

**Ordinance No. 1037**  
**An Ordinance Regulating Renewable Energy Systems (Wind, Solar, Geothermal)**

The Maplewood City Council ordains as follows:

**Section I. Sections 18-201 and 18-202 (Environment and Natural Resources Purpose and Intent) of the Maplewood City Code are hereby amended to read as follows:**

Sec. 18-201. - Purpose.

The purpose of this article is to protect significant natural features and promote energy independence and local food production which:

- (1) Preserve the natural character of neighborhoods.
- (2) Protect the health and safety of residents.
- (3) Protect water quality and minimize stormwater runoff.
- (4) Prevent erosion or flooding.
- (5) Control or eliminate soil erosion and sedimentation.
- (6) Encourage renewable energy systems that have a positive impact in energy conservation, with limited adverse impact on the community.
- (7) Maintain slope stability and existing drainage patterns.
- (8) Promote local production of food with Community and Market Gardens.

Sec. 18-202. - Applicability.

This article shall apply to any person or use that would alter a significant natural feature, add a renewable energy source, or create a Community or Market Garden.

**Section II. Sections 18-301 and 18-302 (Renewable Energy Scope and Purpose) of the Maplewood City Code are hereby amended to read as follows:**

Sec. 18-301. - Scope.

This division applies to the regulations of renewable energy systems within the City of Maplewood, Ramsey County, Minnesota. The division focuses on wind turbines, solar systems, and geothermal ground-source heat pumps.

Sec. 18-302. - Purpose.

It is the goal of the city to provide a sustainable quality of life for the city's residents, making careful and effective use of available natural resources to maintain and enhance this quality of life. Cities are enabled to regulate land use under Minnesota Statutes Chapter 462 (Zoning and Planning) for the purpose of "promoting the health, safety, morals, and general welfare of the community."

As part of this regulatory power, Maplewood believes it is in the public interest to encourage renewable energy systems that have a positive impact in energy conservation, with limited adverse impact on the community. While Maplewood strongly encourages increased energy conservation and improved energy efficiency, the city also finds that increased use of appropriate renewable energy systems will be an important part of improving urban sustainability.

The renewable energy regulations are intended to supplement existing zoning ordinances and land use practices, and ensure these systems are appropriately designed, sited and installed. These regulations are in place to balance the need to improve energy sustainability through increased use of renewable energy systems with concerns for preservation of public health, welfare, and safety, as well as environmental quality, visual and aesthetic values, and existing neighborhood social and ecological stability. With these regulations, Maplewood is concerned that renewable energy systems, particularly

wind energy systems, be designed to minimize the negative impacts on bird and bat species that are vulnerable to mortality from these energy- gathering machines.

**Section III. The following definitions contained in Section 18-321(a) (Wind Energy Sources and Systems) are hereby added and/or amended to read as follows:**

Sec. 18-321. - Wind energy sources and systems.

*Feeder line* means any power line that carries electrical power from one or more wind turbine(s) or individual transformers associated with an individual wind turbine 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.

*Hybrid Small WECS* include light fixtures and mechanisms for powering electric vehicle charging stations, light fixtures, or other mechanical equipment for use in parking lots or in public right of way with a wind power element.

*Large WECS* means a WECS of equal to or greater than 100kW in total nameplate generating capacity.

*Small WECS* means a WECS of less than 100kW in total nameplate generating capacity.

*WECS* means a wind energy conversion system which is 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 that operate by converting the kinetic energy of wind into electrical energy.

**Section IV. Section 18-322 (a)(1)(a) and (d) (Wind Energy Conversion System Districts) is hereby amended to read as follows and Section 18-322 (a)(2) is deleted. Section 18-322 (b) is hereby amended to read as follows:**

Sec. 18-322. - WECS districts.

(a) *Large WECS districts.*

(1) Ground- and roof-mounted large WECS shall be allowed as an accessory use with approval of a conditional use permit in the following zoning districts and land use designations:

a. In all properties located in commercial zoning districts (heavy manufacturing, light manufacturing, business commercial, business commercial modified, limited business commercial, commercial office, neighborhood commercial and shopping center).

...

d. In all properties guided as government, institutional, or park in the city's land use designations of the comprehensive plan.

(b) *Small WECS districts.*

(1) Roof-mounted small WECS are a permitted accessory use in all zoning districts.

(2) Ground-mounted and Hybrid small WECS are a permitted accessory use in the following zoning districts and land use designations:

a. In all properties located in commercial zoning districts (heavy manufacturing, light manufacturing, business commercial, business commercial modified, limited business commercial, commercial office, neighborhood commercial and shopping center).

b. In all properties located in multiple dwelling residential zoning districts (multiple dwelling residential and multiple dwelling residential townhouse) for purposes of shared WECS energy production among the residential dwelling units.

- c. In all properties approved as a planned unit development for purposes of shared WECS energy production among the businesses/organizations, residential dwelling units, or adjoining businesses/organizations/residential dwelling units.
  - d. In all properties guided as government, institutional or park in the city's land use designations of the comprehensive plan.
- (3) Ground-mounted small WECS are a permitted accessory use in double or single dwelling residential zoning districts if the following neighborhood consent requirements are met:

Written consent of 60 percent of the owners or occupants of privately- or publicly-owned real estate that are located adjacent (i.e., sharing property lines) on the outer boundaries of the premises for which the permit is being requested, or in the alternative, proof that the applicant's property lines are 150 feet or more from any house.

Where an adjacent property consists of a multiple dwelling or multi-tenant property, the applicant need obtain only the written consent of the owner or manager, or other person in charge of the building. Such written consent shall be required on the initial application and as often thereafter as the city deems necessary.

**Section V. Section 18-323 (Placement and Design) is hereby amended to read as follows:**

Sec. 18-323. - Placement and design.

(a) Ground-mounted WECS.

(1) Height.

- a. Large WECS shall have a total height, including tower and blade to its highest point of travel, of no more than 125 feet.
- b. Small WECS shall have a total height, including tower and blade to its highest point of travel, of no more than 60 feet.
- c. Hybrid small WECS shall have a total height as outlined in Section 44-20(c)(1)(f).

(2) Placement.

a. Large WECS shall be located as follows:

- 1. Shall not be located between a principal structure and a public street, unless the city determines that such a location would lessen the visibility of the large WECS or would lessen the impacts of such a WECS on nearby properties.
- 2. Have a minimum setback distance from the base of the monopole of one times the height from any property line, electric substation, transmission line, or other WECS.
- 3. Maintain setbacks to bluffs as outlined in Section 18-463.

b. Small WECS shall be located:

- 1. Shall not be located between a principal structure and a public street, unless the city determines that such a location would lessen the visibility of the small WECS or would lessen the impacts of such a WECS on nearby properties.
- 2. Have a minimum setback distance from the base of the monopole of one times the height from any property line, public right-of-way, electric substation, transmission line, or other WECS.

c. Hybrid Small WECS shall follow requirements outlined in Section 44-20(1).

- (3) Number.
  - a. Large WECS. One large WECS shall be allowed on a single lot up to five acres. All other larger parcels will be limited to one large WECS per five acres of land.
  - b. Small WECS. One small WECS shall be allowed on a single lot up to one acre. All other larger parcels will be allowed one small WECS per one acre of land.
- (4) Design.
  - a. Tower Configuration. All ground mounted WECS shall:
    - 1. Be installed with a tubular, monopole type tower.
    - 2. Have no guyed wires attached to the tower or other components.
    - 3. Have no ladder, step bolts, rungs, or other features used for tower access to extend within eight feet of the ground. Lattice-style towers shall have a protective barrier to prevent unauthorized access to the lower eight feet of the tower.
  - b. Signs. A WECS operator is required to provide a single posting, not to exceed four square feet, at the base of a WECS prohibiting trespassing, warning of high voltage, and providing the emergency contact information for the operator.
- (b) Roof-mounted WECS.
  - (1) Height.
    - a. Large roof-mounted WECS:
      - 1. Total height of not more than 25 feet, measured from the top of the roof to the blade tip at its highest point of travel.
    - b. Small roof-mounted WECS:
      - 1. Total height of not more than 25 feet, measured from the top of the roof to the blade tip at its highest point of travel.
      - 2. Residential installation. In addition to the 25-foot height restriction for the small roof-mounted WECS, the height of the WECS and the structure on which it is attached must not exceed the maximum height allowed in the residential zoning district for which it is installed.
  - (2) Placement. Roof-mounted WECS must be erected above the roof of a building or structure. The mounts associated with the WECS may extend onto the side of the building or structure.
  - (3) Number.
    - a. Large roof-mounted WECS. To minimize flickering shadows caused by the rotors spinning and visual impacts of roof-top large roof-mounted WECS, the maximum number shall be subjected to general architectural considerations including the height, bulk and area of the building; colors and materials to be used; and the physical and architectural relationship of the proposed large roof-mounted WECS with existing building.
    - b. Small roof-mounted WECS. No more than three roof-mounted small WECS shall be installed on any rooftop.

**Section VI. Section 18-325(a)(6) (Wind Energy Conversion Systems General Standards) is hereby deleted and sections 18-325(a)(7), 18-325 (b)(1) and (c)(1) are amended to read as follows:**

- (a) The following provisions shall apply to all WECS erected under the provisions of this division:
- (7) Feeder lines: Any lines accompanying a WECS, other than those contained within the WEC's tower or those attached to on-site structures by leads, shall be buried within the interior of the subject parcel, unless there are existing lines in the area that the lines accompanying a WECS can be attached.
- (b) In addition to the provisions outlined in Section 325 (General Standards) above, the following provisions will apply to large WECS erected under the provisions of this division:
- (1) Color. Turbine paint color and high levels of ultraviolet and infrared components of paint could have an impact on the attraction of insect species to the structure, which may attract birds and bats and cause bird and bat mortality. As such, turbine paint color may be approved as part of the conditional use permit process and must be shown to reduce the impacts to birds and bats and be a non-obtrusive color so not to cause visual impacts to surrounding properties.
- (c) In addition to the provisions outlined in Section 325 (General Standards) above, the following provisions will apply to small WECS erected under the provisions of this division:
- (1) Color. Turbine paint color must be a nonobtrusive color so not to cause visual impacts to surrounding properties.

**Section VII. Chapter 18, Article V, Division 5, Subdivision III (Solar Energy) is hereby amended to read as follows:**

Subdivision III. - Solar Energy

Sec. 18-351. - Solar energy sources and systems.

- (a) Definitions, solar energy sources and systems. The following words, terms and phrases, when used in this section, shall have the meaning provided herein, except where the context clearly indicates otherwise:

*Beneficial Habitat Standards* means standards consistent with Minnesota Statutes, section 216B.1642, or successor statutes and guidance as set by the Minnesota Board of Water and Soil Resources (BWSR).

*Building-integrated solar system* means an active solar 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 systems that are contained within roofing materials, windows, skylights, and awnings.

*Community Solar Garden* means a solar energy system that provides electric power (or a financial proxy for electric power) to multiple community members or businesses residing or located off-site from the location of the solar energy system.

*Ground-mounted solar energy system* means freestanding solar panels mounted to the ground by use of stabilizers or similar apparatus.

*Hybrid Solar Fixtures* include light fixtures and mechanisms for powering electric vehicle charging stations, light fixtures, or other mechanical equipment for use in parking lots or in public right of way with a wind power element.

*Photovoltaic system* means an active solar energy system that converts solar energy directly into electricity.

*Roof-or building-mounted Solar Energy System* means solar energy system that is mounted to the roof or building using brackets, stands or other apparatus.

*Roof pitch* means the final exterior slope of a building roof calculated by the rise over the run, typically, but not exclusively, expressed in twelfths such as 3/12, 9/12, 12/12.

*Solar access* means a view of the sun, from any point on the collector surface that is not obscured by any vegetation, building, or object located on parcels of land other than the parcel upon which the solar collector is located, between the hours of 9:00 a.m. and 3:00 p.m. standard time on any day of the year.

*Solar canopy* means a structure that provides shade to vehicles or people and includes a solar energy system that provides electric power. Including, but not limited to, car ports, mass transit shelters, pavilions, pergolas with solar arrays.

*Solar collector* means 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.

*Solar energy* means radiant energy received from the sun that can be collected in the form of heat or light by a solar collector.

*Solar energy system (SES)* means an active solar energy system that collects or stores solar energy and transforms solar energy into another form of energy or transfers heat from a collector to another medium using mechanical, electrical, or chemical means. SES can be roof, building, structure, or ground mounted.

*Solar hot water system* means 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 and hot water for commercial processes.

Sec. 18-352. - Districts.

- (a) Ground, roof, building mounted SES and hybrid solar fixtures are a permitted accessory use in all zoning districts.
- (b) Solar canopies are a permitted accessory use in all zoning districts.
- (c) Community Solar Gardens:
  - (1) Roof or building mounted community solar gardens are a permitted accessory use in all zoning districts.
  - (2) Ground mounted community solar gardens that are one acre in size and under are a permitted accessory use in all zoning districts.
  - (3) Ground mounted community solar gardens that are greater than one acre in size shall be allowed as an accessory use with approval of a conditional use permit in all zoning districts.
  - (4) Ground mounted community solar gardens of any size shall be allowed as a primary use with approval of a conditional use permit in all zoning district.

Sec. 18-353. - Placement and design.

- (a) Height.
  - (1) Roof or building mounted SES are allowed to be ten (10) feet higher at maximum tilt than the height of a building in any zoning district.
  - (2) Solar canopies:
    - a. Residential: shall not exceed the height of an accessory building in any residential zoning district when oriented at maximum tilt.
    - b. Commercial: shall not exceed the height of a primary building in any commercial zoning district when oriented at maximum tilt.
  - (3) Ground-mounted SES:

- a. Residential: shall not exceed the height of an accessory building in any residential zoning district when oriented at maximum tilt.
  - b. Commercial: shall not exceed the height of a primary building in any commercial zoning district when oriented at maximum tilt.
- (4) Hybrid solar fixtures: shall have a total height as outlined in Section 44-(20)(c)(1)(f).
- (b) Location.
  - (1) Roof or building-mounted SES may be located two (2) feet beyond the required setbacks of the building on which the system is mounted.
  - (2) Solar canopies:
    - a. Residential: shall maintain the required setbacks of an accessory building.
    - b. Commercial: shall maintain the building setbacks for the district in which the system is located.
  - (3) Ground-mounted SES:
    - a. Residential: shall maintain the required setbacks of an accessory building.
    - b. Commercial: shall maintain the building setbacks for the district in which the system is located.
  - (4) Hybrid solar fixtures: shall follow requirements outlined in Section 44-20(1).
- (c) Visibility.
  - (1) SES are a visible sign of the City's commitment to sustainability. The color of the solar collector is not required to be consistent with other roofing or building materials.
  - (2) Building-integrated solar systems shall be allowed regardless of visibility, provided the building component in which the system is integrated meets all required setback, land use or performance standards for the zoning district in which the building is located.
  - (3) Ground Mounted Community Solar Gardens shall be screened from view from the public right-of-way and affected properties to the extent possible by setbacks, berming, existing vegetation, landscaping, or a combination thereof.
- (d) Design.
  - (1) Ground Mounted Community Solar Gardens:
    - a. Large-scale removal of mature trees on the site is discouraged. Removal of significant trees on the site must comply with the tree preservation ordinance.
    - b. The project site design shall include the installation and establishment of ground cover meeting the beneficial habitat standard consistent with Minnesota Statutes, section 216B.1642, or successor statutes and guidance as set by Minnesota Board of Water and Soil Resources.
    - c. Beneficial habitat standards shall be maintained on the site for the duration of operation, until the site is decommissioned.
    - d. The applicant shall submit a financial surety to equal 150 percent of the costs to meet the beneficial habitat standard. The financial guarantee shall remain in effect until vegetation is sufficiently established.

**Sec. 18-354. - General standards.**

- (a) Feeder lines. Any lines accompanying a SES, other than those attached to on-site structures by leads, shall be buried within the interior of the subject parcel, unless there are existing lines in the area that the lines accompanying a SES can be attached.

- (b) Restrictions on SES limited. No homeowners' agreement, covenant, common interest community, or other contract between multiple property owners within a subdivision of Maplewood shall restrict or limit solar systems to a greater extent than Maplewood's renewable energy ordinance.
- (c) Maplewood encourages solar access to be protected in all new subdivisions and allows for existing solar to be protected consistent with Minnesota Statutes. Any solar easements filed must be consistent with Minn. Stats. § 500.30.

**Sec. 18-355. – Conditional Use Permit Procedure for Solar.**

Procedures for granting conditional use permits from this ordinance are as follows:

- (a) In reviewing the conditional use permit the city council will follow the requirements for conditional use permit approvals as outlined in Article V (conditional use permits).
- (b) Before the city council acts on a conditional use permit the environmental and natural resources commission and the planning commission will review the following conditions of approval prior to making a recommendation to the city council:
  - (1) Large-scale removal of significant trees on the site is discouraged.
  - (2) The project site design shall include the installation and establishment of ground cover meeting the beneficial habitat standard.
  - (3) Beneficial habitat standards shall be maintained on the site for the duration of operation, until the site is decommissioned.

Sec. 18-356. - Abandonment.

A SES that is allowed to remain in a nonfunctional or inoperative state for a period of 12 consecutive months, and which is not brought in operation within the time specified by the city, shall be presumed abandoned and may be declared a public nuisance subject to removal at the expense of the operator.

Secs. 18-357—18-400. - Reserved.

**Section VIII. The following definition contained in Section 18-401(a) (Geothermal Energy Sources and Systems) is hereby amended to read as follows:**

Subdivision IV. - Geothermal Energy

Sec. 18-401. - Geothermal energy sources and systems.

- (a) Definitions, geothermal energy sources and systems. The following words, terms and phrases, when used in this section, shall have the meaning provided herein, except where the context clearly indicates.

*Ground source heat pump system (GSHP)* means a system that uses the relatively constant temperature of the earth or a body of water to provide heating in the winter and cooling in the summer. System components include closed loops of pipe, coils or plates; a fluid that absorbs and transfers heat; and a heat pump unit that processes heat for use or disperses heat for cooling; and an air distribution system.

**Section IX. Section 44-1092 (Conditional Uses) is hereby amended as follows:**

Sec. 44-1092. Conditional uses.

The city council may issue conditional use permits for the following uses in any zoning district in which they are not specifically prohibited:

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- (10) Large Wind Energy Conversion Systems (WECS)
- (11) Ground mounted community solar gardens that are greater than one acre in size as an accessory use.
- (12) Ground mounted community solar gardens as a primary use.

**Section X. Effective Date. This Ordinance shall be effective following its adoption and publication.**

Adopted by the City of Maplewood this 13th day of March, 2023.



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Marylee Abrams, Mayor

Attest:



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Andrea Sindt, City Clerk