




Land Use

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BOULDER COUNTY PLANNING COMMISSION AGENDA ITEM #2

March 16, 2011 – 1:30 PM
Hearing Room, Third Floor
Boulder County Courthouse

PUBLIC HEARING with PUBLIC TESTIMONY

STAFF: Abby Shannon Janusz, AICP 

Docket DC-11-0001: SOLAR GARDENS AND COMMERCIAL SOLAR ENERGY SYSTEMS

Proposed Land Use Code text amendments to better facilitate statewide Solar Gardens legislation and to allow small to medium sized commercial scale solar energy power generation facilities. This docket will propose amendments to Art. 4-514(J) Small Solar Energy Systems and 4-514(E) Major Facility of a Public Utility; and will propose a new use classification for Medium Solar Energy Systems or Solar Gardens as a principal use.

Action Requested: Recommendation of approval and certification of the docket by the Planning Commission to the Board of County Commissioners, following staff presentation and public hearing.

SUMMARY

The Board of County Commissioners authorized staff pursue amendments to the Land Use Code to better facilitate larger solar arrays in unincorporated Boulder County in response to statewide Solar Gardens legislation at a Public Hearing on September 14, 2010. At that time, the Commissioners supported reviewing the size thresholds established for small solar arrays as a principal use and allowing medium-sized commercial facilities to be located in the County if appropriate locations could be identified.

DOCKET HISTORY

The Board of County Commissioners approved regulatory changes for small renewable energy systems (wind and solar) on June 16, 2009. At that time, the Board requested a one-year review of the regulations so that staff and the Board could assess the changes. The one-year review was held on September 14, 2010. The Board authorized staff to pursue amendments to the code to better facilitate Solar Gardens and larger arrays.

PROJECT GOALS AND DRAFT REGULATIONS

There are three main goals of this docket:

1. To enable and better facilitate the siting of Solar Gardens as authorized by HB-10-1342.
2. To allow larger arrays in appropriate locations that meet the goals of the comprehensive plan and the history of land use policy in the county. These would be larger than our

definition of “small” (Art. 4-514(J)) but smaller than the de facto definition of “large” which is Major Facility of a Public Utility (Art. 4-514(E)).

3. To make any changes to small and medium-sized facilities consistent with the Land Use Code definition of large energy generating facilities (Major Facility of a Public Utility, 4-515(E)).

Each goal is discussed in greater detail below followed by staff’s proposal to meet these goals.

Small Solar Gardens

The regulations approved in June 2009 (Small Solar Energy Systems) allow for Solar Gardens because they allow systems to capture energy on one parcel and send that energy to another parcel. The review process required is based on the land use impacts of the array as measured by square footage of area disturbed. Systems that will disturb less than 5,000 sq ft are allowed in all zone districts through the Site Plan Review process. While the potential capacity of a facility can vary greatly based on the orientation and efficiency of the panels, staff estimates that an array with 5,000 sq ft of site disturbance could generate between 55-83 KW.¹ Systems slightly larger (up to 7,500 sq ft of site disturbance) are permitted through the Special Review process in all zone districts. Staff estimates these arrays could be 83-125 KW.

The existing regulations allow larger solar arrays of unlimited size but only in the General Industrial (GI), Light Industrial (LI), or Commercial (C) zone districts. These systems must go through the Special Review process as well. Once a system reaches 50 MW in size, it would meet the definition of Power Plant and would be considered a Major Facility of a Public Utility. These facilities are permitted in all zone districts through the Areas and Activities of State Interest (or “1041,” named for the Colorado legislation that authorized this review process for counties) regulations. Since the regulations went into effect in June 2009, no applications for Small Solar Energy Systems (a principal use) have been received.

The Solar Gardens legislation approved through HB 1342 during the 2010 Colorado General Assembly defines solar gardens as systems with 10 or more subscribers. The legislation puts Solar Gardens in two categories: up to 500 KW or up to 2 MW. The 500 KW or smaller systems would be eligible to receive a standard offer from the investor-owned utility to buy back the power at a standard rate. The larger systems would need to enter into a competitive bidding process. The legislation only requires investor-owned utilities to purchase 6 MW of power every year for three years. No Solar Gardens have been established under this legislation just yet as the Public Utilities Commission is still in the rule-making process. Final PUC rules are expected circa June 2011. Part of the reason for moving this docket forward at this time is to be prepared for the rules so that county residents can take part in this program. We don’t expect the rules to address land use impacts or authority and are comfortable moving forward at this time. If we discover there are potential conflicts with these proposed regulations we would come back with amendments. If you are interested in the rule-making process you can find additional information at the Public Utilities Commission website. The Proceeding Number is 10R-674E.

While our experience with smaller ground-mounted solar arrays has shown that they disturb 60-90 sq ft/KW, we do have one larger array in the county which disturbs approximately 240 sq ft/KW.² At

¹ This estimate is based on ground-mounted solar arrays that applied to Land Use for the Site Plan Review Waiver process from June 30, 2009 to August 31, 2010. These smaller arrays generally disturbed 60-90 sq ft/KW.

² The City of Boulder array at their wastewater treatment plant near Walden Ponds is a 1 MW array that disturbs approximately 5.5 acres of land.

the public hearing on September 14, 2010, there was public testimony from a solar-industry professional stating that a 500 KW system would occupy approximately 3.5 acres while a 2 MW facility would occupy approximately 14 acres. Communication with another solar industry professional indicated 7-9 acres of land per MW are necessary for ground-mounted arrays.

Land Use staff recommends changes to the definition, size limitations, and additional provisions to the existing use classification in order to better facilitate Solar Gardens and to make a distinction between small, medium, and large systems. Proposed changes have been indicated in strikethrough (indicating it would be deleted) or underlined (indicating this language would be added) font.

Art 4-514(J) Small Solar Energy System or Solar Garden

1. Definition: A system composed of a solar energy collector which may include an energy storage facility, and components for the distribution of transformed energy, and which may be used for one or more users ~~on neighboring parcels.~~

2. Districts Permitted: By site plan review in all districts if the system will disturb less than ~~5,000 (0.5?) (1?) acre~~ of land. By limited impact special review in all districts if the system will disturb ~~5,000 square feet but not more than 7,500 square feet~~ more than (0.5?) (1?) acre but less than (4)? acres of land. By special review in GI, LI, and C if the system will ~~disturb 7,500 square feet or more.~~

OR we could determine the review process based on the capacity of the system:

Districts Permitted: By site plan review in all districts if the system nameplate electric capacity is (50?) (100?) KW or less. By limited impact special review in all districts if the system nameplate electric capacity is greater than (50?) (100?) KW but less than (500?) KW.

3. Parking Requirements: ~~None~~ To be determined through the review

4. Loading Requirements: None

5. Additional Provisions:

- a. This use is required to be located on a building lot or an outlot platted for this purpose.
- b. If necessary for the system's effectiveness, ground-mounted solar energy collectors may be located within the minimum lot line setbacks for the subject property zoning district and within any applicable major road supplemental setback without the need for a variance, provided that the solar energy collector is located no less than five feet from lot lines and no less than 15 feet from road rights-of-way.
- c. Ground-mounted solar energy collectors may not be located within utility easements or ditch easements.
- d. This use shall not have a significant adverse visual impact on the natural features or neighborhood character of the surrounding area and shall be located to minimize glare on adjacent properties and roadways.
- e. Applications shall be reviewed ~~according to the required review criteria~~ with special consideration to lands identified as Environmental Resources in the Boulder County Comprehensive Plan.
- f. Roof-mounted systems proposed as a principal use may be mounted on any legal structure. They will be reviewed through the building permit process. Roof-mounted systems shall be mounted as flush as possible to the roof. In order to achieve proper solar orientation, panels may exceed the roofline by up to five feet or the maximum height of the zone district by up to five feet (whichever is more restrictive).
- g. This use classification shall be reviewed by staff and discussed at a public meeting with the Board of County Commissioners on or around [3 years after effective date of amendment].

The proposal would allow for slightly larger systems than we currently allow in all zone districts and through shorter review processes. *Staff requests Planning Commission consider whether the review process level should be based on site disturbance or capacity.* Staff recommends relating the land use process to the site disturbance would be a better way to measure the land use impacts of the proposal. It would also result in a use classification that is technologically neutral and would encourage high efficiency systems. However, basing the review process on the size of the system would allow for consistency between how the Code would then define small, medium, and large systems.

Item (f) is proposed so that roof-mounted systems can be processed through the building permit process, even if they are not an accessory use. Staff suggests this amendment because the impact of roof-mounted systems is negligible – there is no additional site disturbance as a result of the system. The review process and the exception for tilted panels exceeding the roofline or zone district maximum height is consistent with the way we review and approve accessory roof-mounted solar energy systems.

Item (h) is proposed so that these regulations can be reevaluated contemporaneously with the end of the three-year initial period established by the recently enacted statewide Solar Gardens legislation. In recent Land Use Code text amendment dockets, a required review period has been incorporated into the Resolution (which would formally approve any changes to the Code) rather than the Land Use Code itself. *Staff requests Planning Commission consider whether the review period should be incorporated into the Code or just the Resolution.*

Medium-Sized Solar Arrays

The current regulations allow for medium-large sized solar areas through the Special Use Review process but in very limited locations (GI, LI, and C zone districts only). Staff proposes removing this allowance from the definition of “small” while creating a new use classification for medium-sized arrays. The proposed new use classification would be a Utility use (like Small Solar Energy Systems) and would bridge the gap between small Solar Gardens and Power Plants.

Medium Solar Energy System or Solar Garden

1. Definition: A system composed of a solar energy collector which may include an energy storage facility, and components for the distribution of transformed energy, and which may be used for one or more users.
2. Districts Permitted: By special review in GI, LI, C, A, F if the system will disturb more than (4?) acres of land
OR we could determine the review process based on the capacity of the system:
Districts Permitted: By special review in GI, LI, C, A, F if the system nameplate electric capacity is greater than (500?) kW/MW but smaller than 50 MW
3. Parking Requirements: To be determined through the review
4. Loading Requirements: None
5. Additional Provisions:
 - a. Commercial solar energy systems in the Agricultural or Forestry zone districts will be permitted only if the applicant demonstrates the area used has been contaminated or damaged such that it is not suitable for agricultural, forestry, or residential uses. These areas may include but are not limited to former landfills, brownfields, Superfund sites, mining tailings, etc.
 - b. This use is required to be located on a building lot or an outlot platted for this purpose.

- c. Ground-mounted solar energy collectors may not be located within utility easements or ditch easements.
- d. This use shall not have a significant adverse visual impact on the natural features or neighborhood character of the surrounding area and shall be located to minimize glare on adjacent properties and roadways.
- e. This use cannot be located on areas with the following Boulder County Comprehensive Plan designations: Agricultural Lands of National Significance, Agricultural Lands of State Significance, or Critical Wildlife Habitat.
- f. Roof-mounted systems proposed as a principal use may be mounted on any legal structure. They will be reviewed through the building permit process. Roof-mounted systems shall be mounted as flush as possible to the roof. In order to achieve proper solar orientation, panels may exceed the roofline by up to five feet or the maximum height of the zone district by up to five feet (whichever is more restrictive).
- g. This use classification shall be reviewed by staff and discussed at a public meeting with the Board of County Commissioners on or around [3 years after effective date of amendment].

The definition and many of the Additional Provisions are the same between Small and Medium facilities. The language proposed above allows medium-sized arrays to be located in the Forestry or Agricultural districts in very limited circumstances. Our intent is to allow lands such as superfund sites, former industrial sites, and perhaps former mining sites to be eligible locations for larger solar arrays. For example, there are a number of former landfill sites around the country that are being utilized for commercial-scale solar energy facilities. *As Planning Commission deliberates, staff requests consideration and direction to staff regarding the types of environmentally damaged sites that should be eligible for medium-sized solar arrays.*

There is language in each of the zone districts that allows Small Solar Energy Systems to not trigger Special Review for being a multiple principal use if it is proposed for a location with an existing use. Staff proposes making amendments to each of the zoning districts in the Additional Provisions to reflect that Medium arrays would also not be considered a multiple principal use.

4-401 (F)(5) Forestry

Medium Solar Energy Systems, Small Wind-Powered Energy Collectors Systems and Small Solar Energy Collectors Systems can be approved on parcels with existing principal uses without Special Review approval, however, these uses shall be reviewed using the process and standards described in the Utility and Public Service Uses classification in this Code.

Large Solar Arrays

Very large solar arrays are already allowed as a Major Facility of a Public Utility. One of the uses included within this umbrella is Power Plant which is defined as, "An electrical energy generating facility with generating capacity of more than 50 megawatts and any appurtenant facilities" (Art. 18-185). The purpose of making changes to this use classification is to bring consistency between medium and large facilities. Staff is also suggesting changes to the use classification to limit where all Power Plants, regardless of fuel source, are located.

4-514 (E) Major Facility of a Public Utility

1. Definition: Any electric transmission lines, power plants, or substations of electric utilities; major gas regulator stations, transmission and gathering pipelines, and storage areas of utilities providing natural gas or petroleum derivatives; and their appurtenant facilities.

2. Districts Permitted: By review under the regulation of areas and activities of state interest, or special review and location and extent review in all districts. Power plants are by review under the regulation of areas and activities of state interest in GI, LI, C, A, F
3. Parking Requirements: To be determined through the review
4. Loading Requirements: None
5. Additional Provisions:
 - a. This use is not required to be located on a building lot, nor comply with the minimum lot size requirement for the district in which it is located.
 - b. Power plants in the Agricultural or Forestry zone districts will be permitted only if the applicant demonstrates the area used has been contaminated or damaged such that it is not suitable for agricultural, forestry, or residential uses. These areas may include but are not limited to former landfills, brownfields, Superfund sites, mining tailings, etc.
 - c. Power plants cannot be located on areas with the following Boulder County Comprehensive Plan designations: Agricultural Lands of National Significance, Agricultural Lands of State Significance, and Critical Wildlife Habitat.

TEXT AMENDMENT CRITERIA ANALYSIS

Article 16-100.B. contains the criteria for amending the text of the Land use Code. Staff finds that these criteria are met in the context of this Docket, as follows:

The existing text is in need of amendment:

Staff has identified the goals of this docket and the reasons why these amendments should be made.

The amendment is not contrary to the intent and purpose of this Code:

The amendments are not contrary to the Code.

The amendment is in accordance with the Boulder County Comprehensive Plan:

The proposed changes are in accordance and help implement the Comprehensive Plan. Enabling and encouraging renewable energy opportunities support the general goals of the Sustainability element, in particular.

REFERRALS AND PUBLIC INVOLVEMENT

These proposed changes were referred to the Parks and Open Space Department, the Transportation Department, the Land Use Building Division, and the County Attorneys. In addition, a draft of this staff report including staff recommended changes to the Land Use Code was sent to identified stakeholders, City of Boulder staff, and the Land Use Code listserv on March 3, 2011. While no formal referral responses have been submitted, Land Use staff worked closely with the Open Space Department, County Attorneys, and some of the identified stakeholders to develop and revise the staff-recommended language.

STAFF RECOMMENDATION

STAFF RECOMMENDS THAT THE PLANNING COMMISSION APPROVE AND RECOMMEND TO THE BOARD OF COUNTY COMMISSIONERS APPROVAL OF DOCKET DC-11-0001, SOLAR GARDENS AND COMMERCIAL SOLAR ENERGY SYSTEMS, and certify the Docket for action to the Board of County Commissioners, which certification includes the approved text of the Docket, and the official record of the Docket before the Planning Commission including staff comments and materials, public testimony, and Planning Commission action/discussion.