inspector with proof of compliance with all other regulatory bodies prior to the installation of any system.
- c. Approved Solar Components. Electric solar energy system components must have a UL or equivalent listing and solar hot water systems must have an SRCC rating.
- d. Compliance with Building Code. All solar energy systems shall meet approval of local building code officials, consistent with the Ohio Building Code, and solar thermal systems shall comply with HVAC-related requirements of the Energy Code.

- e. Compliance with State Electric Code. All photovoltaic systems shall comply with the National Electric Code as adopted by the State of Ohio.
- f. Compliance with State Plumbing Code. Solar thermal systems shall comply with applicable State of Ohio Plumbing Code requirements.
- g. Utility Notification. All grid-intertie solar energy systems shall comply with the interconnection requirements of the electric utility. Off-grid systems are exempt from this requirement.
- h. Compliance with other federal, state and local agencies. Some systems may require other governing body approvals such as EPA, FAA, ODNR, PUCO or any other applicable entity. The applicant is responsible for obtaining any and all other permits prior to the installation of any system. The City retains the right to ask for and demand proof of said approvals. Should the applicant deny providing to the City, or fail to secure, the necessary approvals from the regulatory agencies, then the permit shall then be denied or revoked. If the system has already been installed, the applicant will have ninety (90) days to obtain the necessary approvals or shall remove the system.

(d) Conditional Use Permits. Ground-mounted solar energy systems greater than one thousand (1,000) square feet, for-profit solar systems, and for-profit electric vehicle charging stations shall require the approval of a conditional use permit issued by the Planning and Zoning Commission in accordance with the ordinances outlining the same. All regulations as outlined in subsection (c) of this ordinance, titled “Permitted Accessory Uses,” shall apply to the extent that they are not in conflict with this subsection. Any proposed deviation from these regulations shall be decided by the Planning and Zoning Commission during its review of the conditional use permit.

1. The City of Kirtland encourages the development of commercial or utility scale solar energy systems where such systems present few land use conflicts with current and future development patterns.

2. General Standards:

a. Site Design

i. Setbacks. Solar energy systems must meet the following setbacks:

- a. Roadway setback of 150 feet from the ROW centerline of State highways and CSAHs, 100 feet for other roads, except as otherwise determined in subsection (e) below.
- b. Side yard setback of 100 feet from any existing dwelling unit, except as otherwise determined in (e) below.

- c. Any electrical equipment that presents any noise shall be installed at least 150 feet from any residential structure property line. In addition, all installations must meet all other noise ordinance requirements, even if they are more restrictive.
 - d. Setback distance should be measured from the edge of the solar energy system array, excluding security fencing, screening, or berm.
 - e. All side yard setbacks can be reduced by 50% if the array is fully screened from the setback point of measurement with the exception of noise related setbacks unless accompanied by an engineered study verifying compliance with all noise related ordinances and noise related setback requirements of this section.
- ii. Screening. Solar energy systems shall be screened from existing residential dwellings.
 - a. A screening plan shall be submitted that identifies the type and extent of screening.
 - b. Screening shall be consistent with Kirtland's screening ordinance or standards typically applied for other land uses requiring screening.
 - c. Screening shall not be required along property lines within the same zoning district, except where the adjoining lot has an existing residential use.
 - d. Kirtland may require screening where it determines there is a clear community interest in maintaining a viewshed.
- iii. Ground cover and buffer areas. The following provisions shall apply to the clearing of existing vegetation and establishment of vegetated ground cover. Additional site-specific conditions may apply as required by the City of Kirtland.
 - a. Large-scale removal of mature trees on the site is discouraged. Kirtland may set additional restrictions on tree clearing or require mitigation for cleared trees.
 - b. The applicant shall submit a vegetative management plan prepared by a qualified professional or reviewed and approved by a natural resource agency or authority, such as the Natural

Resources Conservation Service of the United States Department of Agriculture, the Lake County Soil and Water Conservation District, the Lake County Conservation Board, Ohio State University Extension and Outreach, the Ohio Department of Natural Resources, and the Ohio Department of Agriculture and Land Stewardship. The plan shall identify:

- i. The natural resource professionals consulted or responsible for the plan.
 - ii. The conservation, habitat, eco-system, or agricultural goals, which may include but are not limited to: providing habitat for pollinators such as bees and monarch butterflies, providing habitat for wildlife such as upland nesting birds and other wildlife, establishing vegetation for livestock grazing, reducing on-site soil erosion, and improving or protecting surface or ground water quality.
 - iii. The intended mix of vegetation upon establishment.
 - iv. The management methods and schedules for how the vegetation will be managed on an annual basis, with particular attention given to the establishment period of approximately three years.
- c. Soils shall be planted and maintained in perennial vegetation for the full operational life of the project, to prevent erosion, manage run off and build soil.
 - d. Vegetative cover should include a mix of perennial grasses and wildflowers with results typical for a native habitat typical of the area with a diversity of forbs or flowering plants that bloom throughout the growing season. Blooming shrubs may be used in buffer areas as appropriate for visual screening. Perennial vegetation (grasses and forbs) are preferably native to Ohio, but where appropriate to the vegetative management plan goals, may also include other naturalized and non-invasive species which provide habitat for pollinators and wildlife and/or other ecosystem services (i.e. clovers).
 - e. Plant material must not have been treated with systemic insecticides, particularly neonicotinoids.
- iv. Foundations. A qualified engineer shall certify that the foundation and design of the solar panel racking and support is within accepted professional standards, given local soil and climate conditions.

- a. Power and communication lines. Power and communication lines running between banks of solar panels and to nearby electric substations or interconnections with buildings shall be buried underground. Exemptions may be granted by Kirtland in instances where shallow bedrock, water courses, or other elements of the natural landscape interfere with the ability to bury lines, or distance makes undergrounding infeasible, at the discretion of the zoning administrator.
- b. Fencing. Perimeter fencing for the site shall not include barbed wire or woven wire designs and shall preferably use wildlife-friendly fencing standards that include clearance at the bottom. Alternative fencing can be used if the site is incorporating agrivoltaics.

3. Stormwater and NPDES. Solar farms are subject to Kirtland's stormwater management and erosion and sediment control provisions and NPDES permit requirements. Solar collectors shall not be considered impervious surfaces if the project complies with ground cover standards, as described in (d)(2)(a)(iii) of this ordinance.

4. Other standards and codes. All solar farms shall be in compliance with all applicable local, state, and federal regulatory codes, including the Ohio Building Code, as amended; and the National Electric Code, as amended.

5. Site Plan Required. The applicant shall submit a detailed site plan for both existing and proposed conditions, showing locations of all solar arrays, other structures, property lines, rights-of-way, service roads, floodplains, wetlands and other protected natural resources, topography, electric equipment, and all other characteristics requested by Kirtland Community. The site plan should show all zoning districts and overlay districts.

6. Aviation Protection. For solar farms located within 500 feet of an airport or within approach zones of an airport, the applicant must complete and provide the results of a glare analysis through a qualitative analysis of potential impact, field test demonstration, or geometric analysis of ocular impact in consultation with the Federal Aviation Administration (FAA) Office of Airports, consistent with the Interim Policy, FAA Review of Solar Energy Projects on Federally Obligated Airports, or most recent version adopted by the FAA.

7. Agricultural Protection. Solar farms must comply with site assessment or soil identification standards that are intended to identify agricultural soils. Kirtland may require mitigation for use of prime soils for solar array placement, including the following:

- a. Demonstrating co-location of agricultural uses (agrivoltaics) on the project site.
- b. Using an interim use or time-limited CUP that allows the site to be returned to agriculture at the end of life of the solar installation.

- c. Placing agricultural conservation easements on an equivalent number of prime soil acres adjacent to or surrounding the project site.
- d. Locating the project in a wellhead protection area for the purpose or removing agricultural uses from high-risk recharge areas.

8. Decommissioning. A decommissioning plan shall be required to ensure that facilities are properly removed after their useful life.

- a. Decommissioning of the system must occur in the event the project is not in use for 12 consecutive months.
- b. The plan shall include provisions for removal of all structures and foundations, restoration of soil and vegetation and assurances that financial resources will be available to fully decommission the site.
- c. Disposal of structures and/or foundations shall meet the provisions of the solid waste ordinances as found and referenced in the Kirtland Codified Ordinances.
- d. Kirtland may require the posting of a bond, letter of credit or the establishment of an escrow account to ensure proper decommissioning.

(e) Community Solar

1. The City of Kirtland permits the development of Community Solar, subject to the following standards and requirements:

- a. Rooftop Community Solar systems are permitted in all districts where buildings are permitted.
- b. Ground-mounted Community Solar systems must cover no more than ten acres . Ground-mounted solar systems covering more than ten acres shall require approval of the Planning and Zoning Commission.
- c. Dimensional standards – All Community Solar structures must comply with setback and height standards for the district in which the system is located.
- d. Other standards – Ground-mounted Community Solar systems must comply with all required standards for structures in the district in which the system is located.