

## CHAPTER 69C: WIND ENERGY CONVERSION SYSTEMS

### Section

#### 69C.01 Wind Energy Conversion Systems

The City Code Title VI: Landuse Permit is hereby amended by adding Chapter 69C to read:

### § 69C.01 WIND ENERGY CONVERSION SYSTEMS

(A) Purpose. The ordinance is established to regulate the installation of Wind Energy Conversion Systems (WECS) within the City, not otherwise subject to siting and oversight by the State of Minnesota.

#### (B) Interpretation, Conflict, and Separability.

(1) Interpretation. In interpreting these regulations and their application, the provisions of these regulations shall be held to be the minimum requirements for the protection of public health, safety, and general welfare.

(2) Conflict. These regulations are not intended to interfere with, abrogate, or annul any other ordinance, rule or regulations, statute, or other provision of law except as provided in these regulations. If any provision of these regulations that impose 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, except for tower height.

(3) Separability. If any part or provision of these regulations or the application of these regulations to any developer or circumstances is found invalid by any competent jurisdiction, the judgment shall be confined in its operation to the part, provision, or application directly involved in the controversy in which the judgment shall be rendered and shall not affect or impair the validity of the remainder of these regulations or the application of them to other developers or circumstances.

#### (C) Definitions. As used in this Chapter, the following terms shall have the meanings indicated:

(1) Aggregated Project. Aggregated projects are those which are developed and operated in a coordinated fashion, but which have multiple entities separately owning one or more of the individual WECS within the larger project. Associated infrastructure such as power lines and transformers that service the facility may be owned by a separate entity but are also included as part of the aggregated project.

(2) Commercial WECS. A WECS of equal to or greater than 40kW in total name plate generating capacity.

(3) Decommissioning. Decommissioning shall mean removal of wind turbines, buildings, cabling, electrical components, foundations, and any other associated facilities.

(4) FAA. The Federal Aviation Administration.

(5) Fall Zone. The area, defined as the furthest distance from the tower base, in which a tower will collapse in the event of a structure failure. This area is not less than the total height of the structure.

(6) Feeder Line. Power lines that transport electrical power from one or more wind turbines to the point of interconnection with a high-voltage transmission line.

(7) High-voltage Distribution or Transmission Line. A conductor of electric energy and associated facilities designed for and capable of operations at a nominal voltage of 2 kilovolts or more.

(8) Hub Height. Shall mean, when referring to a WECS, the distance measured from ground level to the center of the turbine hub.

(9) Meteorological Tower. For the purposes of this Chapter, meteorological towers are those towers which are erected primarily to measure wind speed and directions plus other data relevant to siting WECS. Meteorological towers do not include towers and equipment used by airports, the Minnesota Department of Transportation, or other similar applications to monitor weather conditions.

(10) Non-Commercial WECS. A WECS of less than 40 kW in total name plate generating capacity.

(11) Power Purchase Agreement. A legally enforceable agreement between one or more persons and a utility where one or more of the signatories agrees to provide electric power and one or more of the signatories agrees to purchase the power.

(12) Public Conservation Lands. Land owned in fee title by State or Federal agencies and managed specifically for conservation purposes, including but not limited to State Wildlife Management Areas, State Parks, State Scientific and Natural Areas, Federal Wildlife Refuges, and Waterfowl Production Areas. For the purposes of this section, public conservation lands will also include lands owned in fee title by non-profit conservation organizations. Public conservation lands do not include private lands upon which conservation easements have been sold to public agencies or non-profit conservation organizations.

(13) Rotor Diameter. The diameter of the circle described by the moving rotor blades.

(14) Substations. Any electrical facility designed to convert electricity produced by wind turbines to a voltage for interconnection with transmission lines.

(15) Total Height. The highest point, above ground level, reached by a rotor tip or any other part of the WECS.

(16) Tower. Towers include vertical structures that support the electrical generator, rotor blades, or meteorological equipment.

(17) WECS – Wind Energy Conversion System. An electrical generating facility comprised of one or more wind turbines and accessory facilities, including but not limited to: towers, power lines, transformers, substations, and meteorological towers that operate by converting the kinetic energy of wind into electrical energy. The energy may be used on-site or distributed into the electrical grid.

(18) Wind Turbine. A wind turbine is 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.

(D) Application Procedures. Application for WECS shall be reviewed and processed in accordance with the conditional use permit procedures established in Section 63.08. The following information is required in addition to the information required for a site plan or conditional use permit application.

(1) The application for all WECS shall include the following information:

(a) The names and addresses of project applicants.

(b) The name and address of the project owner.

(c) The legal description and address of the project.

(d) A description of the project including: number, type, name plate generating capacity, tower height, rotor diameter, tower construction, and total height of all wind turbines and means of interconnection with the electrical grid.

(e) Site layout, including the location of property lines, wind turbines, electrical wires, interconnection points with the electrical grid, and all related accessory structures. The site layout shall include distances and be drawn to scale.

(f) Evidence, being certificate of insurance, insurance policy, or other certification satisfactory to City, that the applicant can obtain and maintain adequate liability insurance for the WECS and subject property.

(g) Evidence of a power purchase agreement. (Commercial WECS only).

(h) Registered Engineer's certification. (Commercial WECS only).

(i) Documentation of property ownership or legal control of the property.

(j) Decommissioning Plan as required in part (G)(2)(i) and (G)(2)(j) of this section.

(k) A noise study, prepared by a qualified professional or WECS provider that demonstrates that except for intermittent episodes, the WECS shall not emit noise in excess of the limits established in Minnesota Rules 7030 governing noise. (Commercial WECS only). Non-commercial WECS shall comply with the noise limits established by Minnesota Rules 7030.

(l) (Commercial WECS only) A shadow flicker model that demonstrates that shadow flicker shall not fall on, or in, any existing residential structure. Shadow flicker expected to fall on a roadway or a portion of a residentially zoned property may be acceptable if the flicker does not exceed 30 hours per year; and the flicker will fall more than 100 feet from an existing residence; or the traffic volumes are less than 500 vehicles (ADT). The shadow flicker model shall:

(i) Map and describe with a 1000 foot radius of the proposed WECS the topography, existing residences and location of their windows, location of other structures, wind speeds and directions, existing vegetation, and roadways. The model shall represent the most probable scenarios of wind constancy, sunshine constancy, and wind directions and speed;

(ii) Calculate the locations of shadow flicker caused by the proposed project and the expected durations of the flicker at these locations, and calculate the total number of hours per year of flicker at all locations.

(iii) Identify problem areas where shadow flicker will interfere with existing or future residences and roadways and describe proposed mitigation measures, including, but not limited to, a change in siting of the WECS, a change in the operation of the WECS, or grading or landscaping mitigation measures.

(m) (Non-Commercial WECS only) A Non-Commercial WECS shall not cause shadow flicker on adjoining residences.

(n) The latitude and longitude of individual wind turbines. A USGS topographical map, or map with similar data, of the project site including boundaries of the project area, surrounding property within one-quarter mile, and any other WECS within ten rotor diameters of the proposed project. (Commercial WECS only).

(o) Location of wetlands, scenic, and natural areas (including bluffs) within one mile of the proposed WECS. (Commercial WECS only).

(p) FAA permit application. (Commercial WECS only).

(q) Location of all known communications towers within two miles of the proposed project. Provide proof that the WECS will not interfere with emergency or other microwave communications. (Commercial WECS only).

(r) Description of potential impacts on nearby WECS and wind resources on adjacent properties. (Commercial WECS only).

(s) Additional information as stated in Minnesota Rules, Part 7836.0500 (Sub-part 1), as amended.

(2) Application Procedures for Aggregated Projects. Aggregated Projects may jointly submit a single application and be reviewed under joint proceedings, including notices, hearing, reviews, and as

appropriate, approvals. Permits will be issued and recorded separately. All aggregated projects over the 5 MW threshold currently outlined in State Statute are subject to State regulation.

(E) District Regulations. WECS will be conditionally permitted or not permitted based on the generating capacity and land use district as established in the table below.

<b>Zoning District</b>	<b>Non-Commercial WECS</b>	<b>Commercial WECS</b>	<b>Meteorological Tower</b>
<b>FP, PR</b>	Not Permitted	Not Permitted	Not Permitted
<b>AG</b>	Conditionally Permitted	Conditionally Permitted	Conditionally Permitted
<b>R-1, R-2, R-3, R-4</b>	Conditionally Permitted	Not Permitted	Not Permitted
<b>C-1, C-2, C-3, C-4</b>	Conditionally Permitted	Conditionally Permitted	Conditionally Permitted
<b>I-1, I-2</b>	Conditionally Permitted	Conditionally Permitted	Conditionally Permitted

(F) Setbacks. All towers shall adhere to the setbacks established in the following table.

	<b>Non-Commercial WECS</b>	<b>Commercial WECS</b>	<b>Meteorological Tower</b>
<b>Property Lines</b>	1.1 times the total height	1.1 times the total height	1.1 times the total height
<b>Other existing WECS</b>	N/A	600 feet	600 feet

(G) Requirements and Standards.

(1) Safety Design Standards.

(a) Engineering Certification. For all Commercial WECS, the manufacturer's engineer or another qualified engineer shall certify that the turbine, foundation, and tower design of the WECS is within acceptable professional standards, given local soil and climate conditions.

(b) Clearance. Rotor blades or airfoils must maintain at least 20 feet of clearance between their lowest point and the ground.

(c) Warnings. For all Commercial WECS, a sign or signs shall be posted on the tower, transformer, and substation warning of high voltage. Signs with emergency contact information shall also be posted on the turbine or at another suitable point. Painted aviation warnings are recommended on meteorological towers less than 200 feet.

(d) Residentially Zoning Areas. No towers shall be constructed on or attached to structures.

(2) Standards.

(a) Total height. Non-commercial WECS shall have a total height of less than 120 feet and commercial WECS shall have a total height of less than 180 feet.

(b) Tower configuration. All wind turbines shall be non-guy wire type.

(c) Color and finish. All wind turbines and towers shall be white, off-white, grey, or light blue in color. Blades may be black in order to facilitate deicing. Finishing shall be matte or non-reflective. Meteorological towers are exempt from this requirement.

(d) Lighting. Lighting, including lighting intensity and frequency of strobe, shall adhere to but not exceed requirements established by FAA permits and regulations. Red strobe lights are preferred for night-time illumination to reduce impact on migrating birds. Red pulsating incandescent lights shall be avoided.

(e) Other signage. All signage on site shall comply with City ordinances. The manufacturer's or owner's company name and/or logo may be placed upon the nacelle, compartment containing the electrical generator of the WECS.

(f) Feeder lines. All communications and feeder lines, equal to or less than 34.5 kV in capacity, installed as part of a WECS shall be buried where reasonably feasible. Feeder lines installed as part of a WECS shall not be considered an essential service. This standard applies to all feeder lines subject to City authority. The owner must apply for a variance if the owner desires not to bury the feeder line.

(g) Shadow flicker. Shadow flicker may not exceed 30 hours per year and shall not fall more than 100 feet from an existing residential property.

(h) Waste disposal. Solid and hazardous wastes, including but not limited to crates, packaging materials, damaged or worn parts, as well as used oils and lubricants, shall be removed from the site promptly and disposed of in accordance with all applicable local, state, or federal regulations.

(i) Discontinuation and decommissioning. A WECS shall be considered a discontinued use after one year without energy production, unless a plan is developed, submitted to, and approved by the city zoning officer outlining the steps and schedule for returning the WECS to service. All WECS and accessory facilities, including the foundation, shall be completely decommissioned within one year of the discontinuation of use.

(j) Each WECS shall have a decommissioning plan outlining the anticipated means and cost of removing WECS at the end of their serviceable life or upon becoming a discontinued use. The cost estimates shall be made by a competent party; such as a professional engineer, a contractor capable of decommissioning, or a person with suitable expertise or experience with decommissioning. The plan shall also identify the financial resources that will be available to pay for the decommissioning of the WECS and accessory facilities.

(k) Orderly development. Upon issuance of a conditional use permit, all Commercial WECS greater than 5 MW shall notify the Energy Facility Permitting staff or Department of Commerce of the project location and details on the form specified by the Department.

(l) Noise. All WECS shall comply with Minnesota Rules 7030, governing noise.

(m) Complaint resolution. The owner/operator of all Commercial WECS shall develop a process to resolve complaints from residents and owners of nearby properties. The process shall use an independent mediator or arbitrator and include a time frame for acting on a complaint. The applicant shall make every reasonable effort to resolve any complaint.

(n) Electrical codes and standards. All WECS and accessory equipment and facilities shall comply with the National Electrical Code and other applicable standards.

(o) FAA. All WECS shall comply with FAA standards and permits.

(p) Minnesota State Building Code. All WECS shall comply with the Minnesota State Building Code adopted by the State of Minnesota, as amended from time to time.

(q) Interference. The applicant shall minimize or mitigate interference with electromagnetic communications, such as radio, telephone, microwaves, or television signals caused by any WECS. The applicant shall notify all communication tower operators within two miles of the proposed WECS location upon application to the City for permits. No WECS shall be constructed so as to interfere with any microwave transmissions.

(r) Right of entrance. By the acceptance of the conditional use permit, the owner/operator grants permission to the City to enter the property to remove the WECS pursuant to the terms of the conditional use permit and to assure compliance with other conditions set forth in the permit.

(s) Compliance. All WECS shall comply with any applicable local, state, or federal laws, rules, standards, or regulations impacting their location, construction, operation, or decommissioning.

(t) Signage. No advertising signs or banners of any nature shall be allowed on the WECS, except as set forth herein.

(u) Ladders. Any access ladder existing on the outside of the tower shall start a minimum of 15 feet above ground level.

(v) Such other conditions can be attached to the conditional use permit as the City deems reasonable.

(w) Meteorological towers shall not exist in one location for more than 18 months. The location of a meteorological tower shall not be considered to have moved unless the meteorological tower shall have moved at least 1,000 feet from its prior location.

(x) Should a WECS not be decommissioned as required herein, the City shall have the right to enter upon the land where the WECS is located for the purpose of decommissioning the WECS. The cost of decommissioning shall be the responsibility of the owner of the land where the WECS is located and the owner of the WECS, jointly and severally. Should either or both fail to pay the City the cost the City incurred in decommissioning the WECS, the City may then spread the charges against the real property benefited as a special assessment under the authority of Minnesota Statutes § 429.101, as it may be amended from time to time, and other pertinent statutes for certification to the County Auditor for collection along with current taxes the following year or in annual installments, not exceeding 10, as the City may determine in each case.

(3) Avoidance and mitigation of damages to infrastructure and utilities.

(a) Roads. Applicants shall:

(i) Identify all county, city, or township roads to be used for the purpose of transporting commercial WECS, substation parts, concrete, and/or equipment for construction, operation, or maintenance of the WECS and obtain applicable weight and size permits from the impacted road authority(ies) prior to construction.

(ii) Be responsible for restoring or paying damages as agreed to by the applicable road authority(ies) sufficient to restore the road(s) and bridges to preconstruction conditions.

(b) Drainage system. The applicant and owner of the WECS shall be responsible for immediate repair of damage to public drainage systems stemming from construction, operation, maintenance, or decommissioning of the WECS.

(c) The applicant and owner of the WECS shall be responsible for any damage to any below grade public or private utilities, due to construction, operation, maintenance, decommissioning, or action otherwise resulting for any WECS.