

Applicant

Blue Earth County
P.O. Box 3566
Mankato, MN 56002-3566

Request

Request to amend Chapter 14 (the Shoreland Ordinance) and Chapter 24 (the Zoning Ordinance) of the Blue Earth County Code of Ordinances. The amendments to the Shoreland Ordinance will include the addition of a definition related to a small solar energy system and to include small solar energy systems as defined by the ordinance as a permitted accessory use within the Shoreland Overlay District. The amendments to Chapter 24 will include the addition of definitions and updates to the solar energy standards section. The amendments will update the applicable zoning districts where solar energy systems are listed as either permitted or conditional uses.

Summary

In response to increased interest by individuals and companies in developing solar energy systems at residential and commercial scales within rural Blue Earth County, the County Planning Commission recommended that staff develop various amendments to the County Code related to solar energy systems. This interest related to a requirement established by the State of Minnesota Legislature mandating that “each public utility shall generate or procure sufficient electricity generated by solar energy to serve its retail electricity customers in Minnesota so that by the end of 2020, at least 1.5 percent of the utility’s total retail electric sales to retail customers in Minnesota is generated by solar energy.” (2015 MN Statutes 216B.1691; Subd. 2f.)

In May of 2015, **Section 24-334 Solar Energy Standards**, was adopted by the County Board. In the final quarter of 2015, four Conditional Use Permits were approved for the operation of a Large Solar Energy System. Each request allowed staff to streamline its process and review future applications more efficiently. During these reviews, staff was able to identify those areas within the ordinance which did not accurately reflect the true intentions of the requirement.

Staff has determined that oversights in the original process led to the definitions and zoning district information, as forwarded to the County Board for approval in May 2015, not being included in the signed resolution as they were intended.

Minnesota DNR Review

In an email dated January 21, 2016, Area Hydrologist Dan Girolamo stated the clarification of definitions would not generate any comments from the DNR.

Environmental Health Review

See attachment A-1

Opinions

Staff has developed the following opinions regarding the addition of the above mentioned definitions and information to the Blue Earth County Code of Ordinances:

1. Minnesota Statute, Chapter 394.21 gives counties the authority to carry on county planning and zoning activities.
2. That solar energy systems should be encouraged in Blue Earth County
3. That having standards for the location, construction and operation of solar energy systems is necessary to protect the public health, safety and general welfare.

Recommendations

Staff recommends that the following amendments be added to the Blue Earth County Code of Ordinances:

**Chapter 14 – SHORELAND ZONING
ARTICLE I. IN GENERAL**

Sec. 14-4. – Rules and definitions

Small Solar Energy System – A solar array that is a minimum of 120 square feet in size with a power capacity of less than 100 kilowatts

**ARTICLE III. SHORELAND CLASSIFICATION SYSTEM AND LAND USE
DISTRICTS**

Sec. 14-82. – Land use districts

Shoreland Overlay (All Districts)

Permitted Uses: Small Solar Energy Systems as an Accessory Use
Conditional Uses: Large Solar Energy Systems Not Allowed

**Chapter 24 - ZONING
ARTICLE I. IN GENERAL**

Sec. 24-3. Definitions and word usage

Approved / Approval – the formal authorization by a local government unit of an activity described in an application.

Delineated Wetland Boundary – wetland boundaries identified in a wetland delineation or investigation report approved by the Wetland Conservation Act (WCA) Local Government Unit. Only wetland boundaries that have been approved and issued a WCA Notice of Decision shall be acceptable for use in a site plan.

Solar Energy System – A set of devices 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

Large Solar Energy System – A solar array or system with a power capacity equal to or greater than 100 kilowatts

Small Solar Energy System – A solar array that is a minimum of 120 square feet in size with a power capacity of less than 100 kilowatts

Photovoltaic Solar Energy System – A system of components that generates electricity from incident sunlight by means of the photovoltaic effect, whether or not the device is able to store the energy produced for later use

Reflecting Solar Energy System – A solar energy system that includes a device to reflect light onto the collector surface for the purpose of increasing the energy production of the system

Substations – Any electrical facility designed to convert electricity produced to a voltage for interconnection with transmission lines

Solar Array – Any number of solar photovoltaic modules or panels connected together to provide a single electrical output

ARTICLE III. DISTRICT REGULATIONS

Agriculture District Sec. 24-112 Uses

Permitted Uses: Small Solar Energy Systems
Conditional Uses: Large Solar Energy Systems

Conservation District Sec. 24-137 Uses

Permitted Uses: Small Solar Energy Systems
Conditional Uses: Large Solar Energy Systems

Rural Residence District Sec. 24-162 Uses

Permitted Uses: Small Solar Energy Systems as an Accessory Use
Conditional Uses: Large Solar Energy Systems Not Allowed

Rural Townsite District Sec. 24-192 Uses

Permitted Uses: Small Solar Energy Systems as an Accessory Use
Conditional Uses: Large Solar Energy Systems Not Allowed

General Business District Sec. 24-212 Uses

Permitted Uses: Small Solar Energy Systems
Conditional Uses: Large Solar Energy Systems

Highway Business District Sec. 24-232 Uses

Permitted Uses: Small Solar Energy Systems
Conditional Uses: Large Solar Energy Systems

Light Industrial District Sec. 24-252 Uses

Permitted Uses: Small Solar Energy Systems
Conditional Uses: Large Solar Energy Systems

Heavy Industrial District Sec. 24-272 Uses

Permitted Uses: Small Solar Energy Systems
Conditional Uses: Large Solar Energy Systems

Floodplain (All Districts)

Permitted Uses: Small Solar Energy Systems Not Allowed
Conditional Uses: Large Solar Energy Systems Not Allowed

ARTICLE IV. REQUIREMENTS AND STANDARDS
Division II - Performance Standards

Sec. 24-334 Solar Energy System Standards

This article is established to protect and promote health, safety, general welfare and order within the county through uniform standards, regulations, and procedures governing the type, size, structure, location, height, erection and use of Solar Energy Systems. All Solar Energy Systems shall conform ~~with~~to the following standards:

(a) *Application for Large Solar Energy Systems.* Any person desiring to construct or erect a Large Solar Energy System shall make a written land use development application to the Zoning Administrator. Application for such permit shall be made upon a form furnished by the county and shall not be complete unless it contains the following:

(1) A site plan of existing conditions shall be prepared and submitted to the Planning Agency which shall contain:

- (a) Existing property lines and property lines extending 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 roads, right-of-ways, and any associated easements.
- (c) Location and size of any in-use wells and sewage treatment systems, and any abandoned wells, sewage treatment systems and dumpsites.

- (d) Existing buildings and all impervious ~~surfaces~~surfaces.
 - (e) Topography at 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~~Approved delineated wetland boundaries.
 - (i) The 100-year flood elevation and Regulatory Flood Protection Elevation, if available.
 - (j) Floodway, flood fringe, and/or general floodplain district boundary, if applicable.
 - (k) The toe and top of any bluffs, as defined by this ordinance, within the project boundaries.
 - (l) Mapped soils according to the Blue Earth County Soil Survey.
 - (m) Surface water drainage patterns.
 - (n) Location of county tile drainage systems.
 - ~~(m)~~(o) Location of private tile drainage systems, if known.
- (2) A site plan of proposed conditions which shall contain:
- (a) Location, size, and spacing of solar arrays on the site.
 - (b) Location and size of all roadways.
 - (c) Planned location of underground or overhead electric lines connecting the Solar Energy 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 solar energy system.
 - (e) Proposed erosion and sediment control measures as required by Section 24-304 of this ordinance.
 - (f) Sketch elevation of the premises accurately depicting the proposed Solar Energy System and its relationship to structures on adjacent lots (if any).
 - (g) Changes in surface water drainage patterns.
 - (h) A table showing the total amount of impervious surface being added to the site, including but not limited to: inverter pads, access roads, solar panels, etc.
- (3) The proposed installed capacity, in kilowatts, for the site.
- (4) Proposed type of mounting and racking system, and manufacturer's specifications or engineering designs for the type of mounting and racking, including a description of the type of foundation needed for the proposed system, if applicable.
- (5) A description of the method of connecting the system to a building or substation.
- (6) A copy of the interconnection agreement with the local electric utility or a written explanation outlining why an interconnection agreement is not necessary.
- (7) An itemized decommissioning plan shall be required to ensure that facilities are properly removed after their useful life. Decommissioning of Solar Energy Systems must occur within 180 days of either the end of the system's serviceable life, or the system's discontinued use. A system shall be considered a discontinued use after twelve (12) consecutive months without energy production. The Board shall require the posting of a bond, letter of credit or the establishment of an escrow account to ensure proper decommissioning. Decommissioning shall consist of the following:
- (a) The removal of all structures and foundations.

(b) The removal of all cables/wiring and electrical devices associated with the project

(c) The removal of all access roads and parking areas

(d) The disposal of all cable/wiring, electrical devices, structures and/or foundations shall meet the provisions of the Blue Earth County Solid Waste Ordinance; or successor ordinance

~~(b) Disposal of structures and/or foundations shall meet the provisions of the Blue Earth County Solid Waste Ordinance; or successor ordinance.~~

(e) The permanent restoration of the site to its pre-development state including the following:

i. Site cleanup followed by general surface grading and, if necessary, restoration of surface drainage swales, ditches, and tile drains (if present).

ii. Any excavation and/or trenching caused by the removal of building or equipment foundations, rack supports and underground electrical cables will be backfilled with the appropriate material and leveled to match the ground surface.

iii. The roads and parking areas will be removed completely, filled with suitable sub-grade material and leveled.

~~(e)(f) Restoration~~ Further restoration of soil and vegetation of the site as necessary to minimize erosion.

(b) *Application for Small Solar Energy Systems.* Any person desiring to construct or erect a Small Solar Energy System shall make a written land use development application to the Zoning Administrator. When a construction permit is required, an application for such permit shall be made upon a form furnished by the county and shall not be complete unless it contains the following:

(1) A site plan of existing conditions shall be prepared and submitted to the Planning Agency which shall contain:

(a) Existing conditions as required by the Site Plan definition of Section 24-3 of this ordinance.

(b) ~~Delineated~~ Approved delineated wetland boundaries, if applicable.

(2) A site plan of proposed conditions which shall contain:

(a) Location and spacing of solar arrays.

(b) Location and size of any access roads, if applicable.

(c) Planned location of underground or overhead electric lines connecting the Solar Energy System to the principle use or 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 solar energy system.

(e) Proposed erosion and sediment control measures as required by Section 24-304 of this ordinance.

(f) Sketch elevation of the premises accurately depicting the proposed Solar Energy System and its relationship to structures on adjacent lots.

(c) *General Requirements.*

(1) Systems shall be in compliance with any applicable local, state and federal regulatory standards, including, but not limited to, the State of Minnesota Uniform Building Code, as amended, and the Minnesota State Electric Code, as amended.

- (2) All elements of the system shall meet or exceed all district regulations based on the applicable zoning district.
 - (3) Stormwater Management shall be in compliance with the MPCA Construction Stormwater Permit requirements.
 - (4) Systems shall meet the requirements for erosion and sediment control as per Section 24-304 of this Ordinance.
 - (5) Power and communication lines running between banks of solar collectors and to electric substations or interconnections with buildings shall be buried underground. Exemptions may be granted in instances where shallow bedrock, water courses, or other elements of the natural landscape interfere with the ability to bury lines.
 - (6) Systems shall not be used to display advertising. The manufacturers and equipment information, warning, or indication of ownership shall be allowed on any equipment of the Solar Energy System provided they comply with Section 24-311 of this ordinance.
 - (7) Systems shall be prohibited within any safety zones as designated in the Mankato Regional Airport Zoning Ordinance, as amended.
- (d) *Additional Requirements for Large Solar Energy Systems.*
- (1) The manufacturer's engineer or another qualified engineer shall certify that the foundation and design of the solar energy system is within accepted professional standards, given local soil and climate conditions, within sixty (60) days of completion of construction.
 - (2) All elements of the system shall be prohibited within the Shoreland District.
 - (3) Any system proposed within an area governed by an Orderly Annexation Agreement shall have written approval from the city and township prior to the county accepting an application.
 - (4) All elements of the system shall be prohibited on Highly Erodible Soils according to the USDA Soil Survey.
 - (5) The conversion of existing wooded areas for the placement of systems is prohibited.
- (e) *Additional Requirements for Small Solar Energy Systems.*
- (1) Solar energy systems shall not be located nearer the front lot line than the principal building on the lot in the Rural Residence and Rural Townsite Districts.
 - (2) Ground-mounted and pole-mounted solar energy systems shall be prohibited within the Shoreland District.
- (f) *Performance Standards.*
- (1) Ground-mounted and pole-mounted solar energy systems.
 - (a) Ground-mounted and pole-mounted systems shall not exceed twenty (20) feet in height at maximum design tilt.
 - (b) The total collector surface of ground-mounted or pole-mounted systems shall not exceed fifty (50) percent of the building footprint of the principal structure in the Rural Residence and Rural Townsite Districts.
 - (c) Ground-mounted and pole-mounted systems shall have permanent vegetation under and between the collectors and surrounding the system's foundation or mounting device.
 - (2) Roof-mounted solar energy systems. No construction permit required except where otherwise noted.

- (a) Roof-mounted systems shall not exceed the maximum allowed height in any zoning district and shall not extend greater than four (4) feet above the existing structure's roof height in the Rural Residence and Rural Townsite Districts.
 - (b) In addition to the structure setback, the collector surface and mounting devices for roof-mounted systems shall not extend beyond the exterior perimeter of the structure on which the system is mounted or built, except for when such an extension is designed as an awning. A construction permit is required for awnings 120 square feet or larger.
 - (c) 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 a minimum of two (2) feet.
 - (d) Exterior piping for roof-mounted solar hot water systems may extend beyond the perimeter of the structure on the side and rear yards.
 - (e) Roof-mounted 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.
- (3) Wall-mounted solar energy systems. No construction permit required.
- (a) Wall-mounted systems shall cover no more than twenty-five percent (25%) of any exterior wall facing the front yard in the Rural Residence and Rural Townsite Districts.
- (4) A vegetation/seeding plan shall be submitted with the application for large solar energy systems.
- (5) Solar arrays shall be constructed within the buildable area of the property and meet all applicable structure setbacks.
- (g) *Photovoltaic Solar Energy Systems.*
- (1) For photovoltaic solar energy systems, the electrical disconnect switch shall be clearly identified and unobstructed.
 - (2) No grid-intertie photovoltaic solar energy system shall be installed until documentation has been given to the Zoning Administrator that the owner has notified the utility company of the customer's intent to install an interconnected customer-owned generator. Documentation may consist of an interconnection agreement or a written explanation from the utility provider or contractor outlining why an interconnection agreement is not necessary. Off-grid systems are exempt from this requirement.
 - (3) Photovoltaic solar energy system components must have an Underwriters Laboratory (UL) listing or other third party certification provided by an American National Standards Institute accredited organization and solar hot water systems must have a Solar Rating & Certification Corporation (SRCC) rating.
- (h) *Reflecting Solar Energy Systems.*
- (1) Systems shall be designed and operated to limit the misdirection of reflected solar radiation onto adjacent or nearby property, public roads, or other areas open to the public.
- (i) *Fences.* All boundary line fences shall be entirely located upon the private property of the person constructing, or causing the construction of such fence, unless the owner of the property adjoining agrees, in writing, that such fence may be erected on the division line of the respective properties, provided property survey markers are present and known, otherwise a survey shall be conducted. No setback requirements shall apply. Fences shall consist of open fencing such as chain link or barbed wire, unless approved by the affected road authority. Fences shall not

exceed six (6) feet in height, except security fences, which shall not exceed eight (8) feet in height, including barbed wire toppings.

ARTICLE VI. URBAN FRINGE OVERLAY DISTRICT (UFD)

Panel Discussion – It is the opinion of the City of Mankato that solar farms located within the Orderly Annexation Areas are nonfarm development and will be subject to annexation. The city’s main concern in the UFD is the potential conflict that solar energy farms may have with city land use plans. The city also has concerns regarding the investment in infrastructure to areas in the UFD that may be converted to solar, instead of what was expected in the cities land use plan and infrastructure investment.

It is the opinion of the panel that large solar farms may be appropriate in the UFD areas given the proximity to urban areas and substations.

Urban Fringe Overlay District Sec. 24-502 Uses

Permitted Uses: Small Solar Energy Systems

Conditional Uses: Large Solar Energy Systems (Not allowed in RR or RT Districts)

Attachment A-1
Environmental Health Review
BLUE EARTH COUNTY
ENVIRONMENTAL SERVICES

*Government Center, 410 South Fifth Street
P.O. Box 3566, Mankato, Minnesota 56002-3566
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Environmental Health Section - Planning Application Reviews

Date Printed:	January 27, 2016	Permit Number:	PL2016005
Property Owner:	BLUE EARTH COUNTY	Applicant:	
Parcel Number:	R01.09.18.134.001	File ID:	PC 04-16

Application Description: Request for review and approval to amend Chapter 24 of the Blue Earth County Zoning Ordinance. The amendments to Chapter 24 will include the addition of definitions to Section 24-3 Definitions and word usage and information related to Section 24-334 Solar Energy Standards. The amendments contain information related to Section 24-502 Uses which can be found in Article VI URBAN FRINGE OVERLAY DISTRICT (UFD). The amendments also update the applicable Zoning Districts where solar energy systems are listed as either permitted or conditional uses.

Septic Review

Status: Complete - Comments Received

Comments: The ordinance amendment does not change any previous septic requirements. The requirements state that any dwelling or structure that produces sewage and is located in the parcel that the project is proposed must have a code compliant septic system along with a secondary drainfield location. Anderson, Jesse 01/22/2016 9:12 AM

Well Review

Status: Complete - No Comments

Comments:

Wetland Review

Status: Complete - Comments Received

Comments: A suggested "delineated wetland boundaries" definition has been submitted to planning & zoning staff to include in the revised ordinance. The definition is intended to clarify what constitutes a wetland delineation to be included with a site plan for a large solar energy system application. The definition is based on the application procedures described in the Wetland Conservation Act, Minn. Rule 8420.0305. Having an approved wetland delineation prior to submittal of an application for a conditional use permit allows for the creation of an informed site plan, improves the review process, and clarifies potential additional permitting needed for a project. Schulte Michael 01/19/2016 8:59 AM
