

DRAFT

4/16/2019

Final Draft of review and proposed revisions to Local Law #3 of 2015: A Local Law to amend the Code of the Town of Ulysses, chapter 212 to add Solar Energy Systems definitions, allowances in zoning districts, and standard.

Upon request from the Ulysses Town Board, the CSAC reviewed and submitted draft language for revision of the Solar Law.

Town of Ulysses Solar Collection Systems Definitions and Standards

LOCAL LAW NO. 3 OF 2015 A LOCAL LAW TO AMEND THE CODE OF THE TOWN OF ULYSSES, CHAPTER 212 TO ADD SOLAR ENERGY SYSTEMS DEFINITIONS, ALLOWANCES IN ZONING DISTRICTS AND STANDARDS was adopted by the Ulysses Town Board on November 24, 2015. The parts of the local law found below include the definitions of major and minor solar collection systems and standards for those systems.

Definitions

GLARE

A continuous source of light caused by the reflection of sunlight from a solar collection system that has the potential to create an after-image when viewed directly. ~~Any direct or reflected light of such intensity that when received by the unprotected human eye will interfere with normal vision causing temporary blindness or ocular damage if prolonged.~~

MAJOR SOLAR COLLECTION SYSTEM or MAJOR SYSTEM

An area of land or other area used for a solar collection system principally used to capture solar energy and convert it to electrical energy to transfer to the public electric grid in order to sell electricity to or receive a credit from a public utility entity, and/or for on-site use. Facilities consist of ~~one or more~~ ground- or roof-mounted solar collector devices, solar-related equipment and other accessory structures and buildings, including light reflectors, concentrators, and heat exchangers, substations, electrical infrastructure, transmission lines and other appurtenant structures and facilities. Major solar collection systems are defined as systems with a total surface area greater than 2,000 square feet of panels.

MINOR SOLAR COLLECTION SYSTEM or MINOR SYSTEM

A solar photovoltaic cell, panel, or array, or solar hot air or water collector device, which relies upon solar radiation as an energy source for collection, inversion, storage, and distribution of solar energy for electricity generation or transfer of stored heat, accessory to the use of the premises for other lawful purposes. Minor solar collection systems are defined as roof- or building-mounted solar collectors greater than 60 square feet on any code-compliant structure, and ground-mounted solar collectors with the total surface area greater than 60 square feet and less than 2,000 square feet.

§ 212-139.1. Standards for minor solar collection systems.

- A. Rooftop- and building-mounted solar collectors are permitted in all zoning districts in the Town. Building permits shall be required for all rooftop- and building-mounted solar collectors.
- B. Ground-mounted solar collectors are permitted as accessory structures in all zoning districts of the Town, subject to the following requirements:
 - 1) The location of the solar collectors meets all applicable setback requirements of the zone in which they are located. The minimum setback to an inhabited structure on an adjacent lot shall be 50 feet.

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- 2) The height of the solar collectors and any mounts shall not exceed ~~32~~²⁰ feet in height when oriented at maximum tilt.
 - 3) The total surface area of all solar collectors on the lot shall not exceed 2,000 square feet and, when combined with all other buildings and structures on the lot, shall not exceed the maximum lot coverage for the zoning district plus ten (10) percent.
 - 4) A building permit has been obtained for the solar collectors.
 - 5) The solar collectors are permitted in the side and rear yards. Solar collectors are permitted in the front yard upon determination by the Zoning Officer that the side and rear yards would provide limited solar collection. Zoning Officer reserves the right to require site plan approval for solar collectors located in the front yard.
 - 6) Solar collectors and other facilities shall be designed and located in order to minimize reflective glare toward any inhabited buildings on adjacent properties and roads.
- C. Where site plan approval is required elsewhere in the regulations of the Town for a development or activity, the site plan review shall include review of the adequacy, location, arrangement, size, design, and general site compatibility of proposed solar collectors. Where a site plan exists, an approved modified site plan shall be required if any of the thresholds specified in § 212-19(K) of the Town Code are met, including but not limited to proposed changes to or additions of ground-mounted solar collectors where such changes or additions meet a § 212-19(K) threshold. Proposed changes to or additions of rooftop or building-mounted solar collectors shall not be considered in the determination of whether a site plan modification is required.
- D. All solar collector installations must be performed in accordance with applicable electrical and building codes, the manufacturer's installation instructions, and industry standards, and prior to operation the electrical connections must be inspected by an appropriate electrical inspection person or agency, as determined by the Town. In addition, any connection to the public utility grid must be inspected by the appropriate public utility.
- E. When solar storage batteries are included as part of the solar collector system, they must be placed in a secure container or enclosure meeting the requirements of the New York State Building Code when in use and when no longer used shall be disposed of in accordance with the laws and regulations of Tompkins County and other applicable laws and regulations.

§ 212-139.2. Standards for major solar collection systems.

- A. Where applicable, and unless more restrictive regulations also apply, the requirements of § 212-139.1 of this chapter shall apply to solar collectors and installations for major systems.
- B. A major system may be permitted in all zoning districts, except LS-Lakeshore, MD-Marina, and PR-Park/Recreation. Major systems that are part of a farm operation [as defined by NYS Agriculture and Markets Law §301(11)] are exempt from site plan approval if the solar collection system does not exceed 110% of the anticipated electrical needs of the on-farm equipment. All major systems **that are not part of a farm operation** require site plan approval from the Planning Board. **All major solar collection systems on or off-farm are subject to the terms and conditions listed below (items B.1-7). Major solar collection systems impacting agricultural land should follow the most current New York State Department of Agriculture and Markets Guidelines for Agricultural Mitigation for Solar Energy Projects.**
- 1) Height, setbacks, and restrictions.
 - a. The maximum height for ground-mounted solar panels located on the ground or attached to a framework located on the ground shall not exceed ~~32~~²⁰ feet in height above the ground.
 - b. The minimum front yard, side yard and rear yard setback shall be 50 feet.
 - c. Based on site specific conditions, including topography, adjacent structures, and roadways, a landscaped buffer may be required around **some** or all equipment and solar collectors to protect

Commented [Office1]: Suggested changes made by CSAC in this paragraph are to clarify that major systems that are part of an on-farm operation are still subject to all the terms and requirements in this section (B 1-7)

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from glare but should not result in shading solar collectors, in accordance with the standards in section 7-b, below (Design Standard for Glare).

d. Major solar collection systems shall be prohibited in Tompkins County designated Unique Natural Areas; in wetlands as defined by state, federal or local law; and on slopes greater than 15%.

2) Design standards.

- a. Removal of trees and other existing vegetation shall be minimized, and if deemed appropriate by the Planning Board, offset with planting elsewhere on the property if the proposed vegetation does not shade solar collectors.
- b. Roadways within the site shall be constructed of materials appropriate to the site, permeable materials are encouraged, and shall be designed to minimize the extent of roadways constructed and soil compaction.
- c. All on-site utility and transmission lines shall, to the extent feasible, be placed underground.
- d. Solar collectors and other facilities shall be designed and located in order to minimize reflective glare toward any inhabited buildings on adjacent properties and roads, in accordance with the Design Standard for Glare (see section 7-b below).
- e. All electrical equipment, including any structure for batteries or storage cells, shall be enclosed by a minimum six-foot-high fence with a self-locking gate and provided with landscape screening.
- f. A major solar collection system to be connected to the utility grid shall provide documentation from the utility company acknowledging the major solar collection system will be interconnected to the utility grid.
- g. Impermeable surfaces, such as concrete footers, shall be kept to a minimum as consistent with site requirements, in order to minimize water runoff and to aid in decommissioning so that the site can be ~~redeveloped~~ reverted back for agriculture and other uses.

3) Signs.

- a. A sign not to exceed eight square feet shall be displayed on or near the main access point and shall list at a minimum the facility name, owner, ~~manufacturer or operator~~, and facility operator's phone number.
- b. A clearly visible warning sign concerning voltage must be placed at the base of all pad-mounted transformers and substations.
- c. Solar collection systems shall not be used for displaying any advertising except for reasonable identification of the manufacturer and operator of the system.

4) Areas of Potential Sensitivity shall be shown on site plans and shall be given special consideration by the Planning Board at site plan review, those areas consist of the following:

- a. One-hundred-year flood hazard zones considered an A or AE Zone on the FEMA Flood Maps.
- b. Historic and/or culturally significant resources in an historic district or historic district transition zone.
- c. Within 100 feet landward of a freshwater wetland.
- d. Adjacent to, or within, the control zone of any airport.
- e. State owned lands.
- f. Unique Natural Areas.
- g. Properties with Conservation Easements or owned by a land conservation organization.
- h. Public trails, including the Black Diamond Trail.

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- i. Prime Soils and Soils of Statewide Importance, as defined by United States Department of Agriculture.
- j. [Town of Ulysses Natural Resources Inventory](#)

5) Property Operation and Maintenance Plan. A property operation and maintenance plan is required, describing continuing solar collection system maintenance, property upkeep, ~~such as mowing and trimming, and management of underlying vegetation.~~

a. [The project sponsor shall monitor the project site and remediate as necessary for a period of no less than 365 days following the date upon which the project begins commercial operation. The monitoring and remediation phase is used to identify any remaining impacts associated with construction that are in need of mitigation and to implement the follow-up restoration.](#)

6) Abandonment.

- a. All applications for a major solar collection system shall be accompanied by a decommissioning plan to be implemented upon abandonment, or cessation of activity, or in conjunction with removal of the facility, prior to issuance of a building permit.
- b. In the event the facility is not completed and functioning within 18 months of the issuance of the final site plan approval, the Town may notify the operator and/or the owner to complete construction and installation of the facility within 180 days. If the owner and/or operator fail to perform, the Town may notify the owner and/or operator to implement the decommissioning plan. The decommissioning plan must be completed within 180 days of notification by the Town.
- c. The decommissioning plan must ensure the site will be restored to a useful, nonhazardous condition without delay, including, but not limited to, the following:
 - i. Removal of aboveground and below-ground equipment, structures and foundations.
 - ii. Restoration of the surface grade and soil after removal of equipment.
 - iii. Revegetation of restored soil areas with native seed mixes, excluding any invasive species.
 - iv. The plan shall include a time frame for the completion of site restoration work.
- d. Upon cessation of activity of a constructed facility for a period of one year, the owner and/or operator shall implement the decommissioning plan.
- e. If the owner and/or operator fails to fully implement the decommissioning plan within the 180-day after the cessation of activity, the Town may, at its discretion, provide for the restoration of the site in accordance with the decommissioning plan, following the procedure outlined in §212-4.

7) [Glare Analysis and Mitigation Requirements](#)

- a. For all major solar collection systems (i.e. ground-mounted arrays with a total surface area of solar panels greater than 2,000 square feet) glare from the facility must be evaluated for each minute of the year using [Forge Solar Glare Analysis Tool](#) or another equivalent tool authorized for use by the FAA in analyses of solar facilities proposed near federally regulated airports (hereafter referred to as “the tool”). The glare must be evaluated for all potentially affected occupied buildings around the facility as well as for all public roads.
- b. If any of the limits set forth in requirements #3 or #4 below are exceeded, then a mitigation plan must be prepared by the applicant and approved by the Planning Board as part of the application. This plan must demonstrate with a reasonable assurance that the facility will meet the limits following completion of the mitigation plan.
 - i. Non-vegetative means of mitigation such as adjustments to the siting, height, or orientation of the facility are recommended and, where possible, would be the preferable solution.

Commented [rm2]: CSAC suggested this addition based on the 4-19-2018 NYS Ag and Markets document on solar energy guidelines. This wording is taken out of that document, section “Monitoring and Remediation” keep

Commented [rm3]: This entire section was added by the CSAC; one of our members (Brice Smith) is an expert in this area.

Commented [Office4]: Note for Town Board: Consultant / applicant would need to buy at \$145 per month, can purchase month to month so the expense is not large, info on the tool at <https://www.forgesolar.com/>

This is the only glare analysis tool currently available; it is the one used by the FAA (developed by Scandia National Labs, was called SGHAT tool before it became commercial); further info at <https://share.sandia.gov/phlux>.

The Glare Analysis Tool determines when and where glare will occur throughout the year from a solar PV system. This tool also assesses potential effects on the human eye at locations where glare occurs.

The Tool uses an interactive Google map where the user can locate a site, draw an outline of the proposed solar PV system, and specify observer locations or final approach paths. The user also enters information regarding the orientation and tilt of the solar PV panels, reflectance, environment and ocular factors. Results of the tool are presented in a plot that specifies when glare will occur through the year, with color codes indicating the potential ocular hazard.

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- ii. In the event that vegetative mitigation is to be used, the developers should demonstrate through language in the lease or other similar agreement that the developer or other relevant party has the legal rights to maintain the vegetation throughout the operational life of the facility. In addition, the selection of plantings should be done consistent with the recommendations of an International Society of Arboriculture (ISA) certified arborist or the equivalent.
- c. At no site may glare (as evaluated by the tool) have an intensity and angular extent that exceeds 4 percent of the limit for eye damage as set forth in the solar glare ocular hazard plot for any one-minute interval at any time during the year.
- d. Glare from the facility (as evaluated by the tool) shall not exceed the following limits at any potentially affected occupied buildings or public roads:
 - i. Glare must not be visible for a total of more than 2 percent of the year.
 - ii. No individual day during the year should have glare visible for more than two hours.
 - iii. The average intensity and angular extent of the glare must not exceed 2 percent of the limit for eye damage as set forth in the solar glare ocular hazard plot.
 - iv. Landowners entering into a lease agreement to host the solar system under consideration on their land may authorize exceeding any of the limits a, b, or c above for any properties they own by submitting a notarized waiver form to the Town Planning Board to be kept on file with the application. Roads and properties owned by other entities must still meet all limits set forth in a, b, and c.
- e. Following all relevant electrical and other inspections, within 20 business days of the interconnection of the facility to the Utility system the developer will conduct (or contract with a third-party if they lack the in-house abilities) a final assessment of the facility as built. This assessment will verify the height of the facility above grade, the setbacks from roadways, property lines and other relevant boundaries, and the distance to the nearest off-site, occupied neighboring structure. The assessment must be submitted to the Town of Ulysses zoning officer upon completion.
- i. If any of these properties differs by more than 20% from that proposed, a new glare analysis is required to be conducted within 20 business days of the as-built assessment of the facility.
- ii. If any of the limits set forth in requirements #3 or #4 above are exceeded in the new analysis, then a mitigation plan must be submitted for approval to the Planning Board within 60 business days of the as-built assessment of the facility.