

# REQUEST FOR BOARD ACTION

## HENDERSON COUNTY PLANNING BOARD

**MEETING DATE:** February 16, 2012

**SUBJECT:** Land Development Code Text Amendment (TX-201201) Solar Energy Generation Facilities and Solar Panels

**PRESENTER:** Anthony Starr, AICP, Planning Director

**ATTACHMENTS:** 1. PowerPoint  
2. Draft Text Amendment

### **SUMMARY OF REQUEST:**

On January 26, 2012, the Planning Department received an application to amend the Land Development Code to allow solar energy generation facilities. Staff worked with the applicant and a local representative from the solar energy industry to develop the draft regulations. Currently, solar energy generation facilities (a.k.a. solar farms) are not permitted in Henderson County's jurisdiction.

The proposed text amendment allows these facilities in all standard zoning districts as either a permitted or special use. If the facility is larger than 30 acres, they are not permitted in the R1 or R2 zoning districts. The draft text provides a series of standards to address potential concerns when building such a facility. Those standards are intended to protect adjoining properties and provide minimum safety measures.

Staff asked the applicant and a solar industry representative to review the text and they are in agreement with the proposed amendment. Staff also reviewed numerous ordinances and research on this subject. Glare is an often cited concern. However, it appears that it is a concern without merit. The panels are designed to absorb light and not reflect it. Any reflection represents lost energy. The example photos provided will illustrate how solar panels appear.

Planning Staff recommends approval of the proposed text amendment. It appears to be consistent with the County's Comprehensive Plan.

The proposed text amendment is a time sensitive request and the Planning Board is requested to act this month. It is anticipated that the Board of Commissioners will hold the required public hearing on Monday, March 5<sup>th</sup>, 2012 at 5:30p.m.

### **Suggested Motion:**

I move that the Planning Board recommend approval of the text amendment to the Board of Commissioners and that the Planning Board find that the proposed text amendment is consistent with the County Comprehensive Plan.

## Land Development Text Amendment Solar Energy Generation Facilities & Solar Panels



Henderson County Planning Board Meeting  
Thursday, February 16, 2012  
Presentation by: Anthony Starr, AICP, Planning Director

*Henderson County Planning Department*

## Solar Energy Generation Facilities

- Received an application on January 26, 2012
- Applicant: Tom & Marcia Pace
- Application: Proposed to allow Solar Energy Generation Facilities (a.k.a. Solar Farms)
- Amends the LDC Table of Permitted and Special Uses and the Supplemental Requirements
- Staff also proposes minor changes to solar panels as an accessory use

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## Background

- NC passed law (Senate Bill 3) in 2007 mandating utility companies generate at least 12.5% of power from renewable energy sources by the year 2021
- Significant tax benefits from federal & state government for solar power generation
- Large solar generation facilities seem less likely for Henderson County
- Smaller solar energy generation facilities (less than 30 acres) seem likely
- Requires 3-phase power lines

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## Background

- Facilities generating more than 2 megawatts annually require:
  - Approval by the NC Utilities Commission
  - Public Hearing by the State
  - Certificate of Need issued by the State
- Facilities generating less than 2 megawatts annually are easier to gain required permits from the State
- A 2 megawatt facility encompasses about 15 acres

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## Background

- Development costs are estimated at about \$4 per watt or \$4M for a 1 megawatt facility
- Solar Energy Generation Facilities are taxed as personal business property and not as real property
- Area examples include:
  - Kimberly Clark Corporation (Old Berkley Mill Site) on Berkley Rd. This site is within the City of Hendersonville's jurisdiction
  - Biltmore Estate (visible from I-240 westbound)

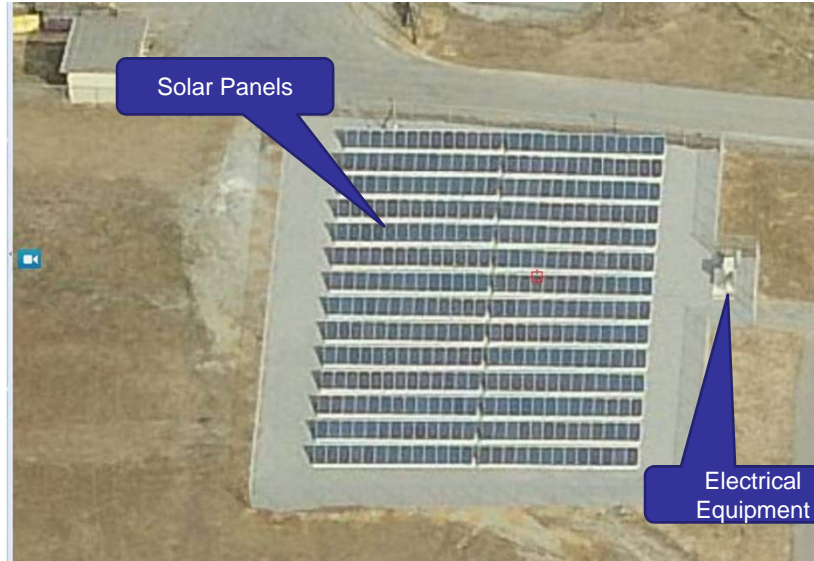
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## Kimberly Clark Aerial Map



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## Kimberly Clark Pictometry Image



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## Kimberly Clark Example Photos



Area: Approx. ½ acre (20,000 sqft)  
Measurements: 170 feet x 120 feet  
Approximately height: 4 to 5 feet

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## Kimberly Clark Example Photos



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## Proposed Text – Key Points

### **Solar Energy Generation Facility**

- $\leq$  30 acres allowed in R1 & R2 as special use; allowed in all other standard zoning districts by right
- $>$  30 acres is not allowed in R1 & R2; allowed as special use in all other standard zoning districts
- Requires a major site plan
- Dust reduction required (common requirement to uses but rarely applies)
- 20 foot required perimeter setback (fence can encroach)
- Ground mounted systems limited to 25 feet in height

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## Proposed Text – Key Points

### **Solar Energy Generation Facility**

- Roof mounted systems must adhere to height limits for applicable zoning district
- Screening required where adjacent to residential uses
- Buffering not required
- Not allowed on sites visible from Scenic Byways designated by NCDOT or County
- Security – fencing required (6 foot height)
- New power lines must be underground when practical

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## Proposed Text – Key Points

### ***Solar Energy Generation Facility***

- Wind and Snow loads must be certified by an engineer on plans and after construction is complete
  - Wind survival speed of 90 mph per building code
  - Snow load of 15 lbs. per square foot per building code
- Principal structure/building permitted but not required on sites
- Not allowed in the Special Flood Hazard Area (a.k.a. 100-year floodplain)
- Lighting mitigation required

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## Proposed Text – Key Points

### ***Solar Panel standards modified***

- Staff suggested and added to application
- Currently allowed as accessory use for residential and non-residential buildings
- Currently no limit on size of residential solar panels (non-residential can't exceed 150% of power needed for use on site)
- Proposed change also limits residential uses to panels that do not generate more than 150% of power used on site
- Makes requirements clearer

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## Next Steps

- Questions from the Planning Board?
- Planning Board receives public comment tonight
- Planning Board makes its recommendation (hopefully tonight)
- Board of Commissioners likely to hold required public hearing on Monday, March 5<sup>th</sup>, 2012 at 5:30pm

*Henderson County Planning Department*

**Text Amendment (TX-2012-01) Solar Energy Generation Facility & Solar Panels**

**Summary:**

The definitions below and associated standards intend to permit solar energy generation facilities (a.k.a. solar farms) in Henderson County. Currently, Henderson County only allows solar panels as an accessory use. Through research for such facilities, staff determined that glare from the panels is often cited as a concern but does not actually represent an actual issue. Solar panels are constructed to absorb light and not reflect it, thereby emitting no glare as one might see with glass or windows.

The proposed text amendment allows solar energy generation facilities, equal to or less than 30 acres, in all standard zoning districts by right except the R1 and R2 residential districts where it would be allowed as a special use (requiring a hearing by the Zoning Board of Adjustment). Facilities with an area greater than 30 acres would be allowed as a special use in all standard zoning districts except R1 and R2 where such large facilities are probably not appropriate. If permitted by right, a property owner is entitled to gain approval if all applicable requirements are met. Special Uses require approval by the Zoning Board of Adjustment after conducting a hearing and considering the evidence (see 200A-356, Special Use Permits).

**New Definitions:**

Add the following definition to Article XIV, Definitions, in alphabetical order.

**Solar Energy Generation Facility.** Any nonresidential solar collection applications designed to facilitate the capture and conversion of solar energy for the purpose of supplying electricity to utility companies. This definition does not include solar panels accessory to a principal use.

**New Use Added to Permitted Use Table:**

§200A-62. Table of Permitted and Special Uses

USE TYPE	GENERAL USE DISTRICT											
	P=Permitted; S=Special Use Permit											
	R1	R2	R2R	R3	R4	OI	MU	LC	CC	RC	I	SR
<b>9. TRANSPORTATION, WAREHOUSING AND UTILITIES</b>												
<i>Solar Energy Generation Facility ≤ 30 acres</i>	S	S	P	P	P	P	P	P	P	P	P	9.9
<i>Solar Energy Generation Facility &gt; 30 acres</i>			S	S	S	S	S	S	S	S	S	9.9

Note: Existing uses in section 9 of the Table of Permitted and Special Uses and the Supplemental Requirements will be re-numbered following this amendment.

**New Supplemental Requirement Standards:**

**SR 9.9. Solar Energy Generation Facility**

- (1) Site Plan. Major *Site Plan* required in accordance with §200A-299 (Major Site Plan Review). The site plan shall include ground level profile drawings of the typical structures proposed and the designed wind and ground snow loads.
- (2) Dust Reduction. Unpaved *roads, travelways* and/or parking areas shall be treated to prevent dust from adverse affects to adjacent properties.
- (3) Perimeter Setback. All structures and components shall be a minimum of twenty (20) feet from property lines. Necessary ingress and egress for vehicles and utility & transmission lines may be located within the perimeter setback. Fences may be placed within the perimeter setback.
- (4) Height. Systems, equipment and structures shall not exceed twenty-five (25) feet in height when ground mounted. Roof mounted systems shall not exceed the maximum height for the applicable zoning district.
- (5) Screening. Screen Class One (1), Two (2), Three (3), or Four (4) shall be provided along sides of the facility which are adjacent to a residential use (as identified in Section 1 of 200A-62, Table of Permitted and Special Uses) on a separate parcel, consistent with 200A-182 (Screen Classification). Where screening is required, screening shall be placed on the exterior side of fencing. Buffer Requirements, as specified by Article V Subpart A, shall not apply to Solar Energy Generation Facilities unless the Solar Energy Generation Facility is not permitted in the zoning district adjacent to the site.
- (6) Scenic Byways. Solar energy Generation Facilities shall not be permitted on sites visible from Scenic Byways as designated by the North Carolina Department of Transportation or Henderson County.
- (7) Security. Solar Energy Generation Facilities shall be completely enclosed within:
  - a. a woven wire fence; or
  - b. a masonry wall; or
  - c. a wooden fence that contains spacing no greater than six (6) inches.Such fences shall be at least six (6) feet in height.
- (8) Power Transmission Lines. To the extent practical, all new power transmission lines to any building, structure or utility connection shall be located underground. Existing above ground utility lines shall be allowed to remain in their current location.
- (9) Electrical Disconnection Switch. The electrical disconnect switch shall be clearly marked and unobstructed. Switches are permitted to be secured within a fenced area or building.
- (10) Wind and Snow Loads. All equipment and structures shall comply with the N.C. State Building Code requirements for survival wind speeds and ground snow loads for buildings. Although the N.C. State Building Code may require such load designs for only buildings, all structures and equipment associated with this use shall meet those same wind and snow load requirements. Note that such requirements vary based on the elevation and location of the site. The Zoning Administrator shall require a certification from a structural engineer, licensed in North Carolina as a professional engineer, stating the designed wind and snow load standards for equipment and structures have been constructed according to the State Building Code and will meet the following:
  - a. Structures and buildings will meet a minimum wind survival speed of 90 m.p.h.; and
  - b. Structures and buildings will meet a minimum snow load of 15 lbs. per square foot.



- (11) Principal Structure. A principal structure, other than the solar collectors, is permitted but not required.
- (12) *Special Flood Hazard Area*. No structures, equipment, storage or buildings shall be located within the *Special Flood Hazard Area*.
- (13) Lighting. *Lighting Mitigation* is required.

**Amend the Supplemental Requirement Standards (Accessory Uses Section):**

**SR 2.11. Solar Panels**

- (1) Location. Panels:
  - a. May be placed on the roof of a residential, commercial or industrial *structure*;
  - b. Shall be placed on the *lot* on which a *structure* is located;
  - c. Shall be designed to produce no more than 150 percent of the on site use's energy consumption.