WIND ENERGY CONVERSION SYSTEMS (WECS)

§ 152.385 GENERAL REQUIREMENTS.

Wind energy conversion systems (WECS) are allowed as a conditional use in all zoning districts of the city, subject to City Council approval through the conditional use permit process. Proposed WECS shall meet the following minimum conditions.

(A) *Tower access.* Climbing access to the WECS tower shall be limited either by means of a fence six feet high around the tower base with a locking portal, or by limited tower climbing apparatus to no lower than 12 feet from the ground.

(B) *Noise.* The noise level of the system shall not exceed those prescribed by State Regulation NCP 1 and 2 noise standards, 11-27-1974.

(C) *Height.* The total height of the tower (including any portion of the rotor or axis extending above the tower) shall not exceed the horizontal line. Example: for a 100-foot high tower, a minimum of a 100-foot clear zone in each direction around the base of the tower is required. The horizontal distance may extend beyond the nearest lot line or if the abutting area is a public alleyway. When the height exceeds these requirements, the following information shall be submitted:

(1) Dimensional representation of the various structural components of the tower construction including the base and footings;

(2) Design data which shall indicate basis of design, including manufacturer's dimensional drawings, installation and operation instructions; and

(3) Certification by an independent registered professional engineer is required to show the design is sufficient to withstand wind load requirements for structures as established by the local Building Construction Codes.

(D) *Setback.* No part of the system shall be closer than ten feet of any property line.

(E) *Wind and icing loads.* The tower and the tower footing shall be engineered to withstand wind and icing loads for this geographical area.

(F) *Attesting.* The following must be attested to by the commercial system manufacturer or a certified engineer:

(1) The system has a type of automatic shutdown to render it inoperable in conditions of imbalance or excessive wind speeds;

(2) The blade design and materials are adequate to ensure safe operation in an urban area; and

(3) The wind turbine and wind turbine tower are compatible.

(G) *Interference.* The operation of the WECS shall not cause radio or television interference.

(H) *Limited use.* Wind energy conversion systems installed in accordance with the requirements of this subchapter shall not generate power as a commercial enterprise as defined by the Public Utilities Commission.

(I) *Airspace.* A WECS, if interconnected to an electric utility distribution system, shall meet the interconnect requirements of the electric utility company. In any case, the interconnect shall include a manual disconnect which complies with the National Electric Code.

(J) *Code.* Construction, design and installation of a WECS shall comply with all local, State, National Electrical Codes and FAA requirements in effect at the time of installation.
(Ord. 125, 2nd Series, passed 12-15-2003)

§ 152.386 PLANS.

Each application for a building permit shall be accompanied by a dimensional representation of the tower plan containing the following information:

(A) Property lines;

(B) Proposed location of tower on site;

(C) Location of all existing structures on site;

(D) All above-ground utility lines;

(E) All underground utility lines within a radius equal to the proposed WECS height; and

(F) Boundaries of all adjacent utility easements or reserved areas.
(Ord. 125, 2nd Series, passed 12-15-2003)

SOLAR SYSTEMS

§ 152.390 PURPOSE AND INTENT; APPLICABILITY.

(A) The city 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 the city 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.

(B) 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.

(C) The requirements of this subchapter shall apply to all small-scale solar energy systems (residential, commercial, multi-family and condominium).
(Ord. 156, 2nd Series, passed 8-2-2016)

§ 152.391 DEFINITIONS.

For the purpose of this subchapter, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

ACTIVE/SOLAR ENERGY EQUIPMENT/SYSTEM. A solar energy system whose primary purpose is to harvest energy by transforming solar energy into another form of energy or transferring heat from a collector to another medium using mechanical, electrical, or chemical means.

BUILDING-INTEGRATED PHOTOVOLTAIC (BIPV) SYSTEMS. A solar energy system that consists of integrating photovoltaic modules into the building structure by replacing typical building material, such as the roof or the facade and which does not alter the relief of the roof.

FLUSH-MOUNTED SOLAR PANEL. Photovoltaic panels and tiles that are installed flush to the surface of a roof and which cannot be angled or raised.

FREESTANDING OR GROUND-MOUNTED SOLAR ENERGY SYSTEM. A solar energy system that is installed directly in the ground or by means of brackets or poles and is not attached or affixed to an existing structure.

PHOTOVOLTAIC (PV) SYSTEMS. A solar energy system that produces electricity by the use of semiconductor devices, called photovoltaic cells, that generate electricity whenever light strikes them.

QUALIFIED SOLAR INSTALLER. A person who has skills and knowledge related to the construction and operation of solar electrical equipment and installations and has received safety training on the hazards involved. Such training shall include the proper use of special precautionary techniques and personal protective equipment, as well as the skills and techniques necessary to distinguish exposed energized parts from other parts of electrical equipment and to determine the nominal voltage of exposed live parts.

ROOF OR BUILDING-MOUNTED SOLAR SYSTEM. A solar power system in which solar panels are mounted on top of the structure of a roof either as a flush-mounted system or as modules fixed to frames which can be tilted toward the south at an optimal angle.

SOLAR COLLECTOR. A solar photovoltaic cell, panel, or array, or solar hot air or water collector device, which relies upon solar radiation as an energy source for the generation of electricity or transfer of stored heat.

SOLAR ENERGY SYSTEM. A set of devices whose primary purpose is to provide for the collection, storage, and distribution of solar energy for space heating, cooling, electricity generation, or water heating.

SOLAR FARM. A commercial facility that converts sunlight into electricity, whether by photovoltaics (PV), concentrating solar thermal devices (CST), or other conversion technology, for the primary purpose of wholesale sales of generated electricity. A solar farm is the principal land use for the parcel on which it is located.

SOLAR PANEL. A device for the direct conversion of solar energy into electricity.

SOLAR THERMAL SYSTEMS. Solar thermal systems directly heat water or other liquid using sunlight. The heated liquid is used for such purposes as space heating and cooling, domestic hot water, and heating pool water.
(Ord. 156, 2nd Series, passed 8-2-2016)

§ 152.392 PERMITS AND STANDARDS.

(A) *Rooftop and building-mounted solar collectors.* Rooftop and building-mounted solar collectors are permitted in all zoning districts in the city subject to the following conditions:

(1) Building permits shall be required for installation of all rooftop and building-mounted solar collectors.

(2) Notwithstanding the height limitations of the zoning district, roof or building-mounted solar energy systems shall not extend higher than three feet above the ridge level of a roof on a structure with a gable, hip or gambrel roof and shall not extend higher than ten feet above the surface of the roof when installed on a flat or shed roof.

(3) An engineer licensed with the State of Minnesota shall be required to determine whether or not the roof system is structurally capable of supporting the solar collectors.

(B) *Ground-mounted and freestanding solar collectors.* Ground-mounted and freestanding solar collectors are accessory structures in all zoning districts. No permit may be issued for ground-mounted and freestanding solar collectors except by conditional use permit, except for lots in excess of 20,000 square feet which meet the following conditions. All ground-mounted and freestanding solar collectors shall comply with the following conditions:

(1) Building permits are required for the installation of all ground-mounted or freestanding solar collectors.

(2) The location of the solar collector shall meet all applicable setback requirements for accessory structures in the zoning district in which it is located.

(3) The height of the solar collector and any mounts shall not exceed 15 feet when oriented at maximum tilt.

(4) Solar energy equipment shall be located in a manner to reasonably minimize view blockage for surrounding properties and shading of property to the north, while still providing adequate solar access for collectors.

(5) Solar energy collectors shall be screened when possible and practicable through the use of architectural features, earth berms, landscaping, or other screening which will harmonize with the character of the property and surrounding area.

(6) Solar energy systems are to be located in the rear yard only.

(C) *Solar thermal systems*. Solar thermal systems are permitted in all zoning districts subject to the following condition: Building permits are required for the installation of all solar thermal systems.

(D) *Solar farms*. No permits may be issued for any type of solar farm except by conditional use permit. All solar farms shall comply with the following conditions:

(1) Building permits are required for solar farms.

(2) No solar farm may be erected on less than ten acres.

(3) All solar farms will require a perimeter fence no less than six feet in height.
(Ord. 156, 2nd Series, passed 8-2-2016)

§ 152.393 PLANNING, DESIGN, AND COMPLIANCE.

(A) *Plan applications*. Plan applications for solar energy systems shall be accompanied by to-scale horizontal and vertical (elevation) drawings. The drawings must show the location of the system on the building or the property for a ground-mounted or freestanding system, including property lines.

(1) *Pitched roof - mounted solar energy systems*. For all roof-mounted systems, except those on a flat roof, the elevation must show the highest finished slope of the solar collector and the slope of the finished roof surface on which it is mounted.

(2) *Flat roof - mounted solar energy systems.* For flat roof applications, a drawing shall be submitted showing the distance to the roof edge and any parapets on the building, and shall identify the height of the building on the street frontage side, the shortest distance of the system from the street frontage edge of the building, and the highest finished height of the solar collector above the finished surface of the roof.

(B) *Plan approvals.* Applications that meet the design requirements of this subchapter, and do not require a conditional use permit, 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.

(C) *Compliance with Building Code.* All active solar energy systems require approval of the local building code official pursuant to provisions of the State of Minnesota Building Code, and solar thermal systems shall comply with the HVAC-related requirements of the Energy Code.

(D) *Compliance with State Electric Code.* All photovoltaic systems shall comply with the State of Minnesota Electric Code.

(E) *Compliance with State Plumbing Code.* Solar thermal systems shall comply with applicable Minnesota State Plumbing Code requirements.

(F) *Utility notification.* The owner of a solar energy system that will physically connect to a house or other building's electrical system and/or the electric utility grid must enter into a signed interconnection agreement with the local utility provider prior to the issuance of a building permit.

(G) *Feeder lines.* All power exterior electrical or other service lines must be buried below the surface of the ground.

(H) *Exemptions.* Building-integrated solar energy systems are exempt from the requirements of this section and shall be regulated as any other building element.
(Ord. 156, 2nd Series, passed 8-2-2016)

§ 152.394 SAFETY.

(A) Solar energy systems and equipment shall be permitted only if they are determined by the city not to present any unreasonable safety risks including, but not limited to, the following:

(1) Weight load;

(2) Wind resistance; or

(3) Ingress (entrance) or egress (an exit) in the event of fire or other emergency.

(B) All solar collector installations must be performed by a qualified solar installer.

(C) Solar energy system components shall be certified by Underwriters Laboratories Inc. and the Solar Rating and Certification Corporation. The city reserves the right to deny a building permit for proposed solar energy systems deemed to have inadequate certification.

(D) Prior to operation, electrical connections must be inspected by an appropriate electrical inspection person or agency as determined by the city.

(E) Any connection to the public utility grid must be inspected by the appropriate public utility.

(F) Solar energy systems shall be maintained in good working order.

(G) Rooftop and building-mounted solar collectors shall meet Minnesota's Fire Safety Code and Building Code standards.

(H) If solar storage batteries are included as part of the solar collector system, they must be placed in a secure container or enclosure meeting the requirements of the Minnesota State Building Code when in use; and when no longer used, shall be disposed of in accordance with the laws and regulations of city and other applicable laws and regulations.
(Ord. 156, 2nd Series, passed 8-2-2016)

§ 152.395 APPEALS.

(A) If an individual is found to be in violation of the provisions of this subchapter, appeals should be made in accordance with the established procedures of the city code.

(B) If a building permit for a solar energy device is denied because of a conflict with other goals of the city, the applicant may seek relief by appealing to the City Council, which shall regard solar energy as a factor to be considered, weighed and balanced along with other factors.
(Ord. 156, 2nd Series, passed 8-2-2016)

§ 152.396 ABANDONMENT.

If a solar collector ceases to perform its originally-intended function for more than 12 consecutive months, the property owner shall remove the collector, mount and associated equipment by no later than 90 days after the end of the 12-month period.
(Ord. 156, 2nd Series, passed 8-2-2016)