CHAPTER 162

SOLAR ENERGY SYSTEMS

162.01 PURPOSE. The purpose of this chapter is to allow safe, effective, and efficient use of solar energy conversion systems, and to identify the locations within the City where they may not be installed.

162.02 DEFINITIONS. For use in this chapter, the following terms are defined:

1. "Building integrated" means an integral part of a principal or accessory building. Building-integrated systems include but are not limited to photovoltaic or hot water systems that are contained within roofing materials, windows, skylights, and awnings.

2. "Roof-mount" means a solar energy system mounted on a rack that is fastened to or ballasted on a building roof. Roof-mount systems can be either accessory or principal uses.

    A. "Parallel roof-mount" means a roof-mount solar energy system in which the solar panels are installed parallel to the roof underneath and no more than 12" from the surface of the roof. A parallel roof-mount system must not extend beyond the roof surface underneath it.

3. "Solar access" means unobstructed access to direct sunlight on a lot or building through the entire year including access across adjacent parcel air rights, for the purpose of capturing direct sunlight to operate a solar energy system.

4. "Solar energy system" means a device, array of devices, or structural design feature, the purpose of which is to provide for generation of electricity, the collection, storage and distribution of solar energy for space heating or cooling, daylight for interior lighting, or water heating installation types are.

5. "Solar farm" means a commercial facility that converts sunlight into electricity by means of photovoltaics (PV) 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.

6. "Solar garden" means a commercial solar-electric (photovoltaic) array that provides retail electric power (or a financial proxy for retail power) to multiple households or businesses residing or located off-site from the location of the solar energy system. A community solar system/solar garden is a principal use.

7. "Solar resource" means a view of the sun from a specific point on a lot or building that is not obscured by any vegetation, building, or object for a minimum of four hours between the hours of 9:00 a.m. and 3:00 p.m. standard time on all days of the year.

8. "Wall-mount" means a solar energy system mounted on the side of a principal or accessory building, usually but not always for the purpose of providing direct supplemental space heating by heating and recirculating conditioned building air.

162.03 PERMITTED ACCESSORY USE. Solar energy systems shall be allowed as an accessory use in all zoning classifications where structures of any sort are allowed, subject to certain requirements as set forth below:

1. Height. Solar energy systems must meet 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 given an equivalent exception to height standards as building-mounted mechanical devices or equipment (See Section 165.06).

2. Set-Back. Solar energy systems must meet the accessory structure setback requirements for the zoning district and primary land use associated with the lot on which the system is located.

A. Roof or Building-Mount Solar Energy Systems. In addition to the building setback, the collector surface and mounting devices for roof-mounted solar energy systems shall not extend beyond the exterior perimeter of the building on which the system is mounted or built, unless the collector and mounting system has been explicitly engineered to safely extend beyond the edge, and set-back standards are not violated. Exterior piping for solar hot water systems shall be allowed to extend beyond the perimeter of the building on a back or side yard exposure. Solar collectors mounted on the sides of buildings and serving as awnings are considered to be building-integrated systems and are regulated as awnings.

3. Location and Visibility.

A. Building-Integrated and Wall-Mount Solar Energy Systems. Building-integrated and wall-mount solar energy systems shall be allowed regardless of whether the system is visible from the public right-of-way, provided the building components in which the system is integrated or mounted meets all required set-back, land use, and performance standards for the district in which the building is located. The color of the solar collectors is not required to be consistent with other building materials.

B. Roof-Mount Solar Energy Systems. Roof-mount solar energy systems shall not be restricted for aesthetic reasons if the system is not visible from the closest edge of any public right-of-way other than an alley. Roof-mounted systems that are visible from the nearest edge of the street frontage right-of-way shall not have the highest finished pitch steeper than the roof pitch on which the system is mounted, and shall be no higher than 12 inches above the roof. The color of the solar collectors is not required to be consistent with other roofing materials.

C. Reflectors. No solar energy system using an external reflector to enhance solar production shall be installed within the City limits of the City of Polk City.

4. Historic Buildings. Solar energy systems on historically designated buildings shall be installed only as allowed by the U.S. Department of Interior.

5. Plan Approvals. All proposed solar energy systems shall require a building permit as described in Chapter 156 of this Code.

6. Approved Solar Components. Electric solar energy system components must have a UL or equivalent listing and solar hot water systems must have an SRCC rating.

7. Compliance with Building Code. All solar energy systems shall be consistent with the City's building code, and the solar thermal systems shall comply with HVAC-related requirements of the Energy Code.

8. Compliance with State Electric Code. All photovoltaic systems shall comply with the Iowa State Electric Code.

9. Compliance with State Plumbing Code. Solar hot water systems shall comply with applicable Iowa State Plumbing Code requirements.

10. Utility Notification. All solar energy systems that connect with an electric circuit serviced by the local electric utility (grid-tied systems) shall comply with the interconnection requirements of the electric utility. Systems not so connected (off-grid systems) are exempt from this requirement.

162.04 PRINCIPAL USES.

1. Solar Garden. The City of Polk City permits the development of community solar gardens, subject to the following standards and requirements:

A. Rooftop Solar Gardens. Subject to the requirements of Section 162.03, rooftop solar gardens are permitted in all districts where buildings are permitted.

B. Interconnection. An interconnection agreement must be in place with the local electric utility before work commences on installation of a solar garden.

C. Dimensional Standards. All structures must comply with set-back, height, and coverage limitations for the district in which the system is located.

D. Site Security. A ground mount solar garden located wholly or partly within the City limits of the City of Polk City must be completely surrounded by a privacy fence at least six feet high. All gates must be locked at all times unless personnel are on site. All components must be located at least four feet from the fence.

E. Other Standards. Ground-mount systems must comply with all required standards for structures in the district in with the system is located.

F. Ground Cover. The City of Polk City encourages (but does not require) owners of ground-mount solar gardens to plant the land underneath the solar collectors in pollinator friendly wildflowers. Such plantings must be maintained in such a way that they do not go to weeds or become predominantly grass but afford passers-by a predominantly flower view during blooming season. Such plantings shall be considered flower beds and shall be exempt from the mowing requirements of Chapter 152. If wildflowers are not planted, the land underneath the collectors must be neatly maintained in compliance with Chapter 52 of this Code of Ordinances.

G. Building Permit. Development of a solar garden inside the City limits requires the issuance of a building permit, according to the process detailed in Chapter 156.

H. Decommissioning. The City of Polk City requires that, as part of the construction permit application, a decommissioning plan shall be submitted to ensure that the facilities are properly removed after their useful life. Decommissioning of the solar garden must occur in the event it (or a majority part of it) is not in use for 12 consecutive months. The plan shall include provisions for removal of all structures and foundations, restoration of the soil and vegetation, and a plan ensuring financial resources will be available to fully decommission the site. Disposal of the solar panels, racks, and foundations must meet State requirements applicable at the time of decommissioning. The City may require the posting of a bond, letter of credit or the establishment of an escrow account to ensure proper decommissioning.

2. Solar Farm. The City permits the development of solar farms, subject to the following standards and requirements:

A. Development. A solar farm may be developed only on land zoned A-1 (Agricultural) at the time of the development.

B. Stormwater and NPDES. The City has stormwater management, erosion and sediment control, and NPDES permit requirements and solar farms are required to provide a Storm Water Management Plan per SUDAS.

C. Ground Cover and Buffer Areas. Ground around and under solar arrays and in project buffer areas shall be planted and maintained in perennial vegetated ground cover, and meet the following standards:

(1) Top soils shall not be removed during development, unless part of a remediation effort.

D. Soils shall be planted and maintained in perennial vegetation to prevent erosion, manage run off, and build soil. Seeds may include a mix of grasses and wildflowers, but shall be predominantly wildflowers, ideally native to the region that will result in a short stature prairie with a diversity of forbs of flowering plants that bloom throughout the growing season. Blooming shrubs may be used in buffer areas as appropriate for visual screening. Seed mixes and maintenance practices should be consistent with recommendations made by qualified natural resource professionals such as those from the Iowa Department of Natural Resources, Polk County Soil and Water Conservation Service, or the Natural Resource Conservation Service. Plant material must not have been treated with systemic insecticides, particularly neonicontinoids. Such plantings must be maintained in such a way that they do not go to weeds or become predominantly grass but afford passers-by a predominantly flower view during blooming season. Such plantings shall be considered flower beds and shall be exempt from the mowing requirements of Chapter 152. If wildflowers are not planted, the land underneath the collectors must be neatly maintained in compliance with Chapter 152 of this Code.

E. Foundations. A qualified engineer shall certify that the foundation and design of the solar panels' racking and support is within accepted professional standards, given local soil and climate conditions.

F. Other Standards and Codes. All solar farms shall be in compliance with all applicable local, State and federal regulatory codes, including the *State of Iowa Uniform Building Code*, as amended; and the *National Electric Code*, as amended.

G. Power and Communication Lines. Power and communication lines running between banks of solar panels and to nearby electric substations or interconnections with buildings shall be buried underground. Exemptions may be granted by the City in instances where shallow bedrock, water courses, or other elements of the natural landscape interfere with the ability to bury lines, or distance makes undergrounding infeasible, at the discretion of the City.

H. Site Security. A solar farm located wholly or partly within the limits of the City must be completely surrounded by a chain link fence at least six feet high. All gates musts be locked at all times unless personnel are on site. All components must be located at least four feet from the fence.

I. Site Plan Required. A detailed site plan in conformance with Chapter 157 for both existing and proposed conditions must be submitted, showing location of all solar arrays, other structures, property lines, rights-of-way, service roads, floodplains, wetlands and other protected natural resources, topography, electric equipment, and all other characteristics requested by the City. The site plan shall also show all zoning districts.

J. Aviation Protection. For solar farms located within 500 feet of an airport or within approach zones of an airport, the applicant must complete and provide the results of the Solar Glare Hazard Analysis Tool (SGHAT) for the airport traffic control tower cab and final approach paths, consistent with the Interim Policy, FAA Review of Solar Energy Projects on Federally Obligated Airports, or most recent version adopted by the FAA.

K. Agricultural Protection. Solar farms must comply with site assessment or soil identification standards that are intended to protect agricultural soils.

L. Decommissioning. A decommissioning plan shall be required to ensure that facilities are properly removed after their useful life. Decommissioning of the installation must occur in the event that a majority of the solar panels are not in use for 12 consecutive months. The plan shall include provisions for removal of all structures and foundations, restoration of soil and vegetation and a plan ensuring financial resources will be available to fully decommission the site. Disposal of the solar panels, racks, and foundations must meet State requirements applicable at the time of decommissioning. The City shall require the posting of a bond, letter of credit or the establishment of an escrow account to ensure proper decommissioning.

162.05 RESTRICTIONS ON SOLAR ENERGY SYSTEMS LIMITED. As of the effective date of this ordinance, new homeowners' agreements, covenants, common interest community standards, or other contracts between multiple property owners located within the City shall not restrict or limit solar energy systems to a greater extent that the City's energy standards.

162.06 SOLAR ACCESS. The City encourages protection of solar access in all new subdivisions and allows for solar resources to be protected consistent with Iowa statues.

1. Solar Easements Allowed. The City allows solar easements to be filed, consistent with Iowa State Code 564A.7. Any property owner can purchase an easement across neighboring properties to protect access to sunlight. The easement can apply to building, trees, or other structures that would diminish solar access. In situations where the easements are not voluntarily agreed to, the District Court, acting as the solar access regulatory board, may determine whether or not granting an easement is appropriate, consistent with Iowa Statutes 564A.3.

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