

CHAPTER 20. ALTERNATIVE ENERGY SOURCES AND SYSTEMS

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📖 Section 2000 - Purpose

2000.01 Purpose. It is the purpose of this chapter to promote the safe, effective and efficient use of alternative energy sources and systems installed to reduce the on-site consumption of utility supplied electricity.

(Ord. 2004-06, passed 9-20-2004)

2000.02 Alternative Sources. The City of Hermantown finds that there are alternative sources of energy that are abundant, renewable and nonpolluting, and that those alternative sources that convert to electricity will reduce dependence on nonrenewable energy resources and decrease the air and water pollution that results from the use of conventional energy sources. Small wind energy systems will also enhance the reliability and power quality of the power grid, reduce peak power demands and help diversify the state’s energy supply portfolio.

(Ord. 2004-06, passed 9-20-2004)

2000.03 Reduce Dependence. The City of Hermantown further recognizes that some alternative energy sources and conversion systems will be used to heat water or living space and reduce dependence on fossil fuels including foreign oil.

(Ord. 2004-06, passed 9-20-2004)

2000.04 Standardization; Applicability. Therefore, the City of Hermantown finds that it is necessary to standardize and streamline the issuance of zoning permits and building permits for small alternative energy systems, so that clean, renewable energy resources can be utilized. This chapter shall not be applicable to temporary power sources such as portable gasoline powered generators.

(Ord. 2004-06, passed 9-20-2004)

Section 2005 – Definitions

2005.01 Definitions. Unless the context clearly indicates otherwise, the following term shall have the meaning set forth herein in connection with the application of this chapter and as used elsewhere in these Zoning Regulations:

2005.01.1. “Alternative energy source and systems” (herein “system” and “systems”) shall be the general term applied to all alternative energy sources and systems as defined herein.

2005.01.2. “Biodiesel systems” means systems that use a combination of fuels classified as biodiesel fuels because they combine new and used vegetable oils and animal fats with petroleum diesel fuel or without petroleum diesel fuel.

2005.01.3. “Biomass systems” means a system that uses biologic material for production of energy, along with the required devices to utilize energy in a typical residential setting. “Biomass systems” include but are not limited to outdoor wood burning furnaces, corn burning stoves, wood and wood pellet or other pelletized fuels suitable for residential use.

2005.01.4. “Buildable area envelope” means an area defined by the minimum front, side and rear lot setbacks for the applicable zone district.

2005.01.5. “Engineered and field constructed fuel cell power system” means a fuel cell power system that is not preassembled or does not have factory matched components.

2005.01.6. “Geothermal systems/closed loop” means a system that uses the heat energy of the soil to provide a source of heat and/or cooling, recovered by a buried closed-loop piping system along with controllers to utilize the energy that is recovered.

2005.01.7. “Hydrogen fuel cells/fuel cell power system” means a generator system that converts the chemical energy of reactants (a fuel and oxidant) by an electrochemical process to electric energy (direct current or alternating current electricity) and thermal energy.

2005.01.8. “Micro turbines” means small turbine-driven generators having a rated capacity of 100 kW or less, powered by a variety of fuels to produce electricity with a byproduct of hot water. “Micro turbines” burning waste materials or waste fuels are included.

2005.01.9. “Open-loop geothermal systems” – these systems generally use ground sources and return the processed water as surface water.

2005.01.10. “Passive solar systems” means a device or combination of devices, structures or part of a device or structure that collects solar radiation and converts it to thermal, mechanical, chemical or electrical energy. This definition includes solar windows and glazing and solar systems regulated by M.S. Section 216 C.06, Subd. 17, as it may be amended from time to time.

2005.01.11. “Photovoltaic systems” means grid tied or stand-alone battery system modules (solar panels) that convert sunlight into electricity and store energy until needed, or a component which converts the radiated energy of the sun directly into electrical current.

2005.01.12. “Small wind energy conversion system” means a system consisting of a wind turbine, a tower or towers, and associated control or conversion electronics, which has a rated capacity of not more than 100 kW and which is intended primarily to for on-site consumption of electrical power. This definition includes three towers as part of small wind energy system.

2005.01.13. “Solar energy systems” means a complete design or assembly consisting of a solar collector, an energy storage facility (where used), and components for distribution of transformed energy (to the extent such components cannot be used jointly with a conventional energy system) or thermal gas components (such as water tanks or masonry wall or floors).

2005.01.14. “Tower” means a mast, pole, monopole, guyed tower, lattice tower or freestanding tower, or other structure designed and used to support a small wind energy conversion system. Ground- or building-mounted mast greater than ten feet tall and six inches in diameter, supporting one or more systems, shall be considered a “tower” under this chapter.

2005.01.15. “Tower, abandoned” means a tower installed for a small wind energy conversion system that has been unused for this purpose for a period of one year.

2005.01.16. “Tower height” means the height above grade of the fixed portion of the tower, excluding the wind turbine itself.

(Ord. 2004-06, passed 9-20-2004)

Section 2010 – Permitted Uses in Zone Districts

2010.01 Hydrogen Fuel Cells. Hydrogen fuel cells for home or business use shall be permitted in any zone district, provided they generate less than 40 kW. Installations for use as backup emergency power are only allowed in the C, C-1, M-1, and M-2 zone districts.

(Ord. 2004-06, passed 9-20-2004)

2010.02 Photovoltaic Systems. Allowed in any zone district.

(Ord. 2004-06, passed 9-20-2004)

2010.03 Passive Solar Systems. Allowed in any zone district.

(Ord. 2004-06, passed 9-20-2004)

2010.04 Small Wind Energy Systems. Allowed only in the R-1, S-1, P and Open Space Zone Districts.

(Ord. 2004-06, passed 9-20-2004)

2010.05 Geothermal Systems. Allowed in any zone district.

(Ord. 2004-06, passed 9-20-2004)

2010.06 Micro Turbines. Allowed only in the R-1 and S-1, C, C-1, M-1, and M-2 Zone Districts.

(Ord. 2004-06, passed 9-20-2004)

2010.07 Biomass Systems. Allowed only in the R-1 and S-1 Zone Districts and in the C, C-1, M-1 and M-2 Zone Districts, provided the system can be screened from public view and from adjacent properties.

(Ord. 2004-06, passed 9-20-2004)

2010.08 Biodiesel Systems. Allowed only in the C, C-1, M-1 and M-2 Zone Districts.

(Ord. 2004-06, passed 9-20-2004)

Section 2015 – General Provisions

2015.01 Construction and Maintenance. All systems shall be constructed, maintained and repaired as necessary to prevent the system from endangering persons or property. All systems shall be adequately grounded and designed to withstand lightning strikes.

2015.01.1. Systems may only be constructed on land owned by the owner of the system.

2015.01.2. Replacement of structural members or footing(s) that have deteriorated to a point of affecting the safety and/or general appearance of the system is allowed, provided that such repairs shall not alter the size or height of the existing system and shall use similar materials whenever possible; provided further, however, that the system owner may request to improve the appearance of a system or reduce its required maintenance by replacing specific components with other materials. Any such improvements would be limited by the height and size restrictions of this chapter.

2015.01.3. Tower height shall be limited to 120 feet, subject to airport zoning limitations.

2015.01.4. No part of any system, including guy wire anchors, may extend outside the buildable area envelope of the installation site. The base of the tower for a small wind energy conversion

system shall be located such that the setback from any property line is equal to or greater than the height of the tower and the radius of the blades.

2015.01.5. Towers shall be self-supporting, such as a latticed, tubular steel, octahedron tower, or a guyed tower. Calculations documenting such compliance shall be provided and attested to by the manufacturer and installer. All small wind energy conversion systems shall be equipped with an automatic overspeed control device as part of their design.

2015.01.6. A sign designating the presence of a system shall be placed adjacent to the 911 sign for the property. Such sign shall designate the type of system on the property. The Zoning Official shall provide the Hermantown Fire Department with a list of system owners, which will identify the location of the system and the type of system.

(Ord. 2004-06, passed 9-20-2004)

2015.02 Construction Codes. All systems shall be constructed in accordance with all applicable building and electrical codes.

(Ord. 2004-06, passed 9-20-2004)

2015.03 Designation of Ownership. Every freestanding system shall be plainly marked with the name and address of the owner of such system.

(Ord. 2004-06, passed 9-20-2004)

2015.04 Abandoned Towers. The City shall have the remedies and procedures set forth in M.S. Sections 463.15 *et seq.*, as they may be amended from time to time, and other applicable law with respect to any systems deemed abandoned under this chapter.

(Ord. 2004-06, passed 9-20-2004)

2015.05 Regulations and Standards. Systems shall adhere to all federal, state and local regulations and standards, including but not limited to the following:

2015.05.1. Any system permitted under this chapter must be recognized by the Minnesota State Building Code and certified as required by federal or state law and labeled in accordance with those regulations and UL approval as required.

2015.05.2. Turbines that are part of a small wind energy conversion system must have been approved under the Emerging Renewables Program of the California Energy Commission or any other state small wind certification program recognized by the American Wind Energy Association.

2015.05.3. Systems must comply with applicable airport zoning and FAA regulations, including any necessary approvals for installations close to airport approach zones or areas subject to height restrictions.

2015.05.4. An electrical permit shall be acquired for small wind conversion energy systems from the Minnesota State Board of Electricity.

2015.05.5. No small wind energy conversion system shall be installed until evidence has been given that the applicable utility company has been informed of the owner's intent to install an interconnected customer-owned generator. Off-grid systems shall be exempt from this requirement.

2015.05.6. Existing alternative energy systems. Any system that is constructed and in operation on the effective date of this chapter is exempt from these regulations until the system is replaced or upgraded.

(Ord. 2004-06, passed 9-20-2004)

Section 2020 – Permits

2020.01 Required. Except as otherwise specifically authorized, no system shall be located, erected, moved, reconstructed, extended, enlarged or structurally altered within the City until a permit for the system ("system permit") has been issued by the City of Hermantown. No system permit shall be issued for a system not in conformity with the regulations applicable to such system.

(Ord. 2004-06, passed 9-20-2004)

2020.02 Application. Application for a system permit shall be made to the Zoning Officer. The application shall contain the following information: the proposed location of the system to be erected; its size expressed in terms of square feet of display area, using vertical and horizontal dimensions; the type of construction; the person, firm or corporation that shall be responsible for the erection and maintenance; and the name and address of the system owner and the owner of the land upon which it is to be erected. The Zoning Officer may prescribe such suitable regulations, consistent with the provisions of these Zoning Regulations, concerning the form and contents of all applications, as he or she may deem necessary or advisable. All applications for permits shall be accompanied by a diagram or plan and elevation, as may be requested by the Zoning Officer.

(Ord. 2004-06, passed 9-20-2004)

2020.03 Issuance of System Permits by Zoning Officer. The Zoning Officer shall consider all applications for system permits in accordance with the provisions of this chapter. Prior to issuing a system permit, the Zoning Officer shall determine that the applicant shall have fully complied with this chapter.

(Ord. 2004-06, passed 9-20-2004)

2020.04 Duration of Permit. Any system permit issued by the Zoning Officer under this chapter shall be valid for a period of 12 months from the date of issuance. If the construction of

the system is not completed within 12 months from the date of its issuance, the system permit shall be void, and the site for which the permit was sought shall be returned to the condition it was in prior to the issuance of such system permit.

(Ord. 2004-06, passed 9-20-2004)

2020.05 Fees. An application for a system permit shall be accompanied by the fee as specified in the Hermantown Fee Schedule. No application will be considered unless and until the required fee has been paid by the applicant to the City Clerk. Any fee paid to the City Clerk shall be refunded if the applicant withdraws his or her application prior to the consideration of it by the Zoning Officer.

(Ord. 2004-06, passed 9-20-2004)

2020.06 Zoning Certificate. In addition to the system permit required by this chapter, a zoning certificate must be obtained from the Zoning Officer of the City of Hermantown prior to the construction of any system. An application for a zoning certificate shall be accompanied by the fee as specified in the Hermantown Fee Schedule.

(Ord. 2004-06, passed 9-20-2004)

2020.07 Building Permit. In addition to the system permit and zoning certificate required by this chapter, a building permit must be obtained from the Building Official of the City of Hermantown prior to the construction of any system when construction activity is of such a nature that a building permit is required under the Hermantown Building Code.

2020.07.1. Application Requirements. Building permit applications for any small wind energy conversion system shall be accompanied by standard drawings of the wind turbine structure, including the tower, base and footings. An engineering analysis of the tower showing compliance with the Minnesota State Building Code and certified by a licensed Minnesota registered engineer shall also be submitted. The Building Official may require soils analysis for all tower systems and may require engineering analysis for systems.

2020.07.2. Fee. An application for a building permit shall be accompanied by the fee as specified in the Hermantown Fee Schedule.

(Ord. 2004-06, passed 9-20-2004)

Section 2025 – Prohibited Characteristics of Systems

2025.01 Prohibited Characteristics of Systems.

2025.01.1. No system shall be constructed within 20 feet laterally of any overhead power line (excluding secondary electrical service lines or service drops). Setbacks from underground distribution lines shall be at least five feet.

2025.01.2. A system utilizing a rotary blade shall not have an arc diameter greater than 33 feet.

2025.01.3. A system shall not cause radio and television interference.

2025.01.4. For wind speeds in the range of 0-25 mph, wind turbines shall not cause a sound pressure level in excess of 60 dB(A), or in excess of five dB(A) above the background noise, whichever is greater, as measured at the closest neighboring inhabited dwelling. This level, however, may be exceeded during short-term severe windstorm events.

2025.01.5. No system shall violate MPCA noise standards, air quality standards, or otherwise result in a nuisance source of noise.

2025.01.6. No system shall resemble, imitate or approximate the shape, size, form or color of railroad or traffic signs, signals or devices.

2025.01.7. No system shall be located as to interfere with the visibility or effectiveness of any official traffic sign or signal, or with driver vision at any access point or intersection.

2025.01.8. No system shall display any advertisement, nor shall it be used for any purpose other than for alternative energy.

2025.01.9. No system shall be erected which contains, includes or is illuminated by any flashing light or lights, except as required by law.

2025.01.10. No system shall be erected or maintained which is not effectively shielded so as to prevent beams or rays of light from being directed at any portion of the traveled way of any highway or street of such intensity or brilliance so as to cause glare or impair the vision of the operator of any motor vehicle. Further, all systems shall be constructed as to prevent beams or rays of light from being directed at any portion of a building or residence.

2025.01.11. No system shall exceed the greater of (1) the maximum height limitation for the zone district in which it is located; or (2) the maximum height limitation set forth in [Section 2015](#) of this chapter. The measurement for either height limitation shall be made from the site of the support structure or at the nearest roadway, whichever is higher.

(Ord. 2004-06, passed 9-20-2004)

Section 2030 – Floodplain, Wetland and Shoreland Regulations

2030.01 Applicable Regulations. Notwithstanding anything to the contrary contained in this chapter, the regulations established by [Chapter 15](#) of these Zoning Regulations for floodplain, wetland and shoreland districts should be applicable to systems.

(Ord. 2004-06, passed 9-20-2004)