



RENEWABLE ENERGY

ORDINANCE

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ARTICLE 1 TITLE

The title of this ordinance is the Murray County Renewable Energy Ordinance and will be referred to herein as “this Ordinance”.

ARTICLE 2 STATUTORY AUTHORIZATION AND PURPOSE

SECTION 201. STATUTORY AUTHORIZATION.

This Ordinance is adopted pursuant to the authorization and policies contained in Minnesota Statutes 216B and 394, or successor statutes.

SECTION 202. PURPOSE.

1. This Ordinance is established to set forth processes for permitting Renewable Energy from eligible energy technology as described in Minnesota Statutes 216B.1691, or successor statutes, to promote the health, safety, and general welfare of the citizens of Murray County, and shall include, but not be limited to, the following:
 - A. Wind Energy Conversion Systems (WECS) with a rated capacity of less than 25,000 kilowatts (kW) or twenty-five (25) megawatts (MW), and to regulate the installation and operation of WECS within Murray County not otherwise subject to siting and oversight by the State of Minnesota pursuant to Minnesota Statutes, Chapter 216F, or successor statutes.
 - B. Large and small Solar Energy Systems, and to regulate the installation and operation of a Solar Energy System within Murray County pursuant to Minnesota Statutes Chapters 216C.25, 500.30, or successor statutes, and Minnesota Rules Chapter 1325.1100, as amended.
2. This Ordinance implements the following Murray County Comprehensive Plan Goals: Energy Facilities and Renewable Energy. (Goal F.3)

ARTICLE 3 JURISDICTION

The jurisdiction of this Ordinance shall apply to all areas in Murray County outside of the incorporated limits of municipalities, except those areas in Article 12, Section 1214.2 of the Murray County Zoning Ordinance.

ARTICLE 4 INTERPRETATION

This Ordinance shall, at a minimum, promote and protect the public health, safety, and general welfare. Where the provisions of this Ordinance impose greater restrictions than those of any statute, ordinance or regulations, the provisions of this Ordinance shall be controlling. Where the provisions of any statute, ordinance or regulation impose greater restrictions than this Ordinance, the provisions of such statute, other ordinance, or regulation shall be controlling.

ARTICLE 5 RULES AND DEFINITIONS

SECTION 501. RULES

For the purpose of this Ordinance, the following terms shall have the meaning given to them in this Article:

1. To the extent a term is used in this Ordinance is not defined in this Article, the term shall have the meaning given in the Murray County Zoning Ordinance.
2. The terms “must” and “shall” are mandatory and the terms “may” and “should” are permissive.
3. Unless otherwise defined, terms shall be given their common and ordinary meaning.

SECTION 502. DEFINITIONS

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. **Aircraft Detection Lighting Systems (ADLS).** Sensor-based systems designed to detect aircraft as they approach an obstruction or group of obstructions; these systems automatically activate the appropriate obstruction lights until they are no longer needed by the aircraft. This technology reduces the impact of nighttime lighting on nearby communities and migratory birds and extends the life expectancy of obstruction lights.
3. **Array (Solar).** Any number of solar photovoltaic modules or collectors connected together to provide a single electrical output.
4. **Board.** Murray County Board of Commissioners.
5. **Board of Adjustment.** The Murray County Board of Adjustment as created by the Murray County Zoning Ordinance and appointed by the Board.
6. **C-BED (Community-based energy development) Project.** Based on the total name plate generating capacity, C-BED Projects are considered to be (1) Micro-WECS, (2) Non-Commercial WECS or (3) Commercial WECS as defined in this Article.
7. **Commercial WECS.** A WECS equal to or greater than 200 feet in total height.
8. **Comprehensive Plan.** The Murray County Comprehensive Land Use Plan, as adopted and amended.

- 9. Conditional Use.** A land use or development as is defined by the Murray County Zoning Ordinance that would not be appropriate generally but may be allowed with appropriate restrictions as provided by official controls upon the finding that: (1) certain conditions as detailed in the Zoning Ordinance exist, and (2) the structure and/or land use conform to the comprehensive land use plan of the County and (3) is compatible with the existing neighborhood.
- 10. County.** Murray County, Minnesota.
- 11. Decommissioning Plan.** The planned and orderly removal of the physical components of a renewable energy system and all accessory facilities, and restoration of the site.
- 12. Department.** The Murray County Environmental Services Office.
- 13. DNR.** Minnesota Department of Natural Resources.
- 14. Eligible Energy Technology.** As defined in Minnesota Statutes 216B.1691.
- 15. Energy Storage Systems.** Mechanism(s) to contain useful energy which can then be used at some later time in the future. Acceptable methods and technologies used to store various forms of energy include, but are not limited to, Batteries (Lithium ion, lead acid, lithium iron. Or other battery technologies), Flow Batteries, Flywheels, Compressed Air, Pumped Hydro-power, and Thermal.
- 16. FAA.** Federal Aviation Administration.
- 17. Fall Zone.** The area, defined as the furthest distance from the tower base, in which a guyed tower will collapse in the event of a structural failure.
- 18. 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.
- 19. Flicker.** The moving shadow cast by the rotating blades of a WECS, or any intermittent, repetitive, or rhythmic lighting effect that is a direct result of rotating WECS blades.
- 20. Generator nameplate capacity.** The maximum rated output of electrical power production of a generator under specific conditions designated by the manufacturer with a nameplate physically attached to the generator.
- 21. High-voltage transmission line.** A conductor of electric energy and associated facilities designed for and capable of operation at a nominal voltage of one hundred (100) kilovolts or more and is greater than 1,500 feet in length.
- 22. Hub Height.** The distance from the ground to the center axis of the turbine rotor.

- 23. Meteorological Tower.** For the purposes of this Ordinance, 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.
- 24. Micro-WECS.** A WECS which is less than one hundred (100) feet in total height.
- 25. MnDOT.** Minnesota Department of Transportation.
- 26. MPCA.** Minnesota Pollution Control Agency.
- 27. Nameplate Capacity.** The total maximum rated output of a solar energy system.
- 28. Native Prairie Plan.** The plan shall address steps to be taken to identify native prairie within the project area, measures to avoid impacts to native prairie, including foundations, access roads, underground cable and transformers, shall not be placed in native prairie unless addressed in the prairie protection and management plan.
- 29. Non-Commercial WECS.** A WECS equal to or greater than one hundred (100) feet in total height, but less than 200 feet in total height.
- 30. Photovoltaic Meter.** A meter used for the planning and maintenance of solar energy systems to identify the best location and to check modules for efficiency.
- 31. Power Purchase Agreement.** A legally enforceable agreement between two or more persons where one or more of the signatories agrees to provide electrical power and one or more of the signatories agrees to purchase the power.
- 32. Project Boundary/Property line.** The boundary line of the area over which the entity applying for a WECS permit has legal control for the purposes of installation of a WECS. This control may be attained through fee title ownership, easement, or other appropriate contractual relationship between the project developer and landowner.
- 33. Public conservation lands.** Land owned in fee title by State or Federal agencies and managed specifically for [grassland] 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 article, 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.
- 34. Renewable Energy System.** A collection of energy from sources that are not easily depleted such as moving water (hydro, tidal and wave power), biomass, geothermal energy, solar energy, wind energy, and energy from solid waste treatment plants.

- 35. Repowering.** Rebuilding a renewable energy system on a previously impacted site, preserving the existing compatible land uses.
- 36. Repowering, Full.** A full decommissioning and repowering of a renewable energy system on a previously impacted site.
- 37. Repowering, Partial.** A partial rebuilding of a renewable energy system where existing components are retrofitted or replaced to improve efficiency and extend the life of the system (e.g. replacing, refurbishing or retrofitting turbines, blades, gearboxes, generators, switchgears, panels, etc.).
- 38. Rotor diameter (RD).** The diameter of the circle described by the moving rotor blades.
- 39. Solar Collector.** A device, structure, or part of a device or structure for which the primary purpose is to transform solar radiant energy into thermal, mechanical, chemical, or electrical energy.
- 40. Solar Energy.** Radiant energy received from the sun that can be collected in the form of heat or light by a solar collector.
- 41. Solar Energy Device.** A system or series of mechanisms designed primarily to provide heating, cooling, electrical power, mechanical power, solar daylighting or to provide any combination of the foregoing by means of collecting and transferring solar generated energy into such uses either by active or passive means. Said systems may also have the capacity to store energy for future utilization. Passive solar energy systems shall clearly be designed as a solar energy device, such as a trombe wall, and not merely part of a normal structure, such as a window.
- 42. Solar Energy Easement.** A right, whether or not stated in the form of a restriction, easement, covenant, or condition, in any deed, will, or other instrument executed by or on behalf of any owner of land or solar sky space for the purpose of ensuring adequate exposure of a solar energy system as defined in Minnesota Statutes 216C.06, Subdivision 17, or successor statutes, to solar energy. Required contents of a Solar Easement are defined in Minnesota Statutes 500.30, or successor statutes.
- 43. Solar energy system.** A set of devices and associated facilities, including energy storage systems, whose primary purpose is to collect solar energy and convert and store it for useful purposes including heating and cooling buildings or other energy-using processes, or to produce generated power by means of any combination of collecting, transferring, or converting solar-generated energy.
- 44. Solar Energy System, Accessory Use.** A solar energy system that is secondary to the primary use of the parcel on which it is located, and which is directly connected to or designed to serve the energy needs of the primary use. Excess power may be sold to a power company.

- 45. Solar Energy System, Active.** 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.
- 46. Solar Energy System, Building Integrated.** An active 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. Such systems include, but are not limited to, solar energy systems that function as roofing materials, windows, skylights, and awnings.
- 47. Solar Energy System, Grid-intertie.** A photovoltaic solar energy system that is connected to an electric circuit served by an electric utility company.
- 48. Solar Energy System, Ground-mounted.** A solar collector(s) located on the surface of the ground. The collector(s) may or may not be physically affixed or attached to the ground. Ground-mounted systems include pole-mounted systems.
- 49. Solar Energy System, Large.** A solar energy system with a nameplate capacity of forty (40) kilowatts or more.
- 50. Solar Energy System, Off-grid.** A photovoltaic solar energy system in which the circuits energized by the solar energy system are not electrically connected in any way to electric circuits that are served by an electric utility company.
- 51. Solar Energy System, Passive.** A solar energy system that captures solar light or heat without transforming it to another form of energy or transferring the heat via a heat exchanger.
- 52. Solar Energy System, Primary Use.** A solar energy system which is the primary land use for the parcel on which it is located, and which generates power for sale to a power company, or other off-premise consumer.
- 53. Solar Energy System, Roof-mounted.** Solar collector(s) located on the roof of a building or structure. The collector(s) may or may not be physically affixed or attached to the roof.
- 54. Solar Energy System, Small.** A solar energy system with a nameplate capacity of less than forty (40) kilowatts.
- 55. Solar Energy System, Wall-mounted.** Solar collector(s) located on the wall of a building or structure.
- 56. Substation.** Any electrical facility containing power conversion equipment designed for interconnection with power lines.
- 57. Total Height.** The distance between the ground level at the base of a structure and its tallest vertical extension including any attachment thereon.

- 58. Total Name Plate Capacity.** The total of the maximum rated output of the electrical power production equipment for a WECS project.
- 59. Tower, Renewable Energy.** Towers include vertical structures that support the electrical generator, rotor blades, or meteorological equipment.
- 60. Tracking Solar System.** A solar system that follows the path of the sun during the day to maximize the solar radiation it receives.
- 61. Wind Easement.** A right, whether or not stated in the form of a restriction, easement, covenant, or condition, in any deed, will, or other instrument executed by or on behalf of any owner of land or air space for the purpose of ensuring adequate exposure of a wind power system to the winds. Required contents of a Wind Easement are defined in Minnesota Statutes Section 500.30, or successor statutes.
- 62. Wind Energy Conversion System (WECS).** A device such as a wind charger, windmill, or wind turbine and associated facilities that converts wind energy to electric energy, including, but not limited to: power lines, transformers, substations, and meteorological towers. The energy may be used on-site or distributed into the electrical grid.
- 63. Wind Turbine.** Any equipment that converts the kinetic energy of blowing wind into electrical energy through the use of airfoils or similar devices to capture the wind.
- 64. Windmill, Functional.** A structure utilizing wind power for the pumping of water for agricultural use on the parcel of property on which the windmill is located.
- 65. Windmill, Ornamental.** A non-functional windmill used for decoration.
- 66. Zoning Administrator.** The person duly appointed by the Board and charged with the enforcement of this Ordinance or his/her authorized representative.
- 67. Zoning Ordinance.** The Murray County Zoning Ordinance, as adopted and amended.

ARTICLE 6 PERMITTING PROCEDURES

SECTION 601. PERMIT APPLICATION FOR WECS

Land Use Permits, Conditional Use Permits and Variances shall be applied for and reviewed under the procedures established in the Murray County Zoning Ordinance and Minnesota Statutes Chapter 394, or successor statutes, except where noted below. An application to the County for a permit under this section is not complete unless it contains the following:

1. If required, a letter from the State Agency responsible for size determination of a project, pursuant to Minnesota Statutes 216F.011, or successor statutes.
2. The name(s) and address(es) of project applicant(s).
3. The name(s) and address(es) of the project owner(s).
4. The legal description(s) and address(es) of the land that is the site of the project.
5. A description of the project including: Number, type, total name plate generating capacity, tower height, rotor diameter, total height of all wind turbines, and means of interconnecting with the electrical grid.
6. Site layout, including the location of project area boundaries (wind rights purchased, leased, or acquired by easement), property lines, roads, 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.
7. Documentation of land ownership or legal control of all property within a project boundary and current land use on the site and surrounding area.
8. Signed copy of the Power Purchase Agreement or documentation that the power will be utilized on-site.
9. The latitude and longitude of all individual wind turbines and Meteorological towers.
10. A USGS topographical map, or map with similar data, of the property and surrounding area, including any other WECS within ten (10) rotor diameters of the Proposed WECS.
11. Location of wetlands, scenic, and natural areas including bluffs within 1,320 feet of the proposed WECS.

12. Copies of all permits or documentation that indicates compliance with all other applicable State and Federal Regulatory Standards, including, but not limited to:
 - A. Uniform Building Code, as amended.
 - B. The National Electrical Code, as amended.
 - C. Federal Aviation Administration (FAA), as amended.
 - D. Minnesota Pollution Control Agency (MPCA)/Environmental Protection Agency (EPA), as amended.
 - E. Microwave Beam Path Study
 - F. Preliminary Acoustical Analysis
 - G. Noise Abatement Mitigation Plan.
 - H. Flicker Analysis.
 - I. Minnesota Pollution Control Agency, Minnesota Rules Chapter 7030, Noise Standards, as amended.
 - J. Wake Loss Study, if proposed project boundary is within a one (1) mile radius of another WECS project boundary.
13. Location of all known communications towers and microwave beam paths within a five (5) mile radius of the proposed WECS.
14. Location of all known public or private Airports or Heliports within five (5) miles of the proposed WECS.
15. Detailed Decommissioning Plan according to Section 1002 of this Ordinance.
16. Additional information stated in Minnesota Rules, part 7854.0500 (subpart 1), as amended.
17. Identification of all potential haul routes to be utilized for material transportation and construction activities including state, federal, county, township or private roads within the County. Must provide written documentation prior to construction commencement that all haul routes have been approved by each of the road authorities with jurisdiction through a signed Road Use Agreement and a Development Agreement.
18. Locations and site plans for all temporary, non-residential construction sites and staging areas.

19. Additional information, that due to the unique nature or characteristics of the specific project, the County deems necessary or desirable to properly process the application.

SECTION 602. PERMIT APPLICATION FOR SOLAR ENERGY SYSTEMS

Land Use Permits, Conditional Use Permits and Variances shall be applied for and reviewed under the procedures established in the Murray County Zoning Ordinance and Minnesota Statutes Chapter 394, or successor statutes, except where noted below. An application to the County for a permit under this section is not complete unless it contains the following:

1. A site plan of existing conditions showing the following:
 - A. Existing property lines and property lines extending one hundred (100) feet from the exterior boundaries, including the names of the adjacent property owners and current use of those properties.
 - B. Existing public and private roads, showing widths of the roads and any associated easements.
 - C. Location and size of any abandoned wells, sewage treatment systems and dumps.
 - D. Existing buildings and any impervious surface.
 - E. Topography at two (2) foot intervals and source of contour interval. A contour map of the surrounding properties may also be required.
 - F. Existing vegetation (list type and percent of coverage; i.e. grassland, plowed field, wooded areas, etc.)
 - G. Waterways, watercourses, lakes and public water wetlands.
 - H. Delineated wetland boundaries.
 - I. The Floodplain overlay district boundary, if applicable.
 - J. All overlay district boundaries, if applicable.
 - K. Mapped soils according to the Murray County Soil Survey.
 - L. Surface water drainage patterns.
2. Site Plan of Proposed Conditions.
 - A. Location and spacing of solar collectors.
 - B. Location of access roads.
 - C. Planned location of underground or overhead electric lines connecting the system to the building, substation or other electric load.

- D. New electrical equipment other than at the existing building or substation that is the connection point for the system.
 - E. Proposed erosion and sediment control measures.
 - F. Proposed storm water management measures.
 - G. Sketch elevation of the premises accurately depicting the proposed solar energy system and its relationship to any building or structures on adjacent lots.
 - H. Location of energy storage system, if any.
3. Manufacturer's specifications and recommended installation methods representative of all major equipment, including solar collectors, mounting systems and foundations for poles or racks.
 4. The number of collectors to be installed.
 5. A description of the method of connecting the system to a building or substation.
 6. A signed copy of the interconnection agreement with the local electric utility, a draft of the interconnection agreement with the local utility that must be signed and submitted prior to construction commencement, or a written explanation outlining why an interconnection agreement is not necessary.
 7. Maintenance plan for grounds surrounding the system(s).
 8. A plan outlining the use, storage, and disposal of chemicals used in the cleaning of the collectors and/or reflectors.
 9. Detailed Decommissioning Plan according to Section 1002 of this Ordinance.
 10. Identification of all potential haul routes to be utilized for material transportation and construction activities including state, federal, county, township or private roads within the County. Must provide written documentation prior to construction commencement that all haul routes have been approved by each of the road authorities with jurisdiction through a signed Road Use Agreement and a Development Agreement.
 11. Additional information, that due to the unique nature or characteristics of the specific project, the County deems necessary or desirable to properly process the application.

ARTICLE 7 DISTRICT REGULATIONS

SECTION 701. PERMITTED AND CONDITIONAL USES FOR WECS

WECS will be permitted, conditionally permitted or not permitted based on the generating capacity and land use district as established in the table below (P=Permitted, C=Conditionally Permitted, NP=Not Permitted):

District	Micro WECS	Non- Commercial < 100 kW	Commercial ≥ 100 kW	Meteorological Tower
1. Special Protection	C	C	NP	NP
2. Agricultural	P	P	C	P
3. Residential	C	C	C	P
4. Commercial	C	C	C	P
5. Industrial	C	C	C	P
6. Floodplain Overlay	C	C	C	P
7. Shoreland Overlay	C	NP	NP	NP
8. Closed Landfill Restricted Overlay	NP	NP	NP	NP
9. Airport Overlay	NP	NP	NP	NP
10. Drinking Water Management Overlay	P	P	C	P

SECTION 702. PERMITTED AND CONDITIONAL USES FOR SOLAR ENERGY SYSTEMS

Solar Energy Systems will be permitted, conditionally permitted or not permitted based on the generating capacity and land use district as established in the table below (P=Permitted, C=Conditionally Permitted, NP=Not Permitted):

District	Large Solar	Small Solar	Photovoltaic Meter
1. Special Protection	C	P	P
2. Agricultural	C	P	P
3. Residential	C	P	P
4. Commercial	C	P	P
5. Industrial	C	P	P
6. Floodplain Overlay	NP	P	NP
7. Shoreland Overlay	NP	P	NP
8. Closed Landfill Restricted Overlay	C	C	C
9. Airport Overlay	C	C	C
10. Drinking Water Management Overlay	C	C	C

ARTICLE 8 WECS GENERAL STANDARDS

All towers shall adhere to the setbacks established in the following table and subject to the General Regulations in Article 10 of this Ordinance.

SECTION 801. SETBACKS FOR WECS

Setbacks	Micro WECS	Non-Commercial	Commercial	Meteorological Tower
1. Project Boundary/ Property Lines	1.1 times total height	1.1 times total height	3 RD east west axis and 5 RD north south axis	1.1 times total height, minimum 250 feet
2. Dwelling(s), other than project owners	1.1 times total height	500 feet and sufficient distance to meet state noise standards	1000 feet and sufficient distance to meet state noise standards	1.1 times total height, minimum 250 feet
3. Noise standard	Minnesota Rule 7030, as amended	Minnesota Rule 7030, as amended	Minnesota Rule 7030, as amended	NA
4. Road Rights of Way	1.1 times total height	1.1 times total height.	1.1 times total height.	1.1 times total height, minimum 250 feet
5. Other rights of Way(recreational Trails, power lines, etc.)	1.1 times total height	1.1 times total height.	1.1 times total height.	1.1 times total height, minimum 250 feet
6. Public Conservation Lands	1.1 times total height	1.1 times total height	3 RD east west axis and 5 RD north south axis	1.1 times total height, minimum 250 feet
7. Wetlands, USFW Types III, IV and V, greater than 10 acres	1.1 times total height	1.1 times total height	3 RD east west axis and 5 RD north south axis	1.1 times total height, minimum 250 feet
8. Other Structures	1.1 times total height	1.1 times total height	1.1 times total height	1.1 times total height, minimum 250 feet
9. Other existing WECS and Internal Turbine spacing	NA	3 RD east west axis and 5 RD north south axis	3 RD east west axis and 5 RD north south axis	NA

SECTION 802. ADDITIONAL SETBACK REQUIREMENTS FOR WECS

1. Native Prairie – WECS and associated facilities shall not be placed in native prairie unless approved in native prairie protection plan. Native prairie protection plan shall be submitted if native prairie is present. The permittee shall, with the advice of the DNR and any others selected by the permittee, prepare a prairie protection and management plan and submit it to the Zoning Administrator and DNR Commissioner sixty (60) days prior to the start of construction.
2. Sand and Gravel Operations – WECS and associated facilities shall be prohibited in active sand and gravel operations.
3. Aviation (public and private airports) – No WECS or associated facilities shall be located to create an obstruction to navigable airspace of public and private airports in Murray County. Setbacks or other limitations determined in accordance with MnDOT Department of Aviation and Federal Aviation Administration (FAA) requirements.
4. Setbacks – Substations, accessory facilities, and power lines associated with the WECS must meet the requirements of Article 18, of the Zoning Ordinance.
5. The setback for dwellings, schools, churches, health care facilities, and campgrounds shall be reciprocal other than those owned by the project owner.
6. No wind turbines allowed within Shoreland Overlay Districts, except Micro WECS may be allowed by permission of the Murray County Planning Commission through the conditional use process and only in areas where electricity is not presently available.
7. All guy wires must meet the setbacks of the District.

SECTION 803. WECS SAFETY DESIGN STANDARDS

1. Engineering Certification. For all WECS, the manufacturer’s engineer or another qualified engineer shall certify that the turbine, foundation and tower design of the WECS is within accepted professional standards, given local soil and climate conditions.
2. Clearance. At all times, rotor blades or airfoils must maintain at least thirty (30) feet of clearance between their lowest point and grade/ground surface.
3. Warnings.
 - A. For all 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.

- B. For all guyed towers, visible and reflective objects, such as plastic sleeves, reflectors or tape, shall be placed on the guy wire anchor points and along the outer and innermost guy wires up to a height of eight (8) feet above grade/ground surface. Four marker balls shall be placed sixteen (16) feet above grade and at fifty (50) foot intervals along the guy wires from grade/ground surface. Visible, anti-climbing fencing shall be installed around anchor points of guy wires and tower base.
- C. All WECS and Meteorological towers more than one hundred (100) feet in overall height shall be required to have safety lighting.

SECTION 804. WECS HEIGHT STANDARDS

1. Total height. Non-Commercial WECS shall have a total height of less than 200 feet.
2. In those districts where meteorological towers are a permitted use, meteorological towers of less than 200 feet shall be exempt from the Conditional Use process established for structures exceeding height requirements

SECTION 805. WECS TOWER CONFIGURATION STANDARDS

1. All WECS must use self-supporting towers. The base for such towers shall be designed to anchor and support the tower for the site and shall be guarded against unauthorized climbing. The first twelve (12) feet of the tower shall be unclimbable by design or be enclosed by a six (6) foot high unclimbable fence with a secured access.
2. Meteorological towers may be guyed.
3. Color and Finish. All wind turbines and towers that are part of a WECS shall be white, grey or another non-obtrusive color. Blades may be black to facilitate deicing. Finishes shall be matte or non-reflective.
4. Lighting. Lighting, including lighting intensity and frequency of strobe, shall adhere to but not exceed requirements established by Federal Aviation Administration permits and regulations. Red strobe lights are preferred for night-time illumination to reduce impacts on migrating birds. Red pulsating incandescent lights should be avoided. Aircraft Detection Lighting Systems may be used in accordance with FAA regulations.

ARTICLE 9 REQUIREMENTS AND STANDARDS FOR SOLAR ENERGY SYSTEMS

All Solar Energy Systems shall adhere to requirements and standards of this Article and are also subject to the General Regulations in Article 10 of this Ordinance.

SECTION 901. STANDARDS FOR LARGE SOLAR ENERGY SYSTEMS

1. Solar energy systems are the primary land use for the parcel on which the system is located and are distinguished from solar systems that are a secondary or accessory use. Solar energy systems are composed of multiple solar collectors on multiple mounting systems (poles or racks), and generally have a Direct Current (DC) rated capacity greater than one hundred (100) kilowatts.
2. All components of a large solar energy system, including converters and inverters, but not including roads, collector lines and fencing, must meet the structure setback for the zoning district, and be located a minimum of 200 feet from a residential dwelling not located on the property, and a minimum of one hundred (100) feet from the right of way of all roads. Fencing must be located a minimum of fifty (50) feet from the right of way of all roads.
3. Stormwater Management and Erosion and Sediment Control shall meet the requirements of the MPCA Construction Stormwater Permit requirements.
4. Foundations. The manufacturer's engineer or another qualified engineer shall certify that the foundation and design of the solar collectors are within accepted professional standards, given local soil and climate conditions.
5. Ground Cover. Ground cover shall consist of perennial vegetation and incorporate pollinator friendly species.
6. Other standards and codes. All solar energy systems shall be in compliance with any applicable local, state and federal regulatory standards, including the State of Minnesota Uniform Building Code, as amended; and the National Electric Code, as amended.
7. Power and communication lines. Power and communication lines running between the banks of the solar panels may be placed above ground, provided the lines are placed no higher than top of the solar modules. Power and communication lines to electric substations or interconnections with buildings shall be buried underground. Exemptions may be granted by the Board in the following instances:
 - A. Where shallow bedrock, water courses, or other elements of the natural landscape interfere with the ability to bury lines.

- B. When required by the utility company.
- C. Unless otherwise determined by the Board.

SECTION 902. STANDARDS FOR SOLAR ENERGY SYSTEMS, ACCESSORY

Solar energy systems are a permitted accessory use in all zoning districts, subject to the following standards:

1. **Accessory Building Limit.** Solar energy systems, either roof or ground-mounted, do not count as an accessory building for the purpose of meeting limits on the number of accessory structures allowed per residential lot or the coverage limits, as set forth in the Zoning Ordinance.
2. **Height.** Active solar energy systems are subject to the following height requirements:
 - A. Building- or roof- mounted solar energy systems shall not exceed the maximum allowed height in any zoning district. For purposes of height measurement, solar energy systems other than building- integrated systems shall be considered to be mechanical devices and are restricted consistent with other building-mounted mechanical devices for the zoning district in which the system is being installed.
 - B. Ground- or pole- mounted solar energy systems shall not exceed fifteen (15) feet in height when oriented at maximum tilt.
3. **Location within Lot.** Solar energy systems must meet the accessory structure setback for the zoning district.
 - A. **Roof-mounted Solar Energy Systems.** In addition to the building setback, the collector surface and mounting devices for roof-mounted solar energy systems that are parallel to the roof surface shall not extend beyond the exterior perimeter of the building on which the system is mounted or built. The collector and racking for roof-mounted systems that have a greater pitch than the roof surface shall be set back from all roof edges by at least two (2) feet. Exterior piping for solar hot water systems shall be allowed to extend beyond the perimeter of the building on a side yard exposure.
 - B. **Ground-mounted Solar Energy Systems.** Ground-mounted solar energy systems may not extend into the side-yard, rear, or road right-of-way setback when oriented at minimum design tilt.
 - C. **Large Ground-mounted Solar Energy Systems.** Ground-mounted solar energy systems that result in the creation of one (1) or more acres of impervious surface, must comply with the MPCA Construction Stormwater Permit Requirements.

4. Maximum Coverage.
 - A. Roof or building mounted solar energy systems, excluding building-integrated systems, shall not cover more than eighty percent (80%) of the south-facing or flat roof upon which the collectors are mounted. The total collector surface area of pole or ground mount systems in non-agricultural district shall not exceed one percent (1%) of the lot area.
 - B. Wall-mounted solar energy systems shall cover no more than twenty-five percent (25%) of any exterior wall facing a front yard.
5. Approved Solar Components. Electric solar system components must have an Underwriters Laboratory (UL) listing or equivalent.
6. Compliance with all other applicable State and Federal Regulatory Standards, including, but not limited to: Uniform Building Code, and the National Electric Code, as amended.
7. Utility Notification. No grid-intertie photovoltaic system shall be installed until evidence has been given to the Department that the owner has notified the utility company of the customer's intent to install an interconnected customer-owned generator. Off-grid systems are exempt from this requirement.

ARTICLE 10 GENERAL REGULATIONS

SECTION 1001. OTHER APPLICABLE STANDARDS

1. Other Signage. All signage on site shall comply with Article 20 of the Zoning Ordinance. The manufacturer's or owner's company name and/or logo may be placed upon the nacelle, the compartment containing the electrical generator, of the WECS.
2. All power lines associated with the Renewable Energy System subject to Murray County Authority equal to or less than 34.5 kV in capacity shall be buried and located within the right-of-way, subject to prior approval of the road authority. Power lines installed as part of a Renewable Energy System shall not be considered an essential service. If not buried, the applicant/owner must apply for a variance and shall follow Article 32 of the Zoning Ordinance for variance procedures.
3. 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 and federal regulations.
4. Orderly Development. Upon issuance of a conditional use permit, all Renewable Energy Systems, as defined by Minnesota Statute 216F, 216C.25, 500.30, or successor statutes, and/or Minnesota Rule 1325.1100, as amended, if applicable shall notify the Minnesota Public Utilities Commission (PUC) Energy Facilities Permitting program Staff of the project location and details on the survey form specified by the PUC.
5. Noise. All WECS shall comply with Minnesota Rules 7030, as amended, governing noise.
6. Electrical codes and standards. All Renewable Energy Systems and accessory equipment and facilities shall comply with the National and Minnesota Electrical Codes and other applicable standards, as amended.
7. Federal Aviation Administration (FAA). All WECS shall comply with FAA standards and permits.
8. Solar Glare Hazard Analysis Tool. The MnDOT Aeronautics shall complete an analysis of a solar project when said project is located within two (2) miles of an airport using the MnDOT Solar Glare Hazard Analysis Tool. A copy of the results shall be submitted to the Zoning Administrator.

9. Local Emergency Services Notification. The Applicant shall provide a copy of the project summary and site plan to local emergency services, including paid or volunteer Fire Department(s), that serve the project area. The Applicant shall coordinate with local emergency services to develop and implement an emergency response plan for the project. A copy of the plan shall be submitted to the Zoning Administrator.

SECTION 1002. ABANDONMENT AND DECOMMISSIONING

A Renewable Energy System shall be considered a discontinued use after one (1) year without energy production, unless a plan is developed and submitted to the Zoning Administrator outlining the steps and schedule for returning the Renewable Energy System to service.

1. Abandonment and Decommissioning Plan.

A. The Plan shall contain:

- 1) A Description of how the project will be disconnected from the grid.
- 2) A detailed description of how the physical components will be removed, transported off-site, and disposed of. The description shall include the stepwise process of removal (e.g. how will the blades be removed, what components need to be broken down on site, what can be salvaged, and what and where it will be landfilled).
- 3) If any of the land is leased, a description of decommissioning, abandonment, and removal conditions included in landowner leases (e.g. how is it decided whether roads remain).
- 4) A statement of the restoration goal and a detailed description of how restoration will be accomplished.
 - a) All components and accessory facilities shall be physically removed to four (4) feet below grade level.
 - b) Disposal of all solid and hazardous waste in accordance with local, state, and federal waste disposal regulations.
 - c) Stabilization or re-vegetation of the site as necessary to minimize erosion.
- 5) A detailed estimate of decommissioning costs. This estimate should detail cost assumptions (e.g. number of days of crane rental, transportation costs, disposal fees, scrap value, etc.) and a timeline for updating the costs. The estimate shall be prepared by a Professional Engineer, a contractor capable of decommissioning or a person with suitable expertise or experience with decommissioning. The cost estimate for removal shall include an adjustment for inflation over the expected life of the project.

- 6) A plan for decommissioning security, including the type of instruments being considered, a timeline for funding of the assurance (e.g. twenty-five percent (25%) of estimated cost in year ten (10), twenty-five percent (25%) in year fifteen (15)), a description of how the amount of money available will be reconciled with the changing cost estimates, and the proposed beneficiary of the security. The plan must be reviewed and updated every five (5) years with a copy of the updated plan submitted to the Murray County Planning Commission. The Board may require the posting of a bond, letter of credit, or the establishment of an escrow account to ensure proper decommissioning.
- 7) The plan shall also address road maintenance during and after completion of the decommissioning in compliance with this Ordinance.

SECTION 1003. REPOWERING

All repowering of existing Renewable Energy Systems, whether full or partial, must follow the same permitting procedures as that of new, according to Article 6 of this Ordinance.

SECTION 1004. 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 (2) miles of the proposed WECS location upon application to the county for permits. No WECS shall be constructed so as to interfere with County or MnDOT microwave transmissions.

SECTION 1005. AVOIDANCE AND MITIGATION OF DAMAGES TO PUBLIC INFRASTRUCTURE

1. Roads. Applicants shall:

- A. Identify all public roads to be used for the purpose of transporting Renewable Energy components, such as but not limited to, WECS, substation parts, materials, and/or equipment for construction, operation or maintenance of the Renewable Energy System and obtain applicable weight and size permits from the impacted road authority(ies) prior to construction.
- B. Contact the road authority for road closures, road signage removals, road signage re-locating, road signage restoring, moving permits, culverts, access/driveway permits, tile outlet permits, widening road intersections, standard utility permits and any other road activities that may require permits.
- C. Contact the Murray County Dispatch prior to any road closures for the re-routing of emergency vehicles during the closure.

- D. Contact the road authority to conduct an inspection of the road conditions of the haul routes on or prior to pre-construction meeting and after construction.
 - E. Provide a Performance Bond to be held by the county until the Township and/or County road authority(ies) have provided the Murray County Auditor with a written release that all haul routes within their jurisdiction in Murray County have been returned to pre-construction condition.
2. Drainage System. The Applicant shall be responsible for immediate repair of damage to public and private drainage systems stemming from construction, operation, maintenance, or decommissioning.

SECTION 1006. PRE-CONSTRUCTION MEETING

1. Applicant will conduct a Pre-Construction meeting prior to construction commencement with a written notice sent the following individuals a minimum of one week prior to said meeting:
 - A. Township Chairman
 - B. Murray County Highway Engineer and Ditch Inspector
 - C. Murray County Sheriff
 - D. Murray County Zoning/Environmental Administrator
 - E. Area Hydrologist, Minnesota Department of Natural Resources
 - F. Minnesota Pollution Control Agency
 - G. United States Farm Service Agency
 - H. Murray Soil & Water Conservation District
 - I. United States Fish & Wildlife Service
 - J. Minnesota State Historical Society
 - K. Two Planning Commission Members: Chair and County Board Representative
 - L. MnDOT

SECTION 1007. ENERGY STORAGE SYSTEM

1. If the Renewable Energy System consists of some form of energy storage, adequate design must be provided to ensure all local, state, and federal requirements regulating energy storage have been met.
2. All energy storage structures must meet the required structure setbacks for the zoning district.

ARTICLE 11 ENFORCEMENT, VIOLATIONS, REMEDIES, PENALTIES AND FEES

SECTION 1101. ENFORCEMENT, VIOLATIONS, REMEDIES, AND PENALTIES

Enforcement of this Ordinance shall be done in accordance with process and procedures established in Article 35 of the Zoning Ordinance.

SECTION 1102. FEES

1. The fees for a zoning certificate, variance, amendment, or conditional use permit, shall be established by the Board. The Board may review and revise the fee schedule periodically. The Zoning Administrator shall issue the Zoning Certificate only after the fee has been paid and a determination has been made that the building plans, together with the application comply with the terms of this Ordinance and the Zoning Ordinance. Any person filing a petition for an amendment to this Ordinance or requesting a variance shall pay the prescribed fees according to the schedule established by the Board before any work proposed may commence. The fee is payable at the time of filing a petition and is not refundable.

ARTICLE 12 VALIDITY

SECTION 1201. VALIDITY

Should any article, section or provisions of this Ordinance be declared by a court of competent jurisdiction to be invalid, such decision shall not affect the validity of the Ordinance as a whole or any part thereof other than the part so declared to be invalid.

ARTICLE 13 REPEAL AND DATE OF EFFECT

SECTION 1301. REPEAL

The Murray County Renewable Energy Ordinance adopted November 2, 2010, and its amendments are hereby repealed.

SECTION 1302. DATE OF EFFECT

This Murray County Renewable Energy Ordinance shall be in full force and effect from and after its passage and publication according to law.

Passed and Approved the 22nd day of October 2019.

David Thiner, Chairman, Murray County Board of Commissioners

ATTEST:

Thomas Burke, Murray County Administrator

Recommended by: The Murray County Planning Commission

Date: June 24, 2019

Kevin Vickerman, Chairman, Murray County Planning Commission

ATTEST:

Jean Christoffels, Murray County Zoning/Environmental Administrator