



Solar Energy Regulation

A Division of the New York Department of State

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Solar benefits

- No consumption of natural resources
- No pollutants generated
- Sustainable
- Renewable
- Sunshine is free

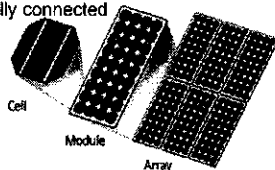


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Converting sunlight into electricity

Solar collectors: devices or systems that use solar radiation as energy source for generation of electricity or transfer of stored heat

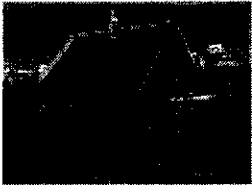

1. **Cell:** basic element of PV system
2. **Module/Panel:** multiple cells electrically connected
3. **Array:** multiple modules/panels connected to create system






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Two types of systems

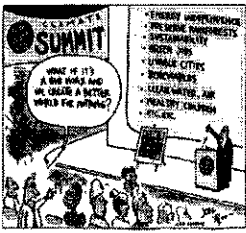
Roof-mounted 	Ground-mounted 
<p>panels on roof or rack system</p>	<p>racking system anchored to ground, wired to building</p>

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	<p>Tier I: Roof-Mounted Solar Energy Systems or Building-Integrated Solar Energy Systems</p>
	<p>Tier II: Ground-Mounted systems that generate up to 110% of electricity consumed on site over the previous 12 months</p>
	<p>Tier III: Not included in list for Tier I or Tier II Solar Energy Systems</p>

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Prepare for solar development in your community



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Know solar potential




- Identify sunlight as an environmental asset in comprehensive plan
- Try online measuring tools (such as Google Project Sunroof)



Overall
Total estimated size and solar electricity production of viable roofs for zip code 12210

Roofs	Roofs
87%	2K

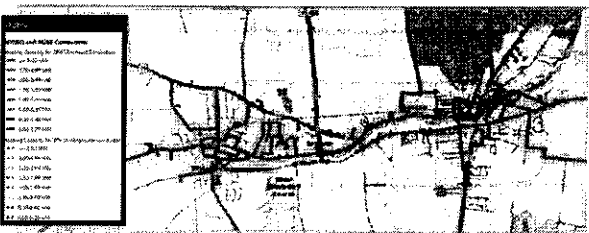
If all the viable solar installations were implemented, the amount of avoided CO₂ emissions from the electricity sector in zip code 12210 would be:

 Carbon dioxide 11.2K <small>metric tons</small>	=	 Passenger cars 2.4K <small>taken off the road for 1 yr</small>	=	 Tree seedlings 287K <small>grown for 10 yrs</small>
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Know your hosting capacity infrastructure

RCAC Distributed Interconnection Guide Map



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Moratorium

Local law or ordinance

- Temporary restriction on development
- Addresses new or unforeseen uses
 - Specify duration (long enough to plan and amend regulations, 3 to 6 months)
 - May be extended by subsequent enactments

How to be solar friendly

1. Adopt resolution/policy statement outlining strategy for municipal-wide solar development
2. Appoint Solar Energy Task Force to prepare action plan; amend comp plan
3. Charge Task Force with conducting meetings
4. Establish training program for local staff and land use boards
5. Partner with adjacent communities and/or county to adopt compatible policies, plan components, and zoning provisions

Establishing clear goals

- Can encourage solar projects, reduce obstacles to planning approvals and/or permitting
- Use visioning process to integrate solar into:
 - Comprehensive plan
 - Climate Smart plan
 - Energy plan



Clearly define permitting process

- Review existing permit process for inefficiencies
- Consider fair permit fee
 - Residential: fixed flat fee or set dollar amount/Watt
 - Commercial: rate for staff time plus additional review costs
- Adopt NY Unified Solar Permit

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NYSERDA's Unified Solar Permit Application

Helps Code Enforcement Officers review and evaluate systems for grid-tied residential installations 25 kW or less

- Includes resources to review solar electric project proposals:
- Overview of design issues
 - Field inspection checklist
 - Solar basics, including equipment, financing, and terminology, sample maps/photos

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Private lease agreements

- Municipalities have no jurisdiction
- Non-profits, non-governmental agencies, and private attorneys may provide guidance

For more information:

Landowner Considerations for Solar Land Leases Fact Sheet by NYS Sun
Solar Farm Lease Q & A by Cornell Cooperative Extension, Sullivan Alliance for Sustainable Development, Sullivan County Real Property Department, and NY-Sun

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Municipal procurement toolkit

Step-by-step instructions on how to lease underutilized municipal land (landfills and brownfields) for solar development.

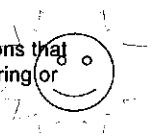
Includes:

- template Request for Proposals (RFP),
- template Lease Agreement, and
- Model Law for Counties subject to NY County Law § 215

Zoning

Solar friendly access provisions

- Prohibit conditions, covenants, and restrictions that prevent homeowners' associations from barring or placing undue burden on solar energy
- Voluntary solar easements with adjacent landowner to ensure sunlight reaches property
- Other regulations in planning and zoning process that preserve solar access



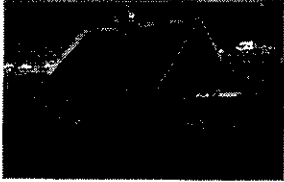
Adopt solar language in code(s)

- Clearly define Tiers 1-3 solar collectors and identify those desired in your community:
 - Reduce risk of unwanted or inappropriate development
 - Increase project conformity and likelihood that community solar desires will be met
 - Increase development opportunity for property owners
- NYS Model Solar Energy Law

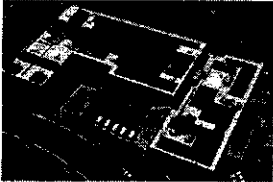
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Zoning for Tier I systems

Residential



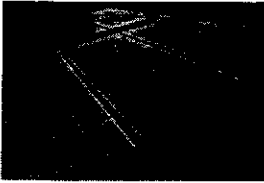
Commercial



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Roof-mounted panels

- Distribution of mounting points
 - Most panels weigh 20-50 lbs
 - Distributed properly, only 3-4 lbs per sf of load added
- Wind uplift and sail effect
- "Setbacks" from edge and roof peak for firefighters

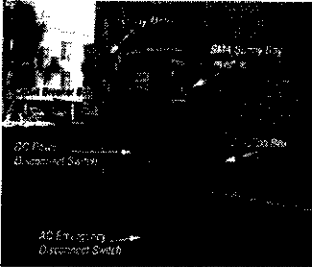


www.nysersda.ny.gov/-/media/NYSun/files/Contractor-Resources/Residential-roof-top-access-and-ventilation-requirements.pdf

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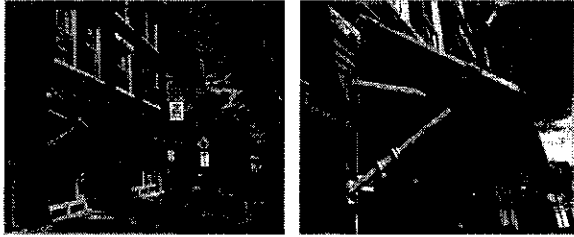
Firefighter safety

- Roof access needed for fire suppression and ventilation
- Use emergency disconnect switch before firefighters approach conduits, collectors, or arrays

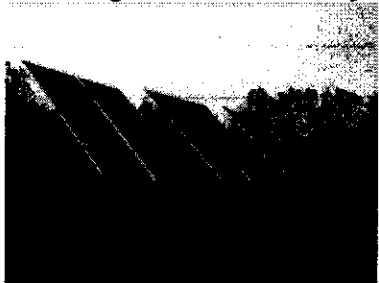


During daylight, 120-600 volts could be in the array, conduits, and grid tied system

Accessory use: Awning



Zoning for Tier II ground-mounted systems



Suffolk County "power lots"

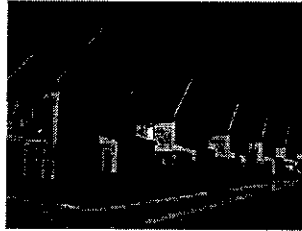
- Over 60,000 carport modules
- 17 MW generated
- Powers 1,850 homes



H. Lee Dennison Building,
Hauppauge
1.75 MW generated

Subdivision for maximizing direct sunlight

- Site buildings & vegetation so direct light reaches southern exposure of greatest number of buildings
- Layout so maximum number of buildings receive direct sunlight
- Orient roads on east-west axis
- Highest densities south-facing; lower densities north-facing



Town of Elmira, Chemung County

Chapter 217. Zoning
 § 217-73. Solar energy systems and solar access.

"To the maximum extent possible, all new development proposals totaling 10 acres of site area or more may be designed so the maximum number of buildings shall receive direct sunlight sufficient for using solar energy systems for space, water, or industrial process heating or cooling.

Buildings and vegetation should be sited and maintained so that unobstructed direct sunlight reaches the southern exposure of the greatest number of buildings..."

Site plan review considerations

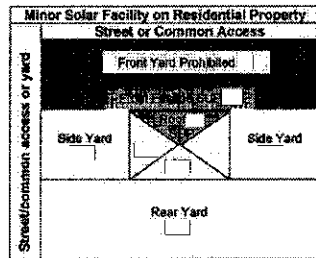
- Street address and tax map parcel number
- All required setbacks, including rooftop access and ventilation requirements as applicable
- Location of array, inverter, disconnects, and point of interconnection
- Array azimuth and tilt
- For ground mounted systems, length and location of trenches
- Location and type of rapid shutdown device, if applicable

continued

- Locations of active farmland and prime farmland soils, wetlands, permanently protected open space, Priority Habitat Areas and BioMap
- Critical Natural Landscape Core Habitat mapped by Natural Heritage & Endangered Species Program and "Important Wildlife Habitat" mapped by DEP
- Locations of floodplains or inundation areas for moderate or high hazard dams
- Locations of local or National Historic Districts

Special use permit

- Use allowed by zoning but subject to additional requirements or conditions
- Use will not adversely effect neighborhood if conditions are met
- Designed to assure that use is in harmony with zoning



Compatibility with neighborhood character

- Don't negatively impact adjacent uses
- Visually compatible
- Use sensitivity, especially in areas containing unique architectural styles or historic structures



Historic districts

- Avoid primary facade
- Low-profile panels
 - Solar shingles laminates, glazing, or similar materials should not replace original or historic materials
 - Avoid installation in windows, on walls, siding, and shutters
 - Panels should be flat and not alter roof slope
- Must be reversible



Solar panels on historic home Cambridge, MA

Minimize visibility

- Panels and mechanical equipment should be as unobtrusive as possible
- Not visible from public thoroughfare
- Compatible in color to established roof materials
- Hidden below and behind parapet walls and dormers, or on rear-facing roofs



a nearly invisible solar roof:

“thin-film” solar system atop standing seam metal roof



Tier III Solar

Tier III solar installations

Potential benefits

- Rural economic development
- Brownfield redevelopment
- Renewable energy
- Grid reliability

Negative effects

- Farmland conversion
- Reduced scenic values
- Soil compaction/erosion
- Habitat impacts
- Increased impermeable surfaces

More research is needed...

- Will project enhance or detract from farm viability?
- Consider amounts and types of farmland
- Short/long term benefits on food supply and security
- Effect of solar leasing on price and availability of farmland
- Likelihood that solar farm will return to agriculture

Public Service Law Article 10

Absolute local authority over land use decisions diminished for "major electric generating facilities" of at least 25 MW

State Siting Board (5 state agency representatives; 2 ad hoc of the public from region) to ensure that local zoning issues are adequately addressed:

- Determines locations
- Authority to override local restrictions in appropriate cases
- 60 days to deem application complete
- Final decision within 1 year for new projects; 6 months if modifying certain existing facilities

Long Island Solar Farm, 200 acres

- Largest on East coast
- 164,312 panels; 32 MW
- Generation equivalent to annual usage of 4,500 homes



Brookhaven, NY

SPR for Tier III solar

When determining approval standards, consider:

1. Current land use and soil types
2. Siting goals
3. Construction requirements
4. Restoration requirements, including 2 year monitoring and remediation right after restoration
5. Decommissioning

1. Current land use and soil types

Avoid arrays on most valuable or productive farmland—especially “prime farmland soils” or “soils of statewide importance”

Order of importance of current use:

- active rotational farmland
- permanent hayland
- improved pasture
- unimproved pasture
- other support lands
- fallow/inactive farmland

2. Siting Goals

- Minimize adverse impacts to normal farming operations, fencing and watering systems;
- Locate overhead collection lines in nonagricultural areas and along field edges;
- Avoid dividing larger fields into smaller fields
- Reduce drainage problems by locating access roads along ridge tops, follow field contours;
 - limit access road width in agricultural fields to no more than 16 feet to minimize the loss of agricultural land; and
- Avoid existing drainage and erosion control structures.

3. Construction requirements

- Level access road with adjacent agricultural field surface;
- Use culverts/waterbars to maintain natural drainage patterns;
- Save topsoil from areas used for vehicle and equipment traffic, parking, and equipment and storage areas;
- Bury interconnected cables;
- Remove excess subsoil and rock from the site;
- Use fences around work areas to prevent livestock access;
- Properly dispose of wire, bolts, and other unused metal.

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4. Restoration requirements

- Decompact disturbed agricultural areas;
- Regrade access roads to allow for farm equipment crossing and restore original drainage patterns;
- Seed restored areas with seed mix specified by landowner;
- Repairing all surface or subsurface drainage structures damaged during construction; and,
- Following restoration, remove all construction debris from site.

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5. Decommissioning

- Plan to remove solar panel systems at the end of their lifecycle, typically 20-40 years
- Lists steps to remove system, dispose of or recycle its components, and restore land to its original state.
- Plans may also include an estimated cost schedule and a form of decommissioning security

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Decommissioning mechanisms

FINANCIAL TOOLS

- Decommissioning provisions in land-lease agreements
- Decommissioning trusts or escrow accounts
- Removal or surety bonds
- Letters of credit

Decommissioning mechanisms

NON-FINANCIAL TOOLS

- Abandonment and removal clause
- Special permit application
- Temporary variance/special permit process

Decommissioning sample checklist

- | | |
|--|--|
| <input type="checkbox"/> Define conditions when decommissioning will be initiated | <input type="checkbox"/> Description of any agreement (e.g., lease) with landowner regarding decommissioning |
| <input type="checkbox"/> Remove all nonutility owned equipment, conduit, structures, fencing, roads, and foundations | <input type="checkbox"/> The party responsible for decommissioning |
| <input type="checkbox"/> Restore property to condition prior to solar development | <input type="checkbox"/> Plans for updating the decommissioning plan |
| <input type="checkbox"/> Timeframe for completion of decommissioning activities | <input type="checkbox"/> Before final electrical inspection, prove that plan was recorded with Register of Deeds |

Special Use Permit for Tier III solar

1. Determine conditions under which large scale solar will be granted SUP approval
2. List potential mitigation conditions to reduce impact, in the event that projects are approved upon conditions
3. Amend zoning to allow large-scale solar by SUP in districts where agricultural uses dominate

TIP:
Designate whichever board approves site plan applications as the same board to approve these SUPs.

Then applicants with fully developed site plan applications can combine approvals and streamline the process.

NY Real Property Tax Law § 487

- 15-year real property tax exemption for renewable energy systems, including solar
- Applies to value that solar electric system adds to overall property value; does not exempt all property tax
- All local governments offer exemption unless they opt out
 - Can't choose to tax large systems, but not small ones
 - To reinstate exemption, repeal in same manner as the opt out

Payment in Lieu of Taxes (PILOT)

- Often used for large-scale renewable energy projects, including solar
- Annual payments commonly related to system's size (dollars per megawatt)
- Can't exceed taxes that would be owed without the exemption
- NY SUN Solar PILOT Toolkit helps with PILOT agreements for Community Solar projects larger than 1 MW

Contact information

NYS Department of State

- Training Unit (518) 473-3355
- Counsel's Office (518) 474-8740
- Email: localgov@dos.ny.gov
- Website: www.dos.ny.gov/iglut/index.html

NYS Energy Research & Development Authority

- Telephone (518) 662-1090
- Email: cleanenergyhelp@nyserda.ny.gov
- Website: <https://www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Siting>
