Cumberland County Planning Department
Alternative Energy Series

Solar Energy Systems (Solar Farms)
2023 Model Ordinance

INTRODUCTORY NOTES ON THIS MODEL

This model ordinance was developed by the Cumberland County Planning Department using a variety of ordinances from municipalities in the county and around the state and from ordinances in surrounding states. The intent of this model is to permit medium to large scale solar energy systems (solar farms) in the Municipality while protecting the health, safety and welfare of the residents.

Municipalities are not recommended to implement this entire ordinance without modification. Rather, municipalities should review this ordinance, examine their local situation, and adopt the regulations that make the most sense for their municipality. The following table provides an explanation of the suggestions found in the model ordinance.

How to Use the Model Ordinance	
Text within the model ordinance:	Suggestions for the Municipality:
Regular Text	This language is recommended to be included in the Municipal Ordinance. The language should be reviewed as some modifications may be necessary.
*"**OR**"*	There are multiple ways to regulate this language. The Municipality should carefully consider both options and make the best selection.
Italicized text	The Municipality may or may not choose to implement this language. This language is considered optional.
"**XX** (20-30)"	There is a range of options for this requirement. The data range shown in parenthesis was found in other ordinances, research documents or other sources.
"**XX**"	This is a sample figure based on research and other ordinances. The Municipality should consider this figure and tailor the language as appropriate.

SECTION 1 – DEFINITIONS

ACCESSORY SOLAR ENERGY SYSTEM (ASES): An area of land or other area used for a solar energy system used to capture solar energy, convert it to electrical energy or thermal power and supply electrical or thermal power primarily for on-site use. Ground mounted or freestanding Solar Energy Systems with an output size of not greater than 10kw shall be considered Accessory Solar Energy Systems. Roof Mounted Solar Energy Systems on the roofs of buildings on-site used primarily for on-site use shall have no limit as to energy output. An accessory solar energy system consists of one (1) or more free-standing ground, or roof mounted solar arrays or modules, or solar related equipment and is intended to primarily reduce on-site consumption of utility power or fuels.

AGRIVOLTAICS: The co-development of the same area of land for both solar photovoltaic power and conventional agriculture.

GLARE: The effect produced by light with an intensity sufficient to cause annoyance, discomfort, or loss in visual performance and visibility.

PRINCIPAL SOLAR ENERGY SYSTEM (PSES): An area of land or other area used for a solar collection system principally used to capture solar energy, convert it to electrical energy or thermal power and supply electrical or thermal power primarily for off-site use. Principal solar energy systems consist of one (1) or more free-standing 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.

SOLAR EASEMENT: A solar easement means a right, expressed as an easement, restriction, covenant, or condition contained in any deed, contract, or other written instrument executed by or on behalf of any landowner for the purpose of assuring adequate access to direct sunlight for solar energy systems.

SOLAR ENERGY: Radiant energy (direct, diffuse and/or reflective) received from the sun.

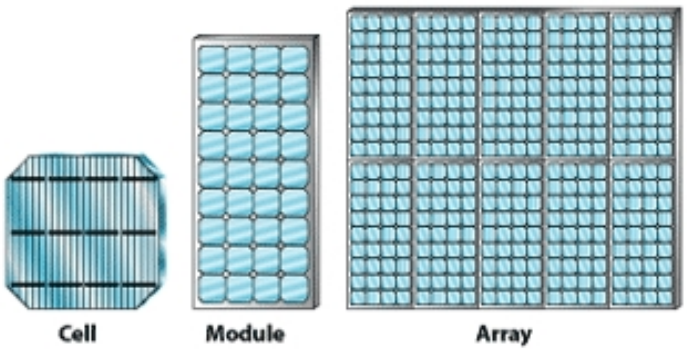
SOLAR ENERGY SYSTEM: An area of land used for a solar collection system principally to capture solar energy, convert it to electrical energy or thermal power and supply electrical or thermal power.

SOLAR PANEL: That part or portion of a solar energy system containing one or more receptive cells or modules, the purpose of which is to convert solar energy for use in space heating or cooling, for water heating and/or for electricity.

SOLAR PROJECT AREA: The total area of land including the Principal Solar Energy System, the space between solar arrays, stormwater management area, access drives, fencing and internal access roads. The Solar Project Area does not include any area set aside for agricultural uses and designed to be adequate for the maneuverability of typical farm equipment.

SOLAR RELATED EQUIPMENT: Items including a solar photovoltaic cell, module, panel, or array, or solar hot air or water collector device panels, lines, pumps, batteries, mounting brackets, framing and possibly foundations or other structures used for or intended to be used for collection of solar energy.

1. SOLAR CELL: The smallest basic solar electric device which generates electricity when exposed to light.
2. SOLAR MODULE: A grouping of solar cells with the purpose of harvesting solar energy.
3. SOLAR ARRAY: A grouping of multiple solar modules with purpose of harvesting solar energy.



SECTION 2 – ALL SOLAR ENERGY SYSTEMS

A. The following regulations apply to all solar energy systems including Principal Solar Energy Systems and Accessory Solar Energy Systems.

1. Solar energy systems constructed prior to the effective date of this Section shall not be required to meet the terms and conditions of this Ordinance. Any physical modification to an existing solar energy system, whether or not existing prior to the effective date of this Section that materially alters the solar energy system shall require approval under this Ordinance. Routine maintenance or like-kind replacements do not require a permit.

2. The Solar energy system layout, design and installation shall conform to applicable industry standards, such as those of the American National Standards Institute (ANSI), Underwriters Laboratories (UL), the American Society for Testing and Materials (ASTM),), Institute of Electrical and Electronics Engineers (IEEE), Solar Rating and Certification Corporation (SRCC), Electrical Testing Laboratory (ETL), Florida Solar Energy Center (FSEC) or other similar certifying organizations, and shall comply with the PA Uniform Construction Code as enforced by the Municipality and with all other applicable fire and life safety requirements. The manufacturer specifications for the key components of the system shall be submitted as part of the application.

3. Upon completion of installation, the solar energy system shall be maintained in good working order in accordance with standards of the municipal codes under which the solar energy system was constructed. Failure of the property owner to maintain the solar energy system in good working order is grounds for appropriate enforcement actions by the municipality in accordance with applicable ordinances.

4. All on-site transmission and plumbing lines shall be placed underground to the extent feasible.

5. Glare

   a. All solar energy systems shall be placed such that concentrated solar radiation or glare does not project onto nearby structures or roadways. Exterior surfaces shall have a non-reflective finish.

   b. The applicant has the burden of proving that any glare produced does not have significant adverse impact on neighboring or adjacent uses either through siting or mitigation.

6. *No portion of the solar energy system shall contain or be used to display advertising. The manufacturer's name and equipment information or indication of ownership shall be allowed on any equipment of the solar energy system provided they comply with the prevailing sign regulations.*

7. *No trees or other landscaping otherwise required by the municipal ordinances or attached as a condition of approval of any plan, application, or permit may be removed for the installation or operation of a solar energy system.*

8. Decommissioning

a. The solar energy system owner is required to notify the Municipality immediately upon cessation or abandonment of the operation. The solar energy system shall be presumed to be discontinued or abandoned if no electricity is generated by such system for a period of 6-12 **XX** continuous months[1]**.**

b. The solar energy system owner shall then have 6-12 **XX** months from abandonment in which to dismantle and remove the solar energy system including all solar related equipment or appurtenances related thereto, including but not limited to buildings, cabling, electrical components, roads, foundations and other associated facilities from the property. If the owner fails to dismantle and/or remove the solar energy system within the established timeframes, the municipality may complete the decommissioning at the owner's expense.

c. The solar energy system owner shall, at the request of the municipality, provide information concerning the amount of energy generated by the solar energy system in the last 12 months.

9. Prior to the issuance of a zoning or land use permit, solar energy system applicants must acknowledge in writing that the issuing of said permit shall not and does not create in the property owner, its, his, her or their successors and assigns in title or, create in the property itself;

   a. The right to remain free of shadows and/or obstructions to solar energy caused by development of adjoining or other property or the growth of any trees or vegetation on such property; or

   b. The right to prohibit the development on or growth of any trees or vegetation on such property.

   This acknowledgement shall be submitted to the municipality and placed on any required subdivision and/or land development plans.

10. Solar Easements

   a. Where a subdivision or land development proposes a solar energy system, solar easements may be provided. Said easements shall be in writing, and shall be subject to the same conveyance and instrument recording requirements as other easements.

   b. Any such easements shall be appurtenant; shall run with the land benefited and burdened; and shall be defined and limited by conditions stated in the instrument of conveyance. Instruments creating solar easement shall include but not be limited to:

      i. A description of the dimensions of the easement including vertical and horizontal angles measured in the degrees or the hours of the day, on specified dates, during which direct sunlight to a specified surface or structural design feature may not be obstructed;

[1] The municipality should consider using the same abandonment date as found in the nonconforming use section of the zoning ordinance.

ii. *Restrictions on the placement of vegetation, structures, and other objects which may impair or obstruct the passage of sunlight through the easement;*

iii. *Enumerate terms and conditions, if any, under which the easement may be revised or terminated;*

iv. *Explain the compensation for the owner of the real property subject to the solar easement for maintaining the easement and for the owner of the real property benefiting from the solar easement in the event of interference with the easement.*

c. *If necessary, a solar energy system owner and/or operator must obtain any solar easements necessary to guarantee unobstructed solar access by separate civil agreement(s) with adjacent property owner(s).*

11. Stormwater Requirements

a. The following components of a solar energy system shall be considered impervious coverage and calculated as part of the impervious coverage limitations for the underlying zoning district:

i. Foundation systems, typically consisting of driven piles or monopoles or helical screws with or without small concrete collars.

ii. All mechanical equipment of the system including any structure for batteries or storage cells.

OR

b. The surface area of the arrays of a solar energy system, regardless of the mounted angle of any solar panels, shall be considered impervious and calculated in the lot coverage of the lot on which the system is located.

c. *The applicant shall submit a Stormwater Management Plan that demonstrates compliance with the municipal stormwater management regulations.*

12. Impervious coverage limitations established in this section and a detailed stormwater analysis including post construction stormwater management (PCSM) and BMP requirements are required for all solar energy systems unless the requirements listed below are met[2].

a. Impervious coverage requirements, and a detailed stormwater analysis including PCSM and BMP requirements do not apply to the solar energy systems if:

i. In accordance with the latest edition of the Pennsylvania Best Management Practices Manual[3], earth disturbance and grading activities shall be

[2] The stormwater requirements found herein are based upon a "Frequently Asked Questions" letter issued by the Pennsylvania Department of Environmental Protection – Bureau of Clean Water on January 2, 2019.
[3] Municipalities should refer to the latest edition of the Pennsylvania Best Management Practices Manual, Department of Environmental Protection, No 363-0300-002, (December 30, 2006).

minimized and natural vegetative cover shall be preserved and/or restored using native species.

ii. The low impact construction techniques must be utilized in accordance with the latest edition of the Pennsylvania Best Management Practices Manual.

iii. Vegetative cover must have a minimum uniform 90% perennial vegetative cover with a density capable of resisting accelerated erosion and sedimentation.

(a) A meadow condition is required for project located on slopes between 5-10%

(b) Vegetative cover shall not be cut to less than 4 inches in height.

(c) Vegetated areas will not be subject to chemical fertilization or herbicide/pesticides application, except for those applications necessary to establish the vegetative cover and in accordance with an approved Erosion and Sedimentation Control Plan.

(d) For this section, gravel is considered an impervious cover and is prohibited.

iv. The individual solar modules within an array are arranged in a fashion that:

(a) Allows the passage of runoff between each module, minimizing the creation of concentrated runoff

(b) Individual solar panels shall not exceed 3 feet in width to allow for adequate vegetative cover to be established and maintained.

v. All panels must be placed on an area with 10% slope or less.

vi. The lowest vertical clearance of the solar array shall be 10 feet or less from the surface of the ground but must be of adequate height to promote vegetative growth below the array.

vii. A maximum of 5% of the solar project area may be occupied by the support structure/foundations used to support ground mounted solar panels[4].

13. Agrivoltaics are permitted when:

a. Only shade-tolerant crops are permitted.

b. Plowing is prohibited, no-till application is required.

c. Cutting or mowing is limited to a height of no less than 4 inches.

d. Application of chemical fertilization or herbicides/pesticides is limited to the agronomic needs to the crop(s).

SECTION 3 - PRINCIPAL SOLAR ENERGY SYSTEMS (PSES)

B. Regulations Applicable to All Principal Solar Energy Systems:

[4] Ground mounted solar panels that are supported with structures/foundations require little earth disturbance for installation and construction.

1. PSES are permitted[5] [6] in specified zoning districts[7] based upon the table below:

Use Table[8]	
District[9]	**Principal Solar Energy Systems**
Agricultural	*>20 acres:* Conditional Use **OR** Special Exception
	≤20 Acres Right
Conservation	Not Permitted
Residential	Not Permitted
Commercial	Conditional Use **OR** Special Exception
Industrial	Right
Institutional	Right

2. Any proposed PSES shall be located within the following distances of an adequately sized power line, a substation that is capable of accepting solar energy into the electricity grid, or another solar facility[10-11].

PSES – Proximity to Power Grid[12]		
10 MWac or smaller	Distance to three-phased power lines	1,000 feet **XX**

[5] The Municipality should determine whether these uses are permitted by Conditional Use (Governing Body approval), or by Special Exception (Zoning Hearing Board approval).
[6] Municipalities should be aware that a conditional use or a special exception is a use that is permitted if the applicant meets the criteria. These can only be denied if there is substantial evidence of a detriment to the health, safety and welfare beyond the level of a similar use.
[7] The Municipality should tailor this table to identify specific zoning districts.
[8] The table should be tailored to suit the needs of the municipality. Some districts may be removed or added to this table. The municipality should determine what should be protected and where solar facilities are wanted.
[9] All Mixed Use, Village, etc. Districts should be considered by the municipality
[10] Proximity to power lines is important for the location of PSES. The distances in this table are recommended. At longer distances, the costs begin to outweigh the benefits of solar power (https://www.ysgsolar.com/blog/solar-farm-land-requirements-solar-developments-ysg-solar).
[11] Unless the solar farm is right next to a transmission line or substation, a dedicated transmission line called a generation tie ("gen-tie") will need to be built. These gen-ties cost approximately $1 million per mile to construct. The farther away the utility substation is from your property, the more expensive the gen-tie will be to build (https://www.solarlandlease.com/solar-farm-connect-grid)
[12] Prior to adopting this section, the municipality should determine that there are reasonable areas within such distances. The municipality should not exclude solar facilities.

69 kV or higher	Distance to transmission line	1 mile **XX**
Distance to Substation		2 miles **XX**

3. Plan Requirements[13]. A report and plan highlighting the existing conditions of the property shall be included in the submission to the municipality. The information should highlight existing vegetation, topography, and other existing natural features.
    a. Ground mounted PSES require submission of a land development plan if the solar project area is greater than **XX** 5,000[14] square feet.
    b. Roof mounted PSES do not require submission of a land development plan.
4. Permit Requirements
    a. PSES shall comply with the municipal subdivision and land development ordinance requirements through submission of a land development plan. The installation of PSES shall be in compliance with all applicable permit requirements, codes and regulations.
    b. The PSES owner and/or operator shall repair, maintain and replace the PSES and related solar equipment during the term of the permit in a manner consistent with industry standards as needed to keep the PSES in good repair and operating condition.
5. Decommissioning
    a. At the time of issuance of the permit for the construction of the PSES, the owner shall provide financial security in the form and amount acceptable to the municipality to secure its obligations under this Section.
        i. The PSES Developer shall, at the time of application, provide the municipality with an estimate of the cost of performing the decommissioning activities required herein, together with an administrative and inflation factor of 25% to account for the cost of obtaining permits to complete said activities. The estimate may include an estimated salvage and resale value, discounted by a factor of 20%. The decommissioning cost estimate formula shall be: Gross Cost of decommissioning activities + Administrative Factor of 25% - Salvage and resale credit of 80% = the decommissioning cost estimate.
        ii. On every 5th anniversary of the date of providing the decommissioning financial security the PSES Owner shall provide an updated decommission cost estimate, utilized the formula set forth above with adjustments for inflation and cost and value changes. If the decommissioning security amount changes, the PSES Owner shall remit the increased financial security to the municipality within 30 days of the approval of the updated decommissioning security estimate by the municipality.

[13] The municipality should consider adding plan requirements for solar facilities in the Subdivision and Land Development Ordinance.
[14] A plan proposing 5,000 square feet or more will require approval of an erosion and sedimentation control plan.

iii. Decommissioning security estimates shall be subject to review and approval by the municipality and the PSES Developer/ Owner shall be responsible for administrative, legal, and engineering costs incurred by the municipality for such review.

iv. At no time shall the financial security be an amount less than $500,000.00.

v. The decommissioning security may be in the form of cash, letter of credit, or an investment grade corporate guarantee rated BBB-/Baa3 or better by S&P, Moody's, or AM Best, as applicable.

vi. Prior to approval of any plan or permit for a PSES, the PSES Developer shall enter into a Decommissioning Agreement with the municipality outlining the responsibility of the parties under this Agreement as to the Decommissioning of the PSES.

6. Dimensional Requirements[15]

System Type:	**Requirement:**	**Zoning Districts[16]**			
		Agricultural	**Institutional**	**Commercial**	**Industrial**
Principal Solar Energy Systems	Minimum Lot Size (acres) **XX**	10	10	10	10
	Minimum Setbacks (feet) **XX****	50** (all yards)	70 ** (all yards)	See underlying District requirement**	
	Maximum Height (feet) **XX**	20 (at maximum tilt)	20 (at maximum tilt)	20 (at maximum tilt)	20 (at maximum tilt)
	Impervious Coverage **XX**	30-40 %*	50 %*	70 %*	70 %*
* Impervious coverage requirements do not apply if the proposed facility is exempt from Stormwater requirements as noted in this section. **All PSES shall be set back 70 **XX** feet from any residential property line or district. ***PSES that abut PSES on another parcel shall not be subject to setback requirements.					

7. Environmental Protection

[15] Municipalities should review the proposed dimensional requirements. The text provided is an example of dimensional requirements. This table should be tailored to the wants and needs of the Municipality.
[16] Municipalities should tailor this table to list each specific Zoning District.

a. All PSES must be set back a distance of **XX** (10-25) feet from any area designated as a wetland, a FEMA Floodplain, or an area containing 15% slope or greater.

b. All PSES shall be set back 70 **XX** feet from a property listed on, or eligible for listing on the National Register of Historic Places as designated by the State Historic Preservation Office of the National Park Service.

c. In Agricultural Districts, the solar project area shall only be located on **XX** (50-75)% of the total class I and class II soils within the parcel boundary. This requirement does not apply if the project area is proposing agrivoltaics.

   i. In no case shall the solar project area occupy more than 20 acres of class I and class II soils within the parcel boundary.

   ii. The undeveloped portion of class I and class II soils shall be designed for agricultural use and adequate for maneuverability of typical farm equipment.

OR

d. PSES shall not be located on any Class I or Class II agricultural soils[17].

e. Soils shall be as identified by the USDA NRCS Web Soil Mapper.

*8. Conservation Incentives. The following are incentives for conservation activities that further the agricultural, open space, recreation, and historic preservation goals of the municipality[18]. These regulations apply to solar facilities in the **XX** Agricultural[19] District. Note that multiple conservation incentives may not be applied to the same area.*

a. If 20% or more of the panels comprising the PSES are located on a rooftop, the impervious coverage may be increased by 10%.

b. If 40% or more of the panels comprising the PSES are located on a rooftop, the impervious coverage may be increased by 20%.

c. Riparian Buffers – For every 1,250 feet of riparian buffer (single side of stream) along a perennial stream impervious coverage may be increased by 1% up to a maximum increase of 20%. The riparian buffer shall be located on the same property as the solar facility. The riparian buffer shall be evidenced by a conservation easement in a form acceptable to the municipality and shall be in the name of a permitted Holder under the Conservation and Preservation Easements Act. The conservation easement shall allow public access. The riparian buffer shall be measured to be the greater of the limit of the FEMA 100 year floodplain or 35 feet from the top of the stream bank. Existing native vegetation shall be protected and maintained within the riparian buffer. Invasive vegetation shall be removed or

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[17] The municipality may consider this option if agricultural land preservation is a high priority. However, it is recommended that the soils and available land be reviewed to verify that this requirement will not exclude solar development which may lead to legal challenges.

[18] The municipality should consider these conservation incentives to preserve sensitive features. Note that each incentive will allow more impervious coverage and may change the figures in the Dimensional Requirements table (above).

[19] The municipality should determine which zoning district will apply to the conservation incentives listed.

replaced with native trees, shrubs, and other vegetation appropriate to the intended ecological context of the stream.

d. *Open Space Benefits – For every 2 acres of land subject to a Conservation Easement to provide open space benefits as defined in the Open Space Lands Acquisition and Preservation provisions, 32 P.S. §§ 5001-5013, impervious coverage may be increased by 1%, up to a maximum increase of 20%. The Open Space Benefits shall be located on the same property as the solar facility, provided that the location and configuration of the Open Space Benefits be acceptable to the municipality. The Open Space Benefits shall be secured by a Conservation Easement in a form acceptable to the municipality and shall be in the name of the permitted Holder under the Conservation and Preservation Easements Act.*

e. *Prime (class I or II) Agricultural Soils – For every 2 acres of prime agricultural soils subject to an Agricultural Conservation Easement impervious coverage may be increased by 1%, up to a maximum increase of 20%. The Prime Agricultural Soils subject to the Agricultural Conservation Easement shall be located on the same property as the solar facility. The Agricultural Preservation Easement shall be in a form acceptable to the municipality and shall be in the name of a permitted Holder under the Conservation and Preservation Easements Act.*

f. *Historic Resources – For every historic building or site on the Historic Resource List preserved, impervious coverage may be increased by 10%, up to a maximum increase of 20%. The historic building or site shall be located on the same property as the solar facility. If a historic site also includes a historic building, the density increase will not be doubled. The preservation of a building shall be carried out in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings. The preservation of a historic site shall be carried out in such a manner as to result in the least amount of disturbance necessary to the site. The site shall be returned, as closely as possible, to its period appropriate complexion in accordance with the Secretary of the Interior's Guidelines for the Treatment of Historic Landscapes. The historic building or site shall be subject to a Historic Preservation Easement in a form acceptable to the municipality and shall be in the name of a permitted Holder under the Conservation and Preservation Easements Act.*

g. *Recreational Trail - For every 2,000 feet of recreational trail impervious coverage may be increased by 1% up to a maximum increase of 20%. The recreational trail must be a portion of trail shown on the Official Map or identified in the Recreation Plan. The recreational trail shall be located on the same property as the solar facility. The recreational trail shall be evidenced by a trail easement in a form acceptable to the municipality and shall be in the name of a permitted Holder under the Conservation and Preservation Easements Act. The conservation easement shall allow public access. The recreational trail easement area shall be no less than 15 feet in width and shall be constructed to recreational trail standards adopted by the municipality by resolution from time to time.*

9. Ground mounted PSES shall be screened from adjoining residential uses or zones according to the standards found in Section _____ of the municipal ordinance

s[0].

10. PSES shall not be placed within any legal easement or right-of-way location, or be placed within any storm water conveyance system or in any other manner that would alter or impede storm water runoff from collecting in a constructed storm water conveyance system.
11. Security
    a. All ground-mounted PSES shall be completely enclosed by a minimum eight (8) foot high fence with a self-locking gate. The fence shall meet setback requirements noted in this section.
    b. A clearly visible warning sign shall be placed at the base of all pad-mounted transformers and substations and on the fence on the surrounding the PSES informing individuals of potential voltage hazards.
12. *Access*
    a. At a minimum, a 25' wide access road must be provided from a state or municipal roadway into the site.
    b. Between the solar arrays, a 20' wide emergency access shall be provided to allow access for maintenance vehicles and emergency management. Emergency access width is the distance between the bottom edge of a solar panel to the top edge of the solar panel directly across from it.
        i. If the PSES is exempt from stormwater requirements as specified in this section, vegetation must be maintained or replaced after maintenance and/or emergency use.
    c. Access to the PSES shall comply with the municipal access requirements in the Subdivision and Land Development Ordinance.
13. PSES shall not be artificially lighted except to the extent required for safety or applicable federal, state, or local authority.
14. The owner of a PSES shall provide the Municipality written confirmation that the public utility company to which the PSES will be connected has been informed of the customer's intent to install a grid connected system. The written confirmation shall include a statement of capacity and approval of the proposed connection.

B. Roof and Wall Mounted Principal Solar Energy Systems:

1. For roof and wall mounted systems, the applicant shall provide evidence that the plans comply with the Uniform Construction Code and adopted building code of the Municipality that the roof or wall is capable of holding the load imposed on the structure.
2. PSES mounted on the roof or wall of any building shall be subject to the maximum height regulations of the underlying zoning district.

SECTION 4 - ACCESSORY SOLAR ENERGY SYSTEMS (ASES)

[0] Municipality should verify that specific screening requirements are referenced.

A. Regulations Applicable to All Accessory Solar Energy Systems:

1. ASES shall be permitted as a use by right in all zoning districts.

OR

2. ASES that have a maximum power rating of not more than **XX** 10kW[21] shall be permitted as a use by right in all zoning districts. Ground mounted ASES that have a power rating more than **XX** 10kW shall comply with the requirements for Principal Solar Energy Systems.

3. Exemptions

   a. ASES with an aggregate collection and/or focusing area of (10, 100, **XX**) square feet or less are exempt from this ordinance.

4. Permit Requirements

   a. Zoning /building permit applications shall document compliance with this Section and shall be accompanied by drawings showing the location of the system on the building or property, including property lines. Permits must be kept on the premises where the ASES is constructed.

   b. The zoning/building permit shall be revoked if the ASES, whether new or pre-existing, is moved or otherwise altered, either intentionally or by natural forces, in a manner which causes the ASES not to be in conformity with this Ordinance.

   c. The ASES must be properly maintained and be kept free from all hazards, including but not limited to, faulty wiring, loose fastenings, being in an unsafe condition or detrimental to public health, safety or general welfare. In the event of a violation of any of the foregoing provisions, the Zoning Officer shall give written notice specifying the violation to the owner of the ASES to conform or to remove the ASES.

B. Roof Mounted and Wall Mounted Accessory Solar Energy Systems:

1. A roof mounted or wall mounted ASES may be located on a principal or accessory building.

2. ASES mounted on roofs or walls of any building shall be subject to the maximum height regulations specified for principal and accessory buildings within each of the underlying Zoning Districts.

OR

3. The total height of a building with an ASES shall not exceed by more than (1 foot, 3 feet, **XX**) above the maximum building height specified for principal or accessory buildings within the applicable zoning district.

4. Wall mounted ASES shall comply with the setbacks for principal and accessory structures in the underlying zoning districts.

5. Solar panels shall not extend beyond any portion of the roof edge.

[21] The power rating may be increased. This figure should be consistent with the definition of "Accessory Solar Energy System"

6. *Roof mounted solar panels shall be located only on rear or side-facing roofs as viewed from any adjacent street unless the applicant demonstrates that, due to solar access limitations, no location exists other than the street-facing roof, where the solar energy system can perform effectively.*

OR

7. *Roof mounted solar panels may be located on front-facing roofs as viewed from any adjacent street when approved as a conditional use. The applicant shall demonstrate that, due to solar access limitations, no location exists other than the street-facing roof, where the solar energy system can perform effectively.*
8. For roof and wall mounted systems, the applicant shall provide evidence that the plans comply with the Uniform Construction Code and adopted building code of the municipality that the roof or wall is capable of holding the load imposed on the structure.

C. Ground Mounted Accessory Solar Energy Systems:

1. Setbacks
   a. The minimum yard setbacks from side and rear property lines shall be equivalent to the accessory structure setback in the zoning district.

OR

   b. The minimum yard setbacks from side and rear property lines shall be equivalent to the principal structure setback in the zoning district.
   c. A ground mounted ASES shall not be located in the required front yard[22].

OR

   d. Ground mounted ASES are prohibited in front yards, between the principal building and the public street.
   e. A ground mounted ASES may be located in the portion of the yard in front of the principal building and outside of the required front yard provided that vegetative screening is provided.
   f. The municipality may authorize the installation of a ground mounted ASES in front of the principal building, outside the required front yard, if the applicant demonstrates that, due to solar access limitations, no location exists on the property other than the front yard where the solar panel can perform effectively.
2. *The total surface area of the arrays of ground mounted ASES on the property shall not exceed more than (**XX**) percent of the lot area. (some models suggest not greater than 15%)*
3. Height
   a. Freestanding ground mounted ASES shall not exceed the maximum accessory structure height in the underlying zoning district.

[22] The Municipality should review the definition of "Front Yard". Is this considered the setback area, or the are between the principal building and the street right-of-way.

OR

b. Ground mounted ASES shall not exceed (15, 20, **XX**) feet in height above the ground elevation surrounding the systems.

OR

4. Screening

a. Ground mounted ASES shall be screened from adjoining residential uses or zones according to the standards found in Section[23] _____ of this ordinance.

OR

b. Ground mounted ASES shall be screened from any adjacent property that is residentially zoned or used for residential purposes. The screen shall consist of plant materials which provide a visual screen. In lieu of a planting screen, a decorative fence meeting requirements of the zoning ordinance may be used.

5. Appropriate safety/warning signage concerning voltage shall be placed at ground mounted electrical devices, equipment, and structures. All electrical control devices associated with the ASES shall be locked to prevent unauthorized access or entry.

6. Ground-mounted ASES shall not be placed within any legal easement or right-of-way location, or be placed within any storm water conveyance system or in any other manner that would alter or impede storm water runoff from collecting in a constructed storm water conveyance system.

[23] The Municipality should verify that screening requirements are established for ASES.