

ORDINANCE NUMBER 2023-8-2

**AN ORDINANCE AMENDING CHAPTER 153
OF THE CITY CODE §153.034 ALTERNATIVE ENERGY SYSTEMS**

The City Council of Stacy ordains that Chapter 153, Section 153.034 is amended by deleting the ~~strikethrough~~ language and adding the underlined language as follows:

SECTION 1. Chapter 153, Section 153.034

(A) Purpose and intent. The purpose and intent of this section is to establish standards and procedures by which the installation and operation of wind and solar energy systems shall be governed within the city. The city finds that it is in the public interest to encourage alternative energy systems that have a positive impact on energy production and conservation, while not having an adverse impact on the community.

(B) Definitions. Except as may otherwise be provided or clearly implied by context, all terms shall be given their commonly accepted definitions. For the purpose of this section, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

ACCESSORY. A system designed as a secondary use to existing buildings or facilities, wherein the power generated is used primarily for on-site consumption.

ALTERNATIVE ENERGY SYSTEM. A wind energy conversion system, geothermal, or a solar energy system.

BUILDING-INTEGRATED SOLAR ENERGY SYSTEM. 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, including but not limited to, photovoltaic or hot water solar systems contained within roofing materials, windows, skylights and awnings.

~~**CLOSED-LOOP GROUND SOURCE HEAT PUMP SYSTEM.** A system that circulates a heat transfer fluid, typically food grade antifreeze, through pipes or coils buried beneath the land surface or anchored to the bottom of a body of water.~~

~~**GEOHERMAL ENERGY.** Renewable energy generated from the interior of the earth and used to produce energy for heating and/or cooling buildings, ~~or serving building commercial or industrial processes.~~~~

~~**GROUND-MOUNTED PANELS.** Freestanding solar panels mounted to the ground by use of stabilizers or similar apparatus.~~

~~**GROUND SOURCE HEAT PUMP SYSTEM (GSHPs).** 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 open or closed loops of pipe, coils or plates; 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. The energy must be used on-site.~~

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HEAT TRANSFER FLUID. A non-toxic and food-grade fluid, such as potable water, aqueous solutions or propylene glycol, not to exceed 20% by weight, or aqueous solutions of potassium acetate to exceed 20% by weight.

HORIZONTAL AXIS WIND TURBINE. A wind turbine design in which the rotor shaft is parallel to the ground and the blades are perpendicular to the ground.

HUB. The center of a wind generator rotor, which holds the blades in place and attaches to the shaft.

HUB HEIGHT. The distance measured from natural grade to the center of the turbine hub.

MONOPOLE TOWER. A tower constructed of tapered tubes that fit together symmetrically and are stacked, one section on top of another, and bolted to a concrete foundation without support cables.

PASSIVE SOLAR ENERGY SYSTEM. A system that captures solar light or heat without transforming it to another form of energy or transferring the energy via a heat exchanger.

PHOTOVOLTAIC SYSTEM. A solar energy system that converts solar energy directly into electricity.

RESIDENTIAL WIND TURBINE. A wind turbine with a nameplate generating capacity of 10 kilowatts (kW) or less.

ROOF- OR BUILDING-MOUNTED SES. Solar energy system (panels) that is (are) mounted to the roof or building using brackets, stands or other apparatus.

ROOF PITCH. 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.

~~**SMALL WIND TURBINE.** A wind turbine with a nameplate generating capacity of 100 kilowatts (kW) or less.~~

SOLAR ACCESS. 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. on any day of the year.

SOLAR COLLECTOR. A device, structure or a part of a device or structure whose primary purpose is to transform solar radiant energy into thermal, mechanical, chemical, or electrical energy.

SOLAR ENERGY. 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). 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.

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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 and hot water for commercial processes.

STORMWATER POND. A pond created for stormwater treatment. A **STORMWATER POND** shall not include wetlands created to mitigate the loss of other wetlands.

TOTAL HEIGHT. The highest point above natural grade reached by rotor tip or any other part of the wind turbine.

TOWER. A vertical structure that supports a wind turbine.

~~UTILITY WIND TURBINE.~~ A wind turbine with a nameplate generating capacity of more than 100 kilowatts (kW).

VERTICAL AXIS WIND TURBINE. A type of wing turbine where the main rotor shaft runs vertically.

WIND ENERGY CONVERSION SYSTEM (WECS). An electrical generating facility that consists of a wind turbine, feeder line(s), and associated controls, and may include a tower.

WIND TURBINE. Any piece of electrical generating equipment that converts the kinetic energy of blowing wind into electrical energy through the use of airfoils or similar devices to capture the wind.

(C) Wind conversion energy system (WECS) standards.

(1) Zoning districts.

~~(a) Utility wind turbines shall be allowed as an accessory use in the Light Industrial, Industrial, and Agricultural zoning districts.~~

~~(b) Small wind turbines shall be allowed as an accessory use in commercial and Agricultural zoning districts, and non-residential uses in commercial districts.~~

~~(ea) Residential wind turbines (only vertical-axis style permitted) shall be allowed as an accessory use in all residential districts, excluding the Mobile Home Park District.~~

(2) Number. No more than one WECS is allowed per parcel.

(3) Design standards.

(a) Height. The permitted maximum height of a WECS shall be determined on the type of system proposed.

~~1. Utility wind turbines. The height of a freestanding WECS located in a Light Industrial or Industrial district shall not exceed 100 feet.~~

~~2. Small wind turbines. The height of a freestanding WECS located in General Business or Central Business district shall not exceed 75 feet.~~

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31. Residential wind turbines. Residential wind turbines can only be building-mounted at a maximum height of 15 feet above the roofline of the principal structure. All residential wind turbines shall be of the vertical-axis style; the height shall not exceed the maximum allowable height for the district.

42. The structure upon which the proposed WECS is to be mounted shall have the structural integrity to carry the weight and wind loads of the WECS, and have minimal vibration impacts on the structure.

53. Poles shall match the color of the principal structure.

(b) Setbacks for building-mounted. A building- or roof-mounted, vertical-axis-style WECS shall be located only on the side or rear rooflines.

(c) Easements. Wind energy systems shall not encroach on public drainage, utility roadway or trail easements.

~~(d) Setbacks from base of monopole. Wind energy systems shall have a minimum setback distance from the base of the monopole of:~~

~~1. One times the height from any property line, electric substation, transmission line, or other WECS. In addition, the setback distance must be increased by 25 feet from any property that is zoned or planned for residential.~~

~~2. One and one half times the height from any public right of way, occupied structure, or public use area.~~

~~3. Six hundred feet from any property guided as park or open space as guided in the Comprehensive Plan.~~

~~(e) Rotor clearance. Blade arcs created by the WECS shall have a minimum of 30 feet of clearance over any structure or tree within a 300-foot radius.~~

~~(fd) Feeder lines. The electrical collection system shall be placed underground within the interior of each parcel. The collection system may be placed overhead near substations or points of interconnection to the electric grid.~~

(ge) Aesthetics. All portions of the wind energy system shall be a nonreflective, non-obtrusive color, subject to the approval of the City Council. ~~Only monopole towers are permitted.~~ The appearance of the turbine, mounting, ~~tower~~ and any other related components shall be maintained throughout the life of the wind energy system pursuant to industry standards. Systems shall not be used for displaying any advertising, except for applicable warning and equipment information required by the manufacturer or by federal, state or local regulations. Systems shall not be illuminated.

(4) Noise. Wind energy systems shall comply with Minnesota Pollution Control Agency Standards, as outlined in Minn. Rules Chapter 7030, at all property lines.

(5) Safety.

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(a) Standards. Wind energy systems shall meet minimum standards, such as International Electrotechnical Commission (IEC) 61400-2 or the American Wind Energy Association's (AWEA) Small Wind Turbine Performance and Safety Standard, or other standards at determined by the City Council.

(b) Maintenance. Wind energy systems shall be maintained under an agreement or contract by the manufacturer or other qualified entity.

(c) Braking. The WECS shall be equipped with both a manual and an automatic braking device capable of stopping the WECS operation in high winds.

~~(d) Tower access. To prevent unauthorized climbing, WECS towers must comply with one of the following provisions:~~

~~——— 1. Tower climbing apparatus shall not be located within 12 feet off the ground.~~

~~——— 2. A located anti-climb device shall be installed on the tower.~~

~~——— 3. A tower capable of being climbed shall be enclosed by a locked, protective fence at least 8 feet high.~~

(6) Utility connection. All grid-connected systems shall have an agreement with the local utility prior to the issuance of a conditional use permit or building permit. A visible external disconnect must be provided if required by the utility.

(7) Abandonment. If the wind energy system remains nonfunctional or inoperative for a continuous period of 1 year, the system shall be deemed to be abandoned and shall constitute a public nuisance. The owner shall remove the abandoned system at their expense after a demolition permit has been obtained. Removal includes the entire structure, including foundations to below natural grade and transmission equipment.

(8) Permits. A conditional use permit shall be obtained for any wind energy system prior to installation. All applications shall be accompanied by detailed plans and specifications, including but not limited to, the following information:

(a) Submissions required pursuant to § 153.192.

(b) Scaled drawings and photographic perspectives accurately depicting the structure of the proposed location of the WECS and its relationship to structures on adjacent lots.

(c) A written certification from a licensed structural engineer that the structure has the structural integrity to carry the weight and wind loads of the WECS, and have minimal vibration impacts on the structure.

(d) An analysis from a licensed engineer showing how the WECS shall be designed, constructed and operated in compliance with all applicable federal, state and local laws, codes, standards and ordinances.

(e) A written certification from a licensed engineer confirming that the WECS is designed to not cause electrical, radio frequency, television and other communication signal interference.

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(f) Roof-mounted WECS shall include detailed plans illustrating roof construction, mounting techniques and wind load capacity.

(D) Solar energy systems.

(1) Districts. Solar energy systems (SES) shall be allowed as an accessory use in all zoning districts.

(2) Placement and design.

(a) Height.

1. Roof- or building-mounted SES shall not exceed the maximum allowed height in any zoning district.

2. Ground-mounted SES shall not exceed the height of an allowed accessory structure within the zoning district when oriented at maximum tilt.

(b) Placement.

1. Ground-mounted SES. Ground-mounted SES must meet the accessory structure setback for the zoning district in which it is installed.

2. Roof- or building-mounted SES. The collector surface and mounting devices for roof- or building-mounted SES shall not extend beyond the required setbacks of the building on which the system is mounted.

(c) Coverage. Ground-mounted SES may not exceed the area restrictions placed on accessory structures within the subject zoning district.

(d) Visibility.

1. General. SES shall be designed to blend into the architecture of the building or be screened from routine view from public rights-of-way. The color of the solar collector is not required to be consistent with other roofing materials.

2. Building-integrated solar energy systems. 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 solar energy systems. Ground-mounted SES shall be screened from view to the extent possible without reducing their efficiency. Screening may include walls, fences, or landscaping.

(3) General standards.

(a) Notification. Prior to the installation or erection of a SES, the owner must provide evidence showing their regular electrical service provider has been informed of the customer's intent to install an interconnected, customer-owned SES. Off-grid systems shall be exempt from this requirement.

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(b) 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 which the lines accompanying an SES can be attached.

(c) Commercial. All SES shall be limited to the purpose of on-site energy production, except that any additional energy produced above the total on-site demand may be sold to the owner's regular electrical service provider in accordance with any agreement provided by the same or applicable legislation.

(d) Restriction of solar energy systems limited. No homeowner's agreement, covenant, common interest community, or other contract between multiple property owners within a subdivision shall restrict or limit solar systems to a greater extent than the city's renewable energy ordinance.

(4) Abandonment. A SES that is allowed to remain in a nonfunctional or inoperative state for a period of 12 consecutive months, and that 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 owner.

(5) Permits. A conditional use permit shall be obtained for any solar energy system prior to installation. All applications shall be accompanied by detailed plans and specifications, including but not limited to, the following information:

(a) Submissions required pursuant to § 153.192.

(b) Scaled drawings and photographic perspectives accurately depicting the structure of the proposed location of the SES and its relationship to structures on adjacent lots.

(c) A written certification from a licensed engineer certifying that the SES will not impact neighboring properties due to glare.

(d) An analysis from a licensed engineer showing how the SES shall be designed, constructed and operated in compliance with all applicable federal, state and local laws, codes, standards and ordinances.

(e) A written certification from a licensed engineer confirming that the SES is designed to not cause electrical, radio frequency, television and other communication signal interference.

(f) Roof-mounted SES shall include detailed plans illustrating roof construction, mounting techniques and wind load capacity.

(E) Geothermal energy systems.

(1) Districts. Ground source heat pump systems (GSHPS) shall be allowed as an accessory use in all zoning districts.

(2) Placement and design.

(a) Placement.

1. All components of GSHPS, including pumps, borings and loops, shall be set back at least 5 feet from interior and rear lot lines, or meet the requirements of the underlying zoning district, whichever is more restrictive.

2. All components of GSHPS shall not encroach on easements.

3. GSHPS are prohibited in surface waters, except for stormwater ponds where they are permitted.

(b) Design. Only closed loop GSHPS utilizing Minnesota Department of Health-approved heat transfer fluids are permitted.

(3) General standards.

(a) Noise. GSHPS shall comply with Minnesota Pollution Control Agency standards outlined in Minn. Rules Chapter 7030.

(4) Abandonment. A GSHPS that is allowed to remain in a nonfunctional or inoperative state for a period of 12 consecutive months, and that 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 owner.

(5) Permits. A conditional use permit shall be obtained for any geothermal energy system prior to installation. All applications shall be accompanied by detailed plans and specifications, including but not limited to, the following information:

(a) Submissions required pursuant to § 153.192.

(b) Scaled drawings and photographic perspectives accurately depicting the structure of the proposed location of the GSHPS and its relationship to structures on adjacent lots.

(c) A written certification from a licensed engineer certifying that the GSHPS will not impact neighboring properties.

(d) An analysis from a licensed engineer showing how the GSHPS shall be designed, constructed and operated in compliance with all applicable federal, state and local laws, codes, standards and ordinances.

(F) General provisions.

(1) Interpretation. In interpreting this section and its application, the provisions of these regulations shall be held to be the minimum requirements for the protection of public health, safety, and general welfare. This section shall be construed broadly to promote the purposes for which it was adopted.

(2) Conflict. This section is not intended to interfere with, abrogate or annul any other ordinance, rule or regulation, statute or other provision of law except as provided herein. If any provision of this section imposes restrictions different from any other ordinance, rule or regulation, statute or provision of law, the provision that is more restrictive or imposes higher standards shall control.

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SECTION 2. Effective Date. This ordinance shall take effect from and after its passage and publication.

ADOPTED this 8th day of August, 2023, by the City Council of Stacy, Minnesota.

Mark Utecht, Mayor

ATTEST:

Angie Comstock, Deputy City Clerk

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