

Model Solar Energy Local Law

For local governments to utilize when drafting local laws
and regulations for solar development.



NYSERDA

Solar Guidebook for Local Governments
NYSERDA 17 Columbia Circle Albany, NY 12203

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Overview

Since siting for solar projects is at the local level, the Model Solar Energy Local Law serves as a resource to inform local officials on the processes of installing, operating, maintaining and decommissioning solar energy systems in their respective jurisdictions. Providing this as a resource for local governments, officials can then use this Model Law to assist them in examining their own local laws, regulations, and policies to adopt their own rules and regulations that make sense for their respective community with regards to solar development.

The Model Solar Energy Local Law can be found on the following page and at nyserdera.ny.gov/SolarGuidebook, under the Model Solar Energy Local Law tab. It is not recommended for municipalities to use the Model Law 'as is', it was created as a resource for advising local governments when adopting solar energy local laws.

1. Frequently Asked Questions (FAQs)

Below are some of the most frequently asked questions regarding the Model Solar Energy Local Law process.

Is there a concern about hazardous materials from solar panel systems impacting the soil or water?²³

PV panels are constructed of silicone, tempered glass, and metals. These components are enclosed and sealed during the manufacturing process. Since the PV panel materials are enclosed and do not mix with water or vaporize into the air, there is little to no risk of chemicals being released into the environment during normal use. Release of any toxic chemicals from solid state inverters is also unlikely as solar installations must conform to state, fire, safety and electric codes, and they pose little or no risk of contaminating the soil or ground water.

How are solar panels disposed of after the end of life?²⁴

Decommissioning is the process for removing an abandoned solar panel system and remediating the land. NYSERDA's Solar Guidebook provides details on creating a decommissioning plan. When describing requirements for decommissioning sites, it is possible to require the removal of infrastructure, disposal of any components, as well as the stabilization and re-vegetation of the site.

Do solar panels create high ambient temperatures in their surroundings?²³

All available evidence indicates that there is no solar "heat island" effect caused by a functioning solar array. Studies further conclude that the area surrounding a large-scale solar array is unlikely to experience a net heating change from the panels.

What about exposure to the electromagnetic fields (EMF) caused by solar panel systems?²⁵

EMF from solar panel systems are in the same extremely low frequency range as those induced by household appliances. The exposure level is much lower than what may potentially be associated with a health effect and therefore insignificant.

Is glare a concern for solar panel systems?²³

Solar panels are constructed of dark-colored (usually blue or black) materials and designed with anti-reflective coating(s). In general, solar panels are less reflective than window glass or water surfaces.

²³ "Clean Energy Results, Questions and Answers, Ground Mounted Solar Photovoltaic Systems." Energy Center, June 2015. <http://www.mass.gov/eea/docs/doer/renewables/solar/solar-pv-guide.pdf>

²⁴ "Solar Guidebook For Local Governments/ Decommissioning of Solar" <https://www.nyserdera.ny.gov/All-Programs/Programs/NY-Sun/Communities/Local-Government-Training-and-Resources/Solar-Guidebook-for-Local-Governments>

²⁵ "Electromagnetic Fields Associated with Commercial Solar Photovoltaic Power Generating Facilities" US National Library of Medicine National Institutes of Health <https://www.ncbi.nlm.nih.gov/pubmed/26023811>

Do solar panel systems generate noise?

Solar panels are noise-free and residential solar inverters are quieter than a refrigerator. Large-scale, ground-mounted systems may have noise associated with the transformers used as part of the utility interconnection. Any sound from the PV equipment is inaudible and sound levels are at background levels from a distance of 50 to 150 feet from the site boundary.

What are the implications of installing large transformers for connecting solar panel systems to the utility grid?²³

Large-scale solar panel systems have transformers that are similar to the ones used throughout the electricity distribution system. These transformers resemble the size and forms of equipment associated with a large power consumer, such as a shopping mall or a school campus. Transformer coolants containing halogens have some potential for toxic releases, however modern transformers typically use non-toxic coolants and potential releases from these transformers are not expected to present a risk to human health.

Will solar panel systems affect the water run off at the site?

Rules are in place to ensure that solar arrays are installed in ways that protect public water supplies, wetlands, and other water resources. Rooftop solar systems have little to no effects on the direction or flow of water. Ground mounted systems offer opportunities to manage water and prevent runoff. Some options include deep rooted vegetation such as “pollinator friendly” grasses and wild flowers, pervious pavement, or topographical features such as berms, swales, or retention ponds. The Department of Environmental Conservation’s State Pollutant Discharge Elimination System (SPDES) website details permit requirements for storm water discharges.²⁶

²⁶ State Pollutant Discharge Elimination System (SPDES) website <https://www.dec.ny.gov/chemical/43133.html>

2. Model Solar Energy Local Law

The workable version of this document can be found at nyserdera.ny.gov/SolarGuidebook, under **Model Solar Energy Local Law** tab.

Model Solar Energy Local Law Instructions

1. The sole siting authority for solar projects under 25 MW resides at the local level rather than the state level. One purpose of this Model Solar Energy Local Law (Model Law) is to inform and facilitate local efforts to expand solar energy generation in a sustainable way. This Model Solar Energy Local Law regulates the installation, operation, maintenance, and decommissioning of solar energy systems. The Model Law is intended to be an “all-inclusive” ordinance to allow for a thorough review of all aspects of solar energy systems under typical zoning and land use regulations, including the State Environmental Quality Review Act. Municipalities are encouraged to review this Model Law, examine their local laws and regulations and the types, size range and number of solar energy projects proposed, and adopt a local law addressing the aspects of solar energy development that make the most sense for each municipality, deleting, modifying, or adding other provisions as appropriate.
2. In some cases, there may be multiple approaches to regulate a certain aspect of solar energy systems. The word “OR” has been placed in the text of the model law to indicate these options. Municipalities should choose the option that works best for their communities. The content provided in brackets and highlighted is optional. Depending on local circumstances, a municipality may want to include this content or choose to adopt a different standard.
3. This Model Law is not intended for adoption exactly as it is written. It is intended to be advisory only, and users should not rely upon it as legal advice. A municipality is not required to adopt this Model Law. Municipal officials are urged to seek legal advice from their attorneys before enacting a solar energy law. Municipalities must carefully consider how this language may be modified to suit local conditions, their comprehensive plan, and existing land use and zoning provisions.
4. Prior to drafting a local solar energy law, municipalities can assess the potential of the local electric distribution system to interconnect significant amounts of solar generating capacity. New York utilities have made several tools available, such as Hosting Capacity maps, to help customers and developers conduct initial assessments.
 - A. The “Hosting Capacity” is the utility’s estimate of the amount of new distributed generation (DG) resources that may be interconnected at a particular part of the distribution system without adversely impacting power quality or reliability under current configurations and without requiring expensive infrastructure upgrades.
 - B. Users should understand that the Hosting Capacity maps are not intended as a guarantee that a specific project can interconnect. A number of factors that Hosting Capacity maps cannot fully account for drive up the cost of interconnecting DG to the electric system, and actual interconnection requirements and costs will be determined following the respective utility’s study of individual interconnection applications. However, the maps provide an assessment of the relative feasibility of pursuing projects on different parts of the utility’s system and thus help define areas of higher and lower potential for development. Questions regarding Hosting Capacity maps can be directed to cleanenergyhelp@nyserdera.ny.gov.
 - C. If the electrical system within a municipality appears to have development potential, municipalities should review and, if necessary, amend their comprehensive plans to address solar energy development within the community and adopt policies to carry this goal forward.
5. Municipalities may consider taking action on the comprehensive plan update at the same time it considers adoption of local laws and/or regulations for solar energy projects. Suggestions on how municipalities can develop and adopt solar friendly policies and plans that provide protection for the municipality are listed below:
 - A. Adopt a resolution or policy statement, or the mayor can issue an executive order or proclamation to outline a strategy for municipal-wide solar development.
 - B. Appoint a Solar Energy Task Force (“Task Force”) that represents all interested stakeholders, including residents, businesses, interested non-profit organizations, the solar industry, utilities, and relevant municipal officials and staff to prepare an action plan, amend the comprehensive plan to include solar energy planning goals and actions, and develop local laws and/or regulations to ensure the orderly development of solar energy projects.

- C. Charge the Task Force with conducting meetings on a communitywide basis to involve all key stakeholders, gather all available ideas, identify divergent groups and views, and secure support from the entire community. The Task Force also should conduct studies and should determine whether existing policies, plans, and land use regulations require amendments to remove barriers to and facilitate solar energy development goals.
- D. Establish a training program for local staff and land use boards. Municipalities are encouraged to utilize State and Federal technical assistance and grants for training programs when available.
- E. Partner with adjacent communities and/or county agencies to adopt compatible policies, plan components, and zoning provisions.

Model Solar Energy Local Law

1. Authority

This Solar Energy Local Law is adopted pursuant to [Select one: sections 261-263 of the Town Law / sections 7-700 through 7-704 of the Village Law / sections 19 and 20 of the City Law and section 20 of the Municipal Home Rule Law] of the State of New York, which authorize the [Village/Town/City] to adopt zoning provisions that advance and protect the health, safety and welfare of the community, and, in accordance with the [Village/Town/City] law of New York State, “to make provision for, so far as conditions may permit, the accommodation of solar energy systems and equipment and access to sunlight necessary therefor.”

Commentary: Municipalities are specifically authorized to adopt legislation to accommodate Solar Energy Systems and equipment. The Model Law Authority Section references this delegated authority. The municipal attorney should be consulted regarding this Section as well as the Model Solar Energy Law in its totality.

2. Statement of Purpose

- A. This Solar Energy Local Law is adopted to advance and protect the public health, safety, and welfare of [Village/Town/City] by creating regulations for the installation and use of solar energy generating systems and equipment, with the following objectives:
- 1) To take advantage of a safe, abundant, renewable and non-polluting energy resource;
 - 2) To decrease the cost of electricity to the owners of residential and commercial properties, including single-family houses;
 - 3) To increase employment and business development in the [Village/Town/City], to the extent reasonably practical, by furthering the installation of Solar Energy Systems;
 - 4) To mitigate the impacts of Solar Energy Systems on environmental resources such as important agricultural lands, forests, wildlife and other protected resources, and;
 - 5) To create synergy between solar and [other stated goals of the community pursuant to its Comprehensive Plan], [such as urban/downtown revitalization, vacant land management, creating a walkable, healthy community, etc.].

Commentary: As the benefits of Solar Energy Systems may vary from community to community, the Purpose Section should be reviewed and adjusted accordingly. Any benefits of solar energy referred to specifically in the local comprehensive plan should be added to this list. An expansive list of the benefits of solar energy may help secure support from local stakeholder groups for the adoption of the Model Law. A municipality should include benefits in this list that resonate with the stakeholders involved in its community. The following list includes additional benefits of solar energy that communities may choose to incorporate into the Purpose Section, as appropriate:

- To decrease the use of fossil fuels, thereby reducing the carbon footprint of [Village/Town/City];
- To invest in a locally generated source of energy and to increase local economic value, rather than importing non-local fossil fuels;
- To align the laws and regulations of the community with several policies of the State of New York, particularly those that encourage distributed energy systems;
- To become more competitive for state and federal grants and tax benefits;
- To make the community more resilient during storm events;
- To aid in the energy independence of the community as well as the country;
- To diversify energy resources to decrease dependence on the grid;
- To improve public health;
- To encourage a sense of pride in the community;
- To encourage investment in public infrastructure supportive of solar, such as generation facilities, grid-scale transmission infrastructure, and energy storage sites.

3. Definitions

BUILDING-INTEGRATED SOLAR ENERGY SYSTEM: A combination of Solar Panels and Solar Energy Equipment integrated into any building envelope system such as vertical facades, semitransparent skylight systems, roofing materials, or shading over windows, which produce electricity for onsite consumption.

FARMLAND OF STATEWIDE IMPORTANCE: Land, designated as “Farmland of Statewide Importance” in the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS)’s Soil Survey Geographic (SSURGO) Database on Web Soil Survey, that is of state wide importance for the production of food, feed, fiber, forage, and oilseed crops as determined by the appropriate state agency or agencies. Farmland of Statewide Importance may include tracts of land that have been designated for agriculture by state law.

GLARE: The effect by reflections of light with intensity sufficient as determined in a commercially reasonable manner to cause annoyance, discomfort, or loss in visual performance and visibility in any material respects.

GROUND-MOUNTED SOLAR ENERGY SYSTEM: A Solar Energy System that is anchored to the ground via a pole or other mounting system, detached from any other structure, that generates electricity for onsite or offsite consumption.

NATIVE PERENNIAL VEGETATION: native wildflowers, forbs, and grasses that serve as habitat, forage, and migratory way stations for pollinators and shall not include any prohibited or regulated invasive species as determined by the New York State Department of Environmental Conservation.

POLLINATOR: bees, birds, bats, and other insects or wildlife that pollinate flowering plants, and includes both wild and managed insects.

PRIME FARMLAND: Land, designated as “Prime Farmland” in the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS)’s Soil Survey Geographic (SSURGO) Database on Web Soil Survey, that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these land uses.

ROOF-MOUNTED SOLAR ENERGY SYSTEM: A Solar Energy System located on the roof of any legally permitted building or structure that produces electricity for onsite or offsite consumption.

SOLAR ACCESS: Space open to the sun and clear of overhangs or shade so as to permit the use of active and/or passive Solar Energy Systems on individual properties.

SOLAR ENERGY EQUIPMENT: Electrical material, hardware, inverters, conduit, storage devices, or other electrical and photovoltaic equipment associated with the production of electricity.

SOLAR ENERGY SYSTEM: The components and subsystems required to convert solar energy into electric energy suitable for use. The term includes, but is not limited to, Solar Panels and Solar Energy Equipment. The area of a Solar Energy System includes all the land inside the perimeter of the Solar Energy System, which extends to any interconnection equipment. A Solar Energy System is classified as a Tier 1, Tier 2, or Tier 3 Solar Energy System as follows.

A. Tier 1 Solar Energy Systems include the following:

- a. Roof-Mounted Solar Energy Systems
- b. Building-Integrated Solar Energy Systems

B. Tier 2 Solar Energy Systems include Ground-Mounted Solar Energy Systems with system capacity up to [25] kW AC and that generate no more than [110] % of the electricity consumed on the site over the previous [12] months.

OR

Tier 2 Solar Energy Systems include Ground-Mounted Solar Energy Systems with a total surface area of all solar panels on the lot of up to [4,000] square feet and that generate up to [110] % of the electricity consumed on the site over the previous [12] months.

C. Tier 3 Solar Energy Systems are systems that are not included in the list for Tier 1 and Tier 2 Solar Energy Systems.

Commentary: These definitions are critical to the workability of the remaining sections of the Model Law. There are three types of Solar Energy Systems defined here.

Tier 1 Solar Energy Systems are defined as all Roof-Mounted and Building-Integrated Solar Energy Systems and are permitted in all zoning districts.

Tier 2 Solar Energy Systems are Ground-Mounted systems that use the electricity generated from solar panels primarily onsite. A municipality may define Tier 2 Solar Energy Systems according to their physical size using measurements similar to those found in the zoning ordinance's bulk and area requirements (measured in acres, square feet etc.), or based on energy capacity due to the fact that the physical size of a Solar Energy System tends to increase as kilowatts produced increases.

Tier 3 Solar Energy Systems are systems that are not included in either Tier 1 or Tier 2 Solar Energy Systems. Note that Solar Energy Systems producing 25 MW or more are permitted by the Board of Electric Generation Siting and the Environment (Siting Board) under Article 10 of the New York State Public Service Law. The Siting Board is responsible for issuing Certificates of Environmental Compatibility and Public Need, authorizing the construction and operation of major electric generating facilities.

This Model Law does not include a specific definition for Solar Energy Systems raised on canopy mounting, such as a solar parking canopy. These configurations are included within the definition of Ground-Mounted Solar Energy Systems or Roof-Mounted Solar Energy Systems, depending on the location of the canopy. If a municipality anticipates requiring special consideration for solar canopy systems, it could consider adding to the Model Law specific provisions addressing these concerns or using a waiver to remove certain standards when they are deemed unnecessary by the community.

SOLAR PANEL: A photovoltaic device capable of collecting and converting solar energy into electricity.

STORAGE BATTERY: A device that stores energy and makes it available in an electrical form.

4. Applicability

- A. The requirements of this Local Law shall apply to all Solar Energy Systems permitted, installed, or modified in [Village/Town/City] after the effective date of this Local Law, excluding general maintenance and repair.
- B. Solar Energy Systems constructed or installed prior to the effective date of this Local Law shall not be required to meet the requirements of this Local Law.
- C. Modifications to an existing Solar Energy System that increase the Solar Energy System area by more than [5] % of the original area of the Solar Energy System (exclusive of moving any fencing) shall be subject to this Local Law.
- D. All Solar Energy Systems shall be designed, erected, and installed in accordance with all applicable codes, regulations, and industry standards as referenced in the NYS Uniform Fire Prevention and Building Code (“Building Code”), the NYS Energy Conservation Code (“Energy Code”), and the [Village/Town/City] Code.

Commentary: The Applicability Section establishes the effective date for implementation of the law. In addition, it carves out an exemption for maintenance, repair of systems, and modifications to existing Solar Energy Systems with an increase in area less than 5% of the original area of the system (exclusive of moving any fencing).

Note that other zoning code definitions, regulations, and uses should be reviewed for conflict with the provisions of this law. For example, municipalities should amend any zoning provision that prevents an accessory use from existing on an accessory structure, which the Model Law allows. If a municipality’s zoning code defines or limits the use of the term “subordinate,” in a way that conflicts with the Model Law’s definitions, the municipality should amend the Model Law to state that it preempts the more restrictive definition. Some local zoning laws prohibit accessory structures on other accessory uses, which this law allows. One solution to this and the other conflicts noted here is to amend the zoning definition for solar accessory uses to clarify that they are allowed despite restrictive definitions of “subordinate” or the prohibition of accessory uses to accessory buildings.

5. General Requirements

- A. A Building permit shall be required for installation of all Solar Energy Systems.
- B. Local land use boards are encouraged to condition their approval of proposed developments on sites adjacent to Solar Energy Systems so as to protect their access to sufficient sunlight to remain economically feasible over time.
- C. Issuance of permits and approvals by the [Reviewing Board] shall include review pursuant to the State Environmental Quality Review Act [ECL Article 8 and its implementing regulations at 6 NYCRR Part 617 (“SEQRA”).

6. Permitting Requirements for Tier 1 Solar Energy Systems

All Tier 1 Solar Energy Systems shall be permitted in all zoning districts and shall be exempt from site plan review under the local zoning code or other land use regulation, subject to the following conditions for each type of Solar Energy Systems:

A. Roof-Mounted Solar Energy Systems

- 1) Roof-Mounted Solar Energy Systems shall incorporate, when feasible, the following design requirements:
 - a. Solar Panels on pitched roofs shall be mounted with a maximum distance of [8] inches between the roof surface the highest edge of the system.
 - b. Solar Panels on pitched roofs shall be installed parallel to the roof surface on which they are mounted or attached.
 - c. Solar Panels on pitched roofs shall not extend higher than the highest point of the roof surface on which they are mounted or attached.
 - d. Solar Panels on flat roofs shall not extend above the top of the surrounding parapet, or more than [24] inches above the flat surface of the roof, whichever is higher.
- 2) Glare: All Solar Panels shall have anti-reflective coating(s).

3) Height: All Roof-Mounted Solar Energy Systems shall comply with the height limitations in Appendix 3.

OR

All Roof-Mounted Solar Energy Systems shall be subject to the maximum height regulations specified for principal and accessory buildings within the underlying zoning district.

Commentary: Roof-Mounted Solar Energy Systems regulated under this Section produce electricity for onsite or offsite consumption, are permitted in all zoning districts, and do not require site plan review. Because Roof-Mounted Solar Energy Systems are installed on existing structures, their placement has no effect on the impermeability of a property's surface area or the parcel's lot coverage, making it unnecessary to include Roof-Mounted Solar Energy Systems in lot coverage and impervious surface calculations.

Most concerns related to these systems are attributed to aesthetics, which in some communities can be a major barrier to the approval of Solar Energy Systems. To help regulate aesthetics, specific requirements regarding height, coloration, and equipment placement can be incorporated into zoning regulations. Municipalities should evaluate their existing height limitations within each zoning district to determine if they are overly restrictive. The height limitations included in Appendix 3 provide a guide if municipalities aim to design specific height limitations for Roof-Mounted Solar Energy Systems. This Model Law also includes other aesthetic standards that address placement and tilt, while limiting the enforcement to "when feasible" to avoid overly burdensome standards.

Solar panels are constructed of dark-colored (usually blue or black) materials and should be covered with anti-reflective coatings. Modern solar panels reflect as little as two percent of incoming sunlight, which is about the same as water and less than soil or wood shingles. For more information, please refer to the US Department of Energy Office of Energy Efficiency and Renewable Energy's Solar PV and Glare Factsheet, available at <https://www.energy.gov/eere/solar/downloads/solar-pv-and-glare-factsheet>.

B. Building-Integrated Solar Energy Systems shall be shown on the plans submitted for the building permit application for the building containing the system.

Commentary: Building-Integrated Photovoltaic Systems are exempt from any bulk and area requirements and design standards of the law because they are integrated into building envelope systems themselves, including vertical façades (made of glass and/or other façade materials), semitransparent skylight systems, roofing materials, and window shading elements. These systems are regulated in the same manner as the building envelope systems of which they are a part. Therefore, this Model Law only requires that Building-Integrated Solar Energy Systems be shown on the plans submitted for the building permit application.

7. Permitting Requirements for Tier 2 Solar Energy Systems

All Tier 2 Solar Energy Systems shall be permitted in all zoning districts as accessory structures and shall be exempt from site plan review under the local zoning code or other land use regulations, subject to the following conditions:

A. Glare: All Solar Panels shall have anti-reflective coating(s).

B. Setbacks: Tier 2 Solar Energy Systems shall be subject to the setback regulations specified for the accessory structures within the underlying zoning district. All Ground-Mounted Solar Energy Systems shall only be installed in the side or rear yards in residential districts.

Commentary: To avoid being overly restrictive, municipalities in rural or less dense areas may elect to remove the Model Law's requirement that Tier 2 Solar Energy Systems in residential districts must be installed in the side or rear yards. These systems might not be visible from the street in less dense areas.

C. Height: Tier 2 Solar Energy Systems shall be subject to the height limitations specified for accessory structures within the underlying zoning district.

OR

Tier 2 Solar Energy Systems shall comply with the height limitations in Appendix 3.

D. Screening and Visibility.

- 1) All Tier 2 Solar Energy Systems shall have views minimized from adjacent properties to the extent reasonably practicable.
- 2) Solar Energy Equipment shall be located in a manner to reasonably avoid and/or minimize blockage of views from surrounding properties and shading of property to the north, while still providing adequate solar access.

E. Lot Size: Tier 2 Solar Energy Systems shall comply with the existing lot size requirement specified for accessory structures within the underlying zoning district.

Commentary: Tier 2 Solar Energy Systems regulated under this Section are Ground-Mounted Systems that produce electricity primarily for onsite consumption and are relatively smaller in physical size compared to Tier 3 Solar Energy Systems. They are permitted as accessory structures in all zoning districts deemed appropriate by the local jurisdiction and do not require site plan review. Tier 2 Solar Energy Systems are standalone structures and generate different concerns than Roof-Mounted installations. Because Tier 2 system sizes are not limited to a structure's available roof space, it is important to think about the size of the lot in relation to the allowable system size, after accounting for setbacks. The Model Law requires all Tier 2 systems to be subject to the setback requirements of the underlying zoning district.

The Model Law provides two options to regulate the height of Tier 2 Solar Energy Systems. One way is to limit the height of Ground-Mounted Solar Energy Systems to the requirements in the underlying zoning district. Each municipality must adopt appropriate height restrictions based on local need. Alternatively, municipalities can specify a set of new height standards, as shown in Appendix 3. All height measurements should be calculated when the Solar Energy System is oriented at maximum tilt.

This Model Law includes specific screening and visibility standards for Tier 2 Solar Energy Systems while limiting the enforcement to "the extent reasonably practicable" to avoid overly burdensome standards.

8. Permitting requirements for Tier 3 Solar Energy Systems

All Tier 3 Solar Energy Systems are permitted through the issuance of a [special use permit] within the [XXXXXXXXXXXXXXXX, XXXXXXXXXXXXX, XXXXXXXXXXXXX] zoning districts, and subject to site plan application requirements set forth in this Section.

Commentary: Tier 3 Solar Energy Systems regulated under this Section are permitted through the issuance of a special use permit within districts selected by the local jurisdiction and are subject to site plan approval. Where indicated in the Model Law, municipalities should insert the zoning district(s) in which they choose to permit Tier 3 systems. This is purely a matter of local discretion and will be based, in each case, on the number and types of zoning districts in each municipality and the development in each of those districts.

A. Applications for the installation of Tier 3 Solar Energy System shall be:

- 1) reviewed by the [Code Enforcement/Zoning Enforcement Officer or Reviewing Board] for completeness. Applicants shall be advised within [10] business days of the completeness of their application or any deficiencies that must be addressed prior to substantive review.
- 2) subject to a public hearing to hear all comments for and against the application. The [Reviewing Board] of the [Village/Town/City] shall have a notice printed in a newspaper of general circulation in the [Village/Town/City] at least [5] days in advance of such hearing. Applicants shall have delivered the notice by first class mail to adjoining landowners or landowners within [200] feet of the property at least [10] days prior to such a hearing. Proof of mailing shall be provided to the [Reviewing Board] at the public hearing.
- 3) referred to the [County Planning Department] pursuant to General Municipal Law § 239-m if required.
- 4) upon closing of the public hearing, the [Reviewing Board] shall take action on the application within 62 days of the public hearing, which can include approval, approval with conditions, or denial. The 62-day period may be extended upon consent by both the [Reviewing Board] and applicant.

- B. Underground Requirements. All on-site utility lines shall be placed underground to the extent feasible and as permitted by the serving utility, with the exception of the main service connection at the utility company right-of-way and any new interconnection equipment, including without limitation any poles, with new easements and right-of-way.
- C. Vehicular Paths. Vehicular paths within the site shall be designed to minimize the extent of impervious materials and soil compaction.
- D. Signage.
- 1) No signage or graphic content shall be displayed on the Solar Energy Systems except the manufacturer's name, equipment specification information, safety information, and 24-hour emergency contact information. Said information shall be depicted within an area no more than [8] square feet.
 - 2) As required by National Electric Code (NEC), disconnect and other emergency shutoff information shall be clearly displayed on a light reflective surface. A clearly visible warning sign concerning voltage shall be placed at the base of all pad-mounted transformers and substations.
- E. Glare. All Solar Panels shall have anti-reflective coating(s).
- F. Lighting. Lighting of the Solar Energy Systems shall be limited to that minimally required for safety and operational purposes and shall be reasonably shielded and downcast from abutting properties.
- G. Tree-cutting. Removal of existing trees larger than [6] inches in diameter should be minimized to the extent possible.
- H. Decommissioning.
- 1) Solar Energy Systems that have been abandoned and/or not producing electricity for a period of [1] year shall be removed at the Owner and/or Operators expense, which at the Owner's option may come from any security made with the [Village/Town/City] as set forth in Section 10(b) herein.
 - 2) A decommissioning plan (see Appendix 4) signed by the owner and/or operator of the Solar Energy System shall be submitted by the applicant, addressing the following:
 - a. The cost of removing the Solar Energy System.
 - b. The time required to decommission and remove the Solar Energy System any ancillary structures.
 - c. The time required to repair any damage caused to the property by the installation and removal of the Solar Energy System.
 - 3) Security.
 - a. The deposit, executions, or filing with the [Village/Town/City] Clerk of cash, bond, or other form of security reasonably acceptable to the [Village/Town/City] attorney and/or engineer, shall be in an amount sufficient to ensure the good faith performance of the terms and conditions of the permit issued pursuant hereto and to provide for the removal and restorations of the site subsequent to removal. The amount of the bond or security shall be [125] % of the cost of removal of the Tier 3 Solar Energy System and restoration of the property with an escalator of [2] % annually for the life of the Solar Energy System. The decommissioning amount shall be reduced by the amount of the estimated salvage value of the Solar Energy System.
 - b. In the event of default upon performance of such conditions, after proper notice and expiration of any cure periods, the cash deposit, bond, or security shall be forfeited to the [Village/Town/City], which shall be entitled to maintain an action thereon. The cash deposit, bond, or security shall remain in full force and effect until restoration of the property as set forth in the decommissioning plan is completed.
 - c. In the event of default or abandonment of the Solar Energy System, the system shall be decommissioned as set forth in Section 10(b) and 10(c) herein.

Commentary: Decommissioning is the process of removing an abandoned Solar Energy System and remediating the land. When describing requirements for decommissioning Solar Energy Systems, it is possible to specifically require the removal of infrastructure, disposal of any components, and the stabilization and re-vegetation of the site. A decommissioning plan is required for Tier 3 Solar Energy Systems.

It is important to note that despite many municipalities' choice to require a financial mechanism for decommissioning, there is no specific authority to do so as part of a land use approval for solar PV projects. Therefore, a municipality should consult the municipal attorney when evaluating financial mechanisms.

For additional resources, please refer to NYSERDA's Fact Sheet on Decommissioning Solar Panel Systems, available at nyserda.ny.gov/SolarGuidebook.

- I. Site plan application. For any Solar Energy system requiring a Special Use Permit, site plan approval shall be required. Any site plan application shall include the following information:
- 1) Property lines and physical features, including roads, for the project site
 - 2) Proposed changes to the landscape of the site, grading, vegetation clearing and planting, exterior lighting, and screening vegetation or structures
 - 3) A one- or three-line electrical diagram detailing the Solar Energy System layout, solar collector installation, associated components, and electrical interconnection methods, with all National Electrical Code compliant disconnects and over current devices.
 - 4) A preliminary equipment specification sheet that documents all proposed solar panels, significant components, mounting systems, and inverters that are to be installed. A final equipment specification sheet shall be submitted prior to the issuance of building permit.
 - 5) Name, address, and contact information of proposed or potential system installer and the owner and/or operator of the Solar Energy System. Such information of the final system installer shall be submitted prior to the issuance of building permit.
 - 6) Name, address, phone number, and signature of the project applicant, as well as all the property owners, demonstrating their consent to the application and the use of the property for the Solar Energy System.
 - 7) Zoning district designation for the parcel(s) of land comprising the project site.
 - 8) Property Operation and Maintenance Plan. Such plan shall describe continuing photovoltaic maintenance and property upkeep, such as mowing and trimming.
 - 9) Erosion and sediment control and storm water management plans prepared to New York State Department of Environmental Conservation standards, if applicable, and to such standards as may be established by the Planning Board.
 - 10) Prior to the issuance of the building permit or final approval by the [Reviewing Board], but not required as part of the application, engineering documents must be signed and sealed by a New York State (NYS) Licensed Professional Engineer or NYS Registered Architect.

Commentary: It is important to consolidate the application review for Solar Energy System approval in one board. In some communities, the local zoning law may allocate responsibilities for special use permits and site plan approvals to different boards. Moving the application back and forth between two boards can add months and unnecessary costs to the Solar Energy System. To avoid this, the community should determine which board should be primarily responsible for Solar Energy System approvals and consolidate special use permit and site plan approval thereby adding the following language to the Model Law: "All site plan and special use permit approvals for Solar Energy Systems shall be the responsibility of the [Reviewing Board] in order to avoid delays in the review of Solar Energy System applications."

Including specific requirements for site plan approval ensures that potential problems are addressed in the initial stages of the project. Municipalities can modify the list of required information to meet local needs as appropriate.

J. Special Use Permit Standards.

1) Lot size

- a. The property on which the Tier 3 Solar Energy System is placed shall meet the lot size requirements of the underlying zoning district.

OR

The property on which the Tier 3 Solar Energy System is placed shall meet the lot size requirements in Appendix 1.

2) Setbacks

- a. The Tier 3 Solar Energy Systems shall comply with the setback requirements of the underlying zoning district for principal structures.

OR

The Tier 3 Solar Energy Systems shall meet the setback requirements in Appendix 2.

3) Height

- a. The Tier 3 Solar Energy Systems shall comply with the building height limitations for principal structures of the underlying zoning district.

OR

- b. The Tier 3 Solar Energy Systems shall comply with the height limitations in Appendix 3 depending on the underlying zoning district.

4) Lot coverage

- a. The following components of a Tier 3 Solar Energy System shall be considered included in the calculations for lot coverage requirements:

- 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 Solar Energy System, including any pad mounted structure for batteries, switchboard, transformers, or storage cells.
- III. Paved access roads servicing the Solar Energy System.

- b. Lot coverage of the Solar Energy System, as defined above, shall not exceed the maximum lot coverage requirement of the underlying zoning district.

Commentary: Since Ground-Mounted Solar Energy Systems generally do not include much impervious surface, and since lot coverage requirements are designed, in large part, to reduce impervious surfaces and the run-off they create, this Model Law measures lot coverage for a Ground-Mounted Solar Energy System by its actual impervious footprint, which results in a smaller measurement than the square footage of the solar panels.

It is also important to note that Tier 3 Solar Energy Systems must comply with New York State stormwater regulations, as the panels could alter the volume, velocity, and discharge pattern of stormwater runoff.

- 5) Fencing Requirements. All mechanical equipment, including any structure for storage batteries, shall be enclosed by a [7-foot-high] fence, as required by NEC, with a self-locking gate to prevent unauthorized access.

6) Screening and Visibility.

- a. Solar Energy Systems smaller than [10] acres shall have views minimized from adjacent properties to the extent reasonably practicable using architectural features, earth berms, landscaping, or other screening methods that will harmonize with the character of the property and surrounding area.
- b. Solar Energy Systems larger than [10] acres shall be required to:

- I. Conduct a visual assessment of the visual impacts of the Solar Energy System on public roadways and adjacent properties. At a minimum, a line-of-sight profile analysis shall be provided. Depending upon the scope and potential significance of the visual impacts, additional impact analyses, including for example a digital viewshed report, [shall/may] be required to be submitted by the applicant.
- II. Submit a screening & landscaping plan to show adequate measures to screen through landscaping, grading, or other means so that views of Solar Panels and Solar Energy Equipment shall be minimized as reasonably practical from public roadways and adjacent properties to the extent feasible.
 - i. The screening & landscaping plan shall specify the locations, elevations, height, plant species, and/or materials that will comprise the structures, landscaping, and/or grading used to screen and/or mitigate any adverse aesthetic effects of the system. The landscaped screening shall be comprised of a minimum of [1] evergreen tree, at least [6] feet high at time of planning, plus [2] supplemental shrubs at the reasonable discretion of the [Village/Town/city] [Reviewing Board], all planted within each [10] linear feet of the Solar Energy System. Existing vegetation may be used to satisfy all or a portion of the required landscaped screening. A list of suitable evergreen tree and shrub species should be provided by the [Village/Town/city].

OR

The screening & landscaping plan shall specify the locations, elevations, height, plant species, and/or materials that will comprise the structures, landscaping, and/or grading used to screen and/or mitigate any adverse aesthetic effects of the system, following the applicable rules and standards established by the [Village/Town/County].

Commentary: In general, municipalities should think through how helpful SEQR can be in mitigating adverse impacts of any proposed system approved through a special use permit under this Section.

For Tier 3 Solar Energy Systems that are smaller than 10 acres (considered Unlisted Actions in SEQR, except for systems in agricultural districts with a solar-panel surface area larger than 2.5 acres), this Model Law limits the enforcement of screening and visibility standards to “the extent reasonably practicable” to avoid overly burdensome standards.

For Tier 3 Solar Energy Systems that are larger than 10 acres, a visual impact assessment is already required for SEQR (considered Type I Actions in SEQR), and solar projects could use the same assessment to analyze visual impacts on public roadways and adjacent properties to comply with Model Law screening and visibility requirements.

For additional resources, please refer to NY-Sun’s “State Environmental Quality Review (SEQR) for Solar,” available at nyserda.ny.gov/SolarGuidebook.

7) Agricultural Resources. For projects located on agricultural lands:

- 1) Any Tier 3 Solar Energy System located on the areas that consist of Prime Farmland or Farmland of Statewide Importance shall not exceed [50] % of the area of Prime Farmland or Farmland of Statewide Importance on the parcel.

OR

Any Tier 3 Solar Energy System located on the areas that consist of Prime Farmland or Farmland of Statewide Importance shall not exceed [50] % of the entire lot.

AND/OR

Tier 3 Solar Energy Systems on Prime Farmland or Farmland of Statewide Importance shall be required to seed [20] % of the total surface area of all solar panels on the lot with native perennial vegetation designed to attract pollinators.

- 2) To the maximum extent practicable, Tier 3 Solar Energy Systems located on Prime Farmland shall be constructed in accordance with the construction requirements of the New York State Department of Agriculture and Markets.

Commentary: For more details, please refer to NYS Department of Agriculture and Market’s Guidelines for Agricultural Mitigation for Solar Energy Projects, available at www.agriculture.ny.gov/ap/agsservices/SolarEnergyGuidelines.pdf.

- 3) Tier 3 Solar Energy System owners shall develop, implement, and maintain native vegetation to the extent practicable pursuant to a vegetation management plan by providing native perennial vegetation and foraging habitat beneficial to game birds, songbirds, and pollinators. To the extent practicable, when establishing perennial vegetation and beneficial foraging habitat, the owners shall use native plant species and seed mixes.

Commentary: Pollinators (birds, bats, bees, butterflies, moths, beetles, and multiple other species of insects) are critical to agricultural yield in the U.S. Some solar facilities are starting to use seed mixes of native grasses and pollinator friendly flowering plants as ground cover in solar farms. By establishing native pollinator habitats on solar farms, it is possible to reconcile the conflict between solar farms and agricultural land use. Below are multiple recommended approaches that can be used for creating pollinator habitat on solar farms:

- Plant short-growing, low-maintenance, native seed mix underneath and around the panels;
- Plant a diverse pollinator seed mix in between the rows of panels;
- Plant buffers with vegetation that benefit pollinators and early successional species; Plant native shrubs along the property boundary;
- Specify a minimum number of species of native flowers (encouraged to include species for each bloom period) and native grass species.

- K. Ownership Changes. If the owner or operator of the Solar Energy System changes or the owner of the property changes, the special use permit shall remain in effect, provided that the successor owner or operator assumes in writing all of the obligations of the special use permit, site plan approval, and decommissioning plan. A new owner or operator of the Solar Energy System shall notify the zoning enforcement officer of such change in ownership or operator within [30] days of the ownership change.

9. Safety

- A. Solar Energy Systems and Solar Energy Equipment shall be certified under the applicable electrical and/or building codes as required.
- B. Solar Energy Systems shall be maintained in good working order and in accordance with industry standards. Site access shall be maintained, including snow removal at a level acceptable to the local fire department and, if the Tier 3 Solar Energy System is located in an ambulance district, the local ambulance corps.
- C. If Storage Batteries are included as part of the Solar Energy System, they shall meet the requirements of any applicable fire prevention and building code when in use and, when no longer used, shall be disposed of in accordance with the laws and regulations of the [Village/Town/City] and any applicable federal, state, or county laws or regulations.

10. Permit Time Frame and Abandonment

- A. The Special Use Permit and site plan approval for a Solar Energy System shall be valid for a period of [18] months, provided that a building permit is issued for construction [or] construction is commenced. In the event construction is not completed in accordance with the final site plan, as may have been amended and approved, as required by the [Reviewing Board], within [18] months after approval, the applicant or the [Village/Town/City] may extend the time to complete construction for [180] days. If the owner and/or operator fails to perform substantial construction after [24] months, the approvals shall expire.
- B. Upon cessation of electricity generation of a Solar Energy System on a continuous basis for [12] months, the [Village/Town/City] may notify and instruct the owner and/or operator of the Solar Energy System to implement the decommissioning plan. The decommissioning plan must be completed within [360] days of notification.
- C. If the owner and/or operator fails to comply with decommissioning upon any abandonment, the [Village/Town/City] may, at its discretion, utilize the bond and/or security for the removal of the Solar Energy System and restoration of the site in accordance with the decommissioning plan.

Commentary: Abandonment, as it applies to Solar Energy Systems, requires that the Solar Energy System be removed after a specified amount of time of inactivity. A municipality can establish a timeframe for the removal of a Solar Energy System based on aesthetics, system size, location, and system complexity. Municipalities, in their codes, can designate the amount of time after which a Solar Energy System is considered abandoned.

If provisions of financial surety to cover the cost of removal are not required, municipalities could use other remedies, such as placing a tax lien on the property if the owner and/or operator fail(s) to comply with decommissioning requirements.

11. Enforcement

Any violation of this Solar Energy Law shall be subject to the same enforcement requirements, including the civil and criminal penalties, provided for in the zoning or land use regulations of [Village/Town/City].

Commentary: This Section provides that any violation of the Solar Energy Law will result in the same assessment of civil and criminal penalties already laid out in the existing enforcement provision(s) of the municipality's zoning code.

12. Severability

The invalidity or unenforceability of any section, subsection, paragraph, sentence, clause, provision, or phrase of the aforementioned sections, as declared by the valid judgment of any court of competent jurisdiction to be unconstitutional, shall not affect the validity or enforceability of any other section, subsection, paragraph, sentence, clause, provision, or phrase, which shall remain in full force and effect.

Commentary: Local laws typically have a provision that saves the entire law from invalidation by the courts if one or a few provisions are found invalid. The language in this Section can be adjusted to match that of the language already found in the severability clauses in a municipality's other laws.

Appendix 1: Lot Size Requirements

The following table displays the size requirements of the lot for Ground-Mounted Solar Energy Systems to be permitted.

Table 1: Lot Size Requirements

Zoning District	Tier 3 Solar Energy Systems
Residential Low Density	≥ 2 acres
Residential High Density	—
Commercial / Business	≥ 5 acres
Light Industrial	N/A
Heavy Industrial	N/A
Agricultural / Residential	≥ 5 acres

Key:

—: Not Allowed

N/A: Not Applicable

Appendix 2: Parcel Line Setbacks

The following table provides parcel line setback requirements for Ground-Mounted Solar Energy Systems. Fencing, access roads and landscaping may occur within the setback.

Table 2: Parcel Line Setback Requirements

Zoning District	Tier 3 Ground-Mounted		
	Front	Side	Rear
Residential Low Density	100'	100'	100'
Residential High Density	—	—	—
Commercial / Business	30'	15'	25'
Light Industrial	30'	15'	25'
Heavy Industrial	30'	15'	25'
Agricultural / Residential	30'	15'	25'

Key:

—: Not Allowed

Appendix 3: Height Requirements

The following table displays height requirements for each type of Solar Energy Systems. The height of systems will be measured from the highest natural grade below each solar panel.

Table 3: Height Requirements

Zoning District	Tier 1 Roof-Mounted	Tier 2	Tier 3
Residential Low Density	2' above roof	10'	15'
Residential High Density	2' above roof	10'	—
Commercial / Business	4' above roof	15'	20'
Light Industrial	4' above roof	15'	20'
Heavy Industrial	4' above roof	15'	20'
Agricultural / Residential	2' above roof	15'	20'

Key:

—: Not Allowed

Appendix 4: Example Decommissioning Plan

Date: [Date]

Decommissioning Plan for [Solar Project Name], located at: [Solar Project Address]

Prepared and Submitted by [Solar Developer Name], the owner of [Solar Farm Name]

As required by [Town/Village/City], [Solar Developer Name] presents this decommissioning plan for [Solar Project Name] (the "Facility").

Decommissioning will occur as a result of any of the following conditions:

1. The land lease, if any, ends
2. The system does not produce power for [12] months
3. The system is damaged and will not be repaired or replaced

The owner of the Facility, as provided for in its lease with the landowner, shall restore the property to its condition as it existed before the Facility was installed, pursuant to which may include the following:

1. Removal of all operator-owned equipment, concrete, conduits, structures, fencing, and foundations to a depth of 36 inches below the soil surface.
2. Removal of any solid and hazardous waste caused by the Facility in accordance with local, state and federal waste disposal regulations.
3. Removal of all graveled areas and access roads unless the landowner requests in writing for it to remain.

All said removal and decommissioning shall occur within [12] months of the Facility ceasing to produce power for sale.

The owner of the Facility, currently [Solar Developer Name], is responsible for this decommissioning.

Facility Owner Signature: _____ Date: _____

Questions?

If you have any questions about model solar energy local laws, please email questions to cleanenergyhelp@nyserda.ny.gov or request free technical assistance at nyserda.ny.gov/SolarGuidebook. The NYSERDA team looks forward to partnering with communities across the state to help them meet their solar energy goals.