



TO: Pueblo County Planning Commission

FROM: Darren Coffey, AICP

DATE: October 15, 2021

RE: Pueblo Regional Development Plan (Comprehensive Plan) and Pueblo County Code (Zoning Ordinance) Amendments Regarding Solar Energy Facilities - Revised

To better reflect input received to date from Planning Commissioners, the solar industry, other stakeholders, and the general public, the following recommended amendments are submitted for Planning Commission consideration with proposed revisions as noted.

Recommended Amendments

Short-term Updates

- Amend the “Factual Foundation” chapter, “**Land Capacity Analysis**” section by adding the following content as a new subsection:

Capacity and Energy Service

The electrical grid is an interconnected system powered by numerous electricity generating sources to provide power to homes, businesses, industries, and farms. Electricity is distributed via high voltage transmission lines to local substations, where voltage is reduced, and power is delivered to customers via distribution lines.

Energy across the County is supplied by Xcel Energy (Public Service Company of Colorado), Black Hills Energy, the Southeast Colorado Power Association, the San Isabel Electric Association, and the Mountain View Electric Association. Recent state legislation, plans, and executive orders requiring renewable energy sources, energy storage systems, transmission improvements, and more were addressed in the collaboratively prepared “10-Year Transmission Plan for the State of Colorado” (February 3, 2020). The plan lists planned and conceptual projects to ensure the amount of electricity generated meets the demand and is provided reliably to all customers. The plan will likely lead to an increase in the number of distributed renewable energy generation and storage facilities, some of which may be proposed to be in Pueblo County.

- Amend the “**Regional Development Plan**” chapter by adding the following content at the end (just prior to the “Plan Implementation” chapter):

Regional Solar Energy Plan

Pueblo County’s abundant agricultural and rural/ranch areas, combined with its electrical infrastructure and transportation system, are attractive to the solar industry. The growth in solar facilities has increased the workload of County staff and state agencies tasked with land use, permitting, and environmental decision making. The County must determine if a solar facility application is both in accord with their Comprehensive Plan and in compliance with their zoning regulations.

In general, solar photovoltaic (PV) energy generation can either be installed on structures (rooftop or integrated), floating on water, or ground mounted. PV installation on structures of all shapes and sizes can produce adequate energy for onsite use and stimulate economic jobs related to manufacturing, installation, and maintenance. Structure-mounted PV is addressed via the County’s SolSmart program. Floating PV is not desired at this time.

Ground-mounted solar is a primary land use as permitted by the County. Ground-mounted solar is typically defined with three categories:

- Small-scale is a solar facility of less than one (1) acre. This size is approximately equivalent to a rated capacity of about ten (10) kilowatts (kW) to 250 kW alternating current. Facilities are generally generating electricity from sunlight primarily to reduce onsite consumption of utility power for residential, agricultural, commercial, and industrial applications.
- Medium-scale is a solar facility of between one (1) acre and ten (10) acres. This size is approximately equivalent to a rated capacity of about 250 kW to one (1) megawatt (MW) alternating current. Facilities are generally generating electricity from sunlight primarily to reduce onsite consumption of utility power for commercial and industrial applications.
- Utility-scale is a solar facility of more than ten (10) acres. This size is approximately equivalent to a rated capacity of about one (1) MW alternating current or greater. Facilities are generally generating electricity from sunlight to provide electricity to a utility provider.

Small-scale solar facilities are allowable by-right as an accessory use in accord with the underlying zoning requirements.

As used in this Comprehensive Plan, a large solar facility is either a medium-scale or utility-scale solar facility as defined. These facilities are an industrial land use that occupy significant acreage. Many solar facilities are located in agricultural or rural/ranch areas that may have had other future land use potential.

The County will consider large solar facilities in districts zoned agricultural (A-1) and PuebloPlex (P-1) with preference for brownfield sites such as capped landfills or other reclaimed or adapted reuse sites. The following site features should be addressed to

mitigate the potential negative impacts of solar facilities on County land use patterns as part of the evaluation of a 1041 Permit application:

- Permitted as primary uses in zoning districts: A-1 and P-1;
- Permitted as accessory uses to existing power plants, public facilities, and other existing uses as determined by the Zoning Administrator regardless of zoning district;
- The total size shall be larger than one (1) acre and no more than 5,000 contiguous acres unless located in the P-1 zoning district;
- No more than 80% PV panel coverage over the project site unless located in the P-1 zoning district;
- Located outside Critical Production Areas (CPAs), ranch, or forested areas;
- Further than one (1) mile from:
 - Any defined city, town or other community boundary
 - Pueblo West and Colorado City Metro Districts;
- Further than one (1) mile from other existing or permitted solar facilities unless located in the P-1 zoning district;
- Within one (1) mile of existing transmission lines (except in P-1); and
- Sited to mitigate negative impacts to residences; historic, cultural, recreational, or environmentally sensitive areas; and scenic viewsheds.

Battery energy storage facilities maybe considered as an accessory use to large solar facilities, other energy generation facilities, and substations. These facilities are also an industrial land use but require more safety requirements than solar facilities.

Long-term Updates

- Identify, catalogue, and map relevant features, including:
 - Brownfield sites and County-owned land;
 - Major electrical facilities (i.e., transmission lines, generation facilities, etc.); and
 - Prime farmland including Critical Protection Areas (CPAs) or farmlands of statewide importance as defined by the USDA and the State of Colorado, respectively.

Pueblo County Code

Analysis

While the Zoning Ordinance allows for energy generating facilities and/or utilities in 19 zoning districts, medium-scale and utility-scale solar facilities should only be permitted in a limited number to minimize conflicts with other uses, primarily residential, commercial, or industrial development. Zoning districts that may best accommodate these larger solar facilities include A-1 and P-1. Medium-scale and utility-scale solar facilities located in other zoning districts as accessory to existing power generating primary uses, public facilities, and other existing uses as determined by the Zoning Administrator may also be permitted.

The permitted size and scale of a proposed solar facility may vary based on the location, the character of the area, and the extent of the facility. If the proposed location is near an identified population center or visible from a major road, then a smaller size or additional screening and buffering provisions may be appropriate. If a proposed location is more remote, not visible from a major road, or if the facility will occupy only a relatively small portion of a larger site, then a larger size and scale facility may be appropriate.

The Zoning Ordinance does not provide specific application requirements, development standards, or performance standards for solar facilities. In addition, the County would like to consider adjusting the facility size limit so that the process for solar facilities 1 MW or greater is provided in Chapter 17.168 Site Selection and Construction of Major Facilities of Public Utilities under Chapter 17.148 Administrative Regulations.

To ensure that solar facilities are comprehensively and efficiently addressed, we recommend amending the Pueblo County Code with a proposed new chapter specifically addressing utility-scale and medium solar facilities,

Recommended Amendments

- Under section “**17.04.040 Definitions**” and section “**17.168.020 Definitions**,” add the following:

“Battery Energy Storage Facilities”

One or more battery cells for storing electrical energy stored in a Battery Energy Storage System (“BESS”) with a Battery Management System (“BMS”).

“Battery Energy Storage System (BESS)”

A physical container providing secondary containment to battery cells that is equipped with cooling, ventilation, fire suppression, and a battery management system.

“Battery Management System (BMS)”

An electronic regulator that manages a battery energy storage system by monitoring individual battery module voltages and temperatures, container temperature and humidity, off-gassing of combustible gas, fire, ground fault and DC surge, and door access and being able to shut down the system before operating outside safe parameters.

“Brownfield”

A former industrial or commercial site typically containing low levels of environmental pollution such as hazardous waste or industrial byproducts.

“Decommissioning and Reclamation Plan”

A plan to disconnect, remove, and properly dispose of equipment, facilities, or devices and reclaim the site.

“Electric Power Plant”

A facility designed and operated for the generation and distribution of electricity for the primary purpose of selling electricity generated to the electric power grid, including facilities which use fossil fuels, solar energy, hydroelectric energy, geothermal energy, biomass energy or wind energy as a resource. This definition does not apply to on-site generation equipment when such use is an accessory use.

“Integrated Photovoltaics”

Photovoltaics incorporated into building materials, such as shingles.

“Photovoltaics (PV)”

Materials and devices that absorb sunlight and convert it directly into electricity.

“Rated Capacity”

The maximum capacity of a solar facility based on the sum of each photovoltaic system’s nameplate capacity reported as Watts Direct Current (W_{DC}) or Watts Alternating Current (W_{AC}).

“Reclamation”

The employment, during and after an operation, of procedures reasonably designed to minimize as much as practicable the disruption from an operation and provide for the establishment of plant cover, stabilization of soil, protection of water resources, or other measures appropriate to the subsequent beneficial use of the affected lands. Reclamation shall comply with all State and Federal regulations related to air quality, water quality and water law, and stormwater.

“Solar Facility, Medium-Scale”

A facility between one (1) acre and ten (10) acres. This size is approximately equivalent to a rated capacity of about 250 kW to one (1) megawatt (MW) alternating current. Facilities are generally generating electricity from sunlight primarily to reduce onsite consumption of utility power for commercial and industrial applications.

“Solar Facility, Small-Scale”

A solar facility of less than one (1) acre. This size is approximately equivalent to a rated capacity of about ten (10) kilowatts (kW) to 250 kW alternating current. Facilities are generally generating electricity from sunlight primarily to reduce onsite consumption of utility power for residential, agricultural, commercial, and industrial applications.

“Solar Facility, Utility-Scale”

A solar facility of more than ten (10) acres. This size is approximately equivalent to a rated capacity of about one (1) MW alternating current or greater. Facilities are generally generating electricity from sunlight to provide electricity to a utility provider.

“Solar PV Panel Coverage”

The total acres covered by blocks of photovoltaic panels including spaces between panels but excluding wildlife corridors, mandated setbacks, wetlands, and other avoided natural or cultural features.

- Under section “**17.90.010 Definitions**” revise the definitions as noted in italics:

“~~Energy Generation Facility~~ Electric Power Plant” means a facility designed and operated for the generation and distribution of electricity for the primary purpose of selling electricity generated to the electric power grid, including facilities which use fossil fuels, solar energy, hydroelectric energy, geothermal energy, biomass energy or wind energy as a resource. This definition does not apply to on-site generation equipment when such use is an accessory use.

“~~Solar Farm~~ Solar Facility” means an installation or area of land in which a large number of solar panels are configured to generate electricity.

- Under section “**17.120.130 Public utilities**” include a new subsection D. and renumber current D to E as noted in italics:

D. Small-scale solar facilities, as defined in Section 17.04.040 Definitions, are allowable by-right as an accessory use in accord with the underlying zoning requirements.

E. These regulations shall in no way prohibit the installation of temporary facilities of the types described in subsections B and C of this section in cases of emergency conditions, provided within a reasonable period of time application is made for the installation of permanent facilities.

- Under section “**17.168.020 Definitions**” revise the definition as noted in italics:

“Power plant” means any of the following:

1. Any fossil fuel, biofuel, or similar electrical energy generating facility with a generating capacity of one hundred (100) megawatts or more, and any appurtenant facilities thereto, or any addition or series of additions thereto increasing the existing design capacity of the facility by one hundred (100) megawatts or more.
2. Any ~~solar or~~ wind electrical energy generating facility with a generating capacity in excess of two (2) megawatts, and any appurtenant facilities thereto, or any addition or

series of additions thereto increasing the existing design capacity of the facility in excess of two (2) megawatts.

3. *Any solar electrical energy generating facility with a generating capacity one (1) megawatt or greater, and any appurtenant facilities thereto, or any addition or series of additions thereto increasing the existing design capacity of the facility to one (1) megawatt or greater.*
 4. Any nuclear or hydropower electrical generating facility.
- Add the attached new section “**17.168.050. Solar Facilities**” specifically addressing medium-scale and utility-scale solar facilities and ancillary battery facilities to Pueblo County Code, Title 17, Division II.

Conclusion

These proposed amendments to the Comprehensive Plan and Zoning Ordinance, once approved by the Board of County Commissioners, will provide further guidance to the solar industry and County staff in how to prepare and evaluate future solar facility applications. By modifying and utilizing the existing 1041 Permit process, the County ensures continuity and predictability in the processing and evaluation of these complex large-scale development applications.

cc: Sabina Genesio, County Manager
Carmen Howard, Director of Planning & Development
Marci Day, County Attorney

encl:

Attachment A. Proposed Pueblo County Code, Section 17.168.050. Solar Facilities – 10.15.21 version