

REQUEST FOR BOARD ACTION

HENDERSON COUNTY BOARD OF COMMISSIONERS

MEETING DATE: April 18, 2012

SUBJECT: Land Development Code Text Amendment (TX-2012-01) Regarding Solar Energy Generation Facilities and Solar Panels

PRESENTER: Anthony Starr, AICP, Planning Director

ATTACHMENTS: 1. Draft Text Amendment (text changes since March 5th are shown in red)
2. PowerPoint Presentation

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.

At the Board's direction, staff gathered additional information and is providing a range of options for consideration by the Board. The Board may choose to use some or all of the new revisions that were developed to address concerns raised at the March 5, 2012 public hearing. The Board is requested to provide direction to staff.

The attached presentation provides 5 primary options for the Board to consider:

1. Approve the text amendment as originally presented on March 5, 2012
2. Deny the text amendment (but approve the portion regarding accessory solar panels)
3. Approve the text amendment with some or all of the possible changes presented
4. Require that all solar energy generation facilities obtain a special use permit (public hearing by the Board of Adjustment for applications)
5. Create a new conditional zoning district only for solar energy generation facilities (requires a public hearing by commissioners for each new site)

BOARD ACTION REQUESTED:

The Board is requested to consider the information presented and provide direction to staff.

Suggested Motion: None

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.

Changes to text, since the March 5th hearing, are shown in red.

New Definitions:

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

Solar Energy Generation Facility. Any 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
9. TRANSPORTATION, WAREHOUSING AND UTILITIES												
<i>Solar Energy Generation Facility</i> ≤ 30 <u>15</u> acres	S	S	P	P	P	P	P	P	P	P	P	9.9
<i>Solar Energy Generation Facility</i> > 30 <u>15</u> acres			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 not be placed within the perimeter setback.
- (4) Height. Systems, equipment and structures shall not exceed ~~twenty five (25)~~fifteen (15) feet in height when ground mounted. Up to 10% of the area of structures and equipment may exceed fifteen (15) in height to account for topographical variations but in no case shall they exceed a height of twenty (20) feet. 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~~within 1,000 feet of 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. Wire woven fences shall be vinyl-coated or painted with a dark green, brown or black color. Vinyl-coating or painting of razor-wire or barbed-wire portions of the fence is not required.
 - (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.

- (14) Separation. A Solar Energy Generation Facility larger than 15 acres shall not be constructed or newly located within 200 feet of a residential use (as identified in Section 1 of 200A-62, Table of Permitted and Special Uses) on a separate parcel unless the facility is part of same development project where residential uses are located.
- (15) Urban Locations. Solar Energy Generation Facilities shall be limited to five (5) acres when located in the R-1 Residential or R-2 Residential Zoning Districts.
- (16) Special Use Permit Criteria. In addition to the standard review for special use permits, the Zoning Board of Adjustment shall consider appearance criteria and the facility's visual impact on nearby neighborhoods.
- ~~(13)~~(17) Maintenance and Removal. Facility must be maintained in good working condition and be free from debris and nuisances. In an instance where the facility is no longer utilized for energy generation for a period of six (6) months or longer, the property owner must remove any structures related to the use including but not limited to solar panels, enclosure, and electrical equipment. Failure to do so will make the property a nuisance under Chapter 126 of the Henderson County Code and may result in the County removing it from the property and placing a lien on the real property for the cost of removal as per N.C. General Statute 153A-140.2.

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.

Land Development Text Amendment Solar Energy Generation Facilities & Solar Panels



Henderson County Board of Commissioners Meeting
Wednesday, April 18th, 2012

Presentation by: Anthony Starr, AICP, Planning Director

Henderson County Planning Department

Solar Energy Generation Facilities

- Received an application on January 26, 2012 from Tom & Marcia Pace to allow Solar Farms
- The Board held the required public hearing and proper notice was published in the Hendersonville Tribune
- Board directed staff to obtain additional information and present it on April 18, 2012

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 incentives 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

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
- A 2 megawatt facility would supply enough power for about 200 homes (1,500 SF) for a year

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)
- Largest solar farm built in NC is in Davidson County, NC near Lexington

Concerns Expressed at March Hearing

- Tax incentives
- Environmental & public safety
- Size of solar facilities
- Appearance
- Impact on neighborhoods and effect on property values
- Maintenance and abandonment
- Others?

Tax Incentives

Concerns expressed about tax incentives

- 30% federal tax credit for investment costs
- 35% state tax credit for investment costs spread over a 5 year period
- Business property eligible for a 80% property tax exclusion (does not apply to land, buildings)
- County has no authority to change the tax incentives

Environmental & Public Safety Issues

Concerns expressed about environmental & public safety risks

- Solar panels are passive and only collect energy
- No evidence to indicate that they concentrate radiation or solar energy
- Unlikely that high voltage towers would be constructed due to cost
- A large solar farm may locate near existing high voltage towers and lines (Davidson County example)

Environmental & Public Safety Issues

Concerns expressed about environmental & public safety risks

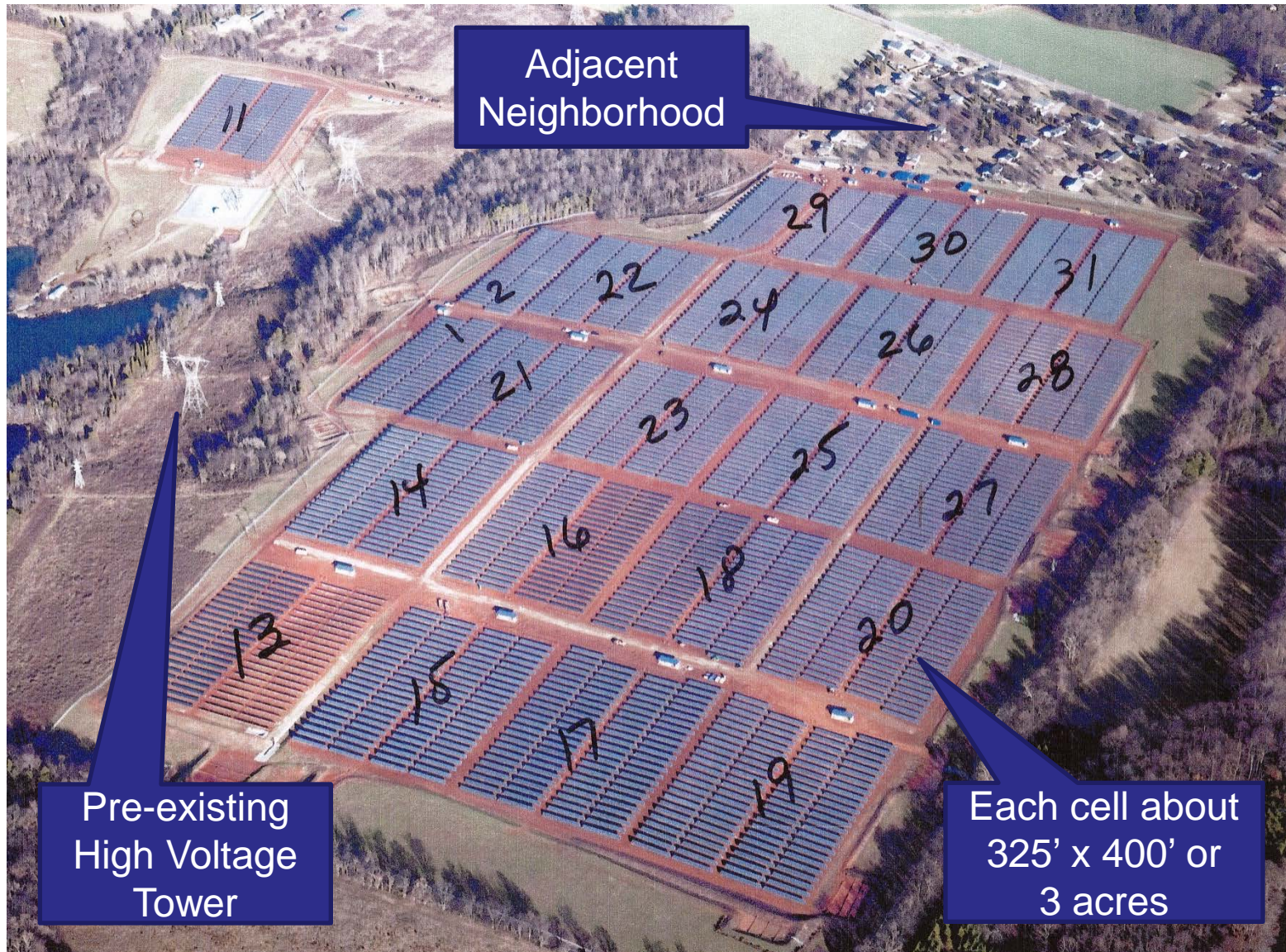
- Only the larger solar farms would need high voltage lines and if new lines were proposed the Board of Adjustment could consider their impact on the area when approving or denying an application
- Normal soil erosion and stormwater regulations apply
- Most sites create minor amounts of impervious surface (access roads, concrete pads around invertors, etc.)

Davidson County Example

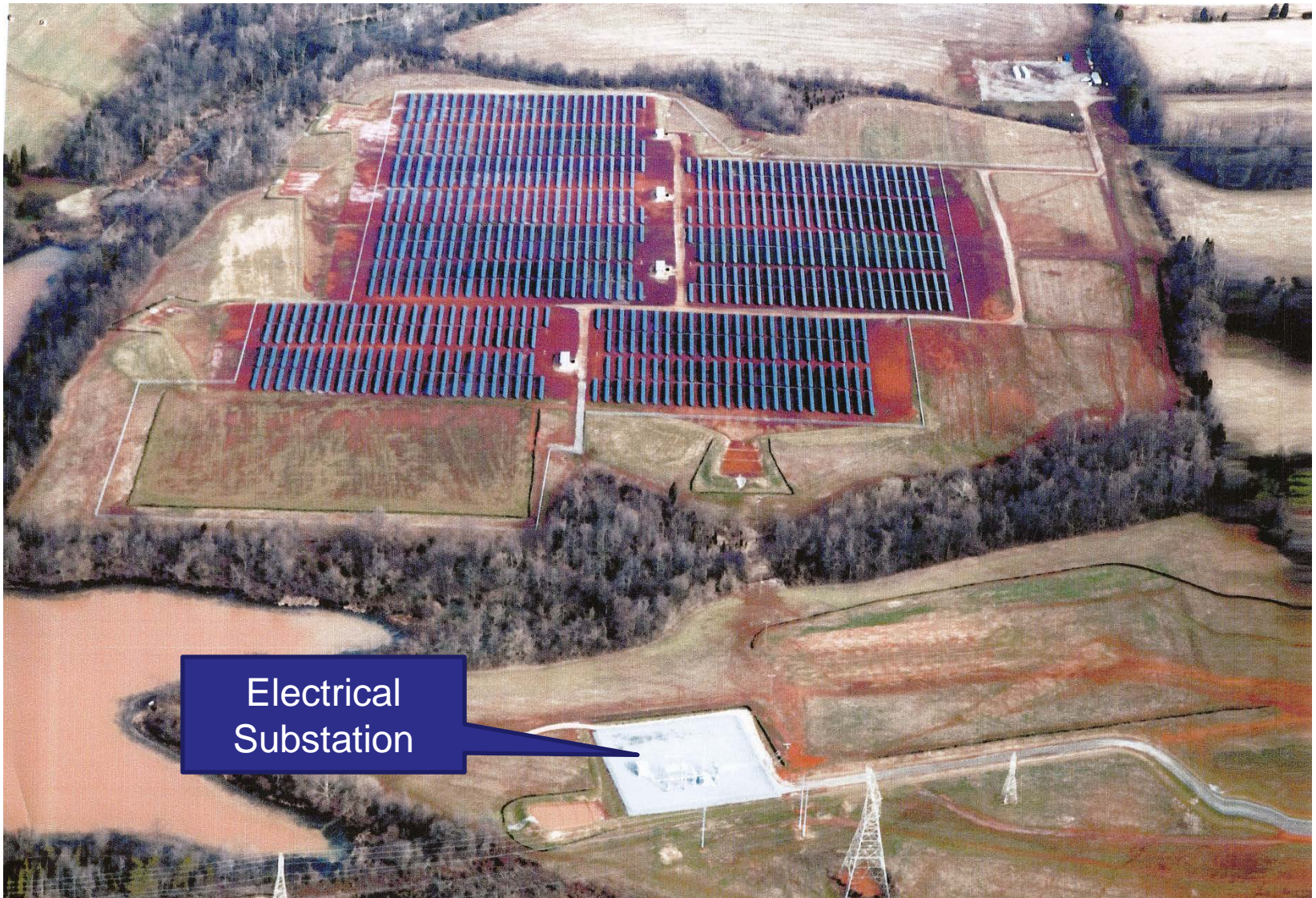
- Near Lexington, NC
- Largest solar farm in NC
- Will provide power for about 2,600 homes
- 350 acres with 250 acres built
- \$173M investment
- Rural area, rolling hills
- 2 full-time onsite employees
- Near existing neighborhood
- Few complaints
- Planning staff toured facility on March 16, 2012



Davidson County Example Photos



Davidson County Example Photos



Electrical
Substation

Davidson County Example Photos



Davidson County Example Photos



Davidson County Example Photos



Davidson County Example Photos



Davidson County Example Photos



Davidson County Example Photos



Davidson County Example Photos



Davidson County Example Photos



Cleveland County Example

- Near Shelby, NC
- 10 acres, produces 1MW
- Gentle slope (5-10%)
- Industrial/Rural area adjacent to airport
- No full-time onsite employees
- Due to airport proximity, some initial concern about glare from pilots that was addressed with education
- Planning staff toured facility on March 28, 2012



Shelby, NC Example Photos



Shelby – Cleveland
County Airport

10 acre Solar
Farm

Shelby, NC Example Photos

Airport Terminal
Building



Shelby, NC Example Photos

Airport Terminal
Building



Shelby, NC Example Photos



Shelby, NC Example Photos

Electrical Invertor &
Equipment



Concerns Expressed at March Hearing

- Tax incentives
- Environmental and public safety risks
- Size of solar facilities
- Appearance
- Impact on neighborhoods and effect on property values
- Maintenance and abandonment
- Others?

Possible Options for the Board

1. Approve the text amendment as originally presented on March 3, 2012
2. Deny the text amendment portion allowing solar farms (still adopt language clarifying accessory solar panels – this option prohibits solar farms entirely)
3. Approve the text amendment with some or all of the new changes presented today
4. Special Use Permit Option – Allow Solar Energy Generation Facilities only as a Special Use Permit
5. Add a new zoning district specifically for Solar Energy Generation Facilities

Option 1 Details: Adopt Original Text

- Board may adopt drafted text as presented at public hearing held on March 3, 2012
- No further hearings are required to adopt original text

Option 2 Details: Deny Text Amendment

- Board may take action to deny the text amendment application at any time
- No further hearings are required
- Would have the effect of not allowing solar farms at all in Henderson County's jurisdiction
- Could still allow the technical amendment regarding solar panels but deny solar farms in the County
- May not be legal to ban solar farms altogether

Option 3 Details: Size

Concerns expressed about size of facilities

- Threshold lowered from 30 acres to 15 acres
- \leq **5** acres allowed in R1 & R2 as special use; allowed in all other standard zoning districts by right **up to 15 acres (not 30 acres)**
- $>$ **5** acres is not allowed in R1 & R2
- $>$ **15** acres allowed as special use in all other standard zoning districts
- Remember that special use permits are not automatic and are reviewed by the Board of Adjustment after holding a hearing. Not all sites will be approved.

Option 3 Details: Appearance

Concerns expressed about appearance

- Fences not allowed within required 20 foot perimeter
- Height of structures and equipment lowered from **25 feet to 15 feet**
 - 10% exception allowed for up to max 20 foot height
- Screening required when residential use is within **[250, 1,000?]** feet (previously required only when adjacent)
 - Cost impact would vary depending on nearby residential uses and type of screen class chosen by developer

Option 3 Details: Appearance

Concerns expressed about appearance

- Fences seem to be the most offensive aspect of appearance
- Solar Farms will have fences for safety and security reasons
- New text requires wire woven fences (aka chain-link) to be vinyl coated or painted with a dark green, brown or black color
- Staff contacted fence contractors - with the vinyl coating, it increases fence cost from \$1.50 to \$4 per linear foot or about \$5k-\$13k for a 15 acre site

Option 3 Details: Appearance

Concerns expressed about appearance

- New text option requires sites greater than 15 acres to be setback 200 feet from a residential use
- Board of Adjustment can consider appearance criteria and a proposed facility's visual impact on a neighborhood when hearing an application

Option 3 Details: Maintenance

Concerns expressed about abandonment and maintenance of solar facilities

- Most of the project cost is associated with construction and not operations
- Panels are designed with a 30 year operational life
- Warranties usually cover 20 to 25 years
- Warranties apparently allow for a 20% degradation in production over 20-25 years
- About a 1% loss of production each year
- **New text requires removal of solar equipment and facilities if inactive for more than 6 months**

Option 4 Details: Special Use Permit

- Require that all solar farms obtain a special use permit regardless of size (change the table of uses)
- This would require the Board of Adjustment to review each application after holding a hearing and considering the evidence of each case
- Approval is not automatic and the applicant would need to prove that they met all the requirements
- The Board of Adjustment can impose additional conditions as needed for a particular site
- This option does not require an additional hearing

Option 5 Details: New Zoning District

- Create a new zoning district for solar farms
- Only allow solar farms in the new district
- Would require a rezoning for each new site
- Could designate the zoning district as a conditional zoning which would require site plan approval and allow for conditions at the same time as the rezoning
- This option would require further work to draft the text amendment
- This option requires an additional hearing and review by the Planning Board
- Could still use development requirements presented

Possible Options for the Board

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