WELCOME

Municipal Solar Ordinances: Consideration and Guidance

Presented By

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NY-Sun Initiative

- Significantly expand installed solar capacity
- Attract private investment
- Enable sustainable development of a robust industry
- Create well-paying skilled jobs
- Improve the reliability of the electric grid
- Reduce air pollution
- Make solar available to all New Yorkers that want it

Statewide Goal of 3 GW

$961 Million Total Budget

↓ Stimulate the Market Place

↓ Reduce Soft Costs

About the PV Trainers Network

The NY-Sun PV Trainers Network aims to lower the installation cost and expand adoption of solar PV systems throughout the state.

training.ny-sun.ny.gov

About the PV Trainers Network

Lead Organizations

MEISTER CONSULTANTS GROUP

CUNY

ENTECH Engineering INCORPORATED

Supporting Organizations

LAND USE LAW CENTER PACE LAW SCHOOL

BRONX COMMUNITY COLLEGE

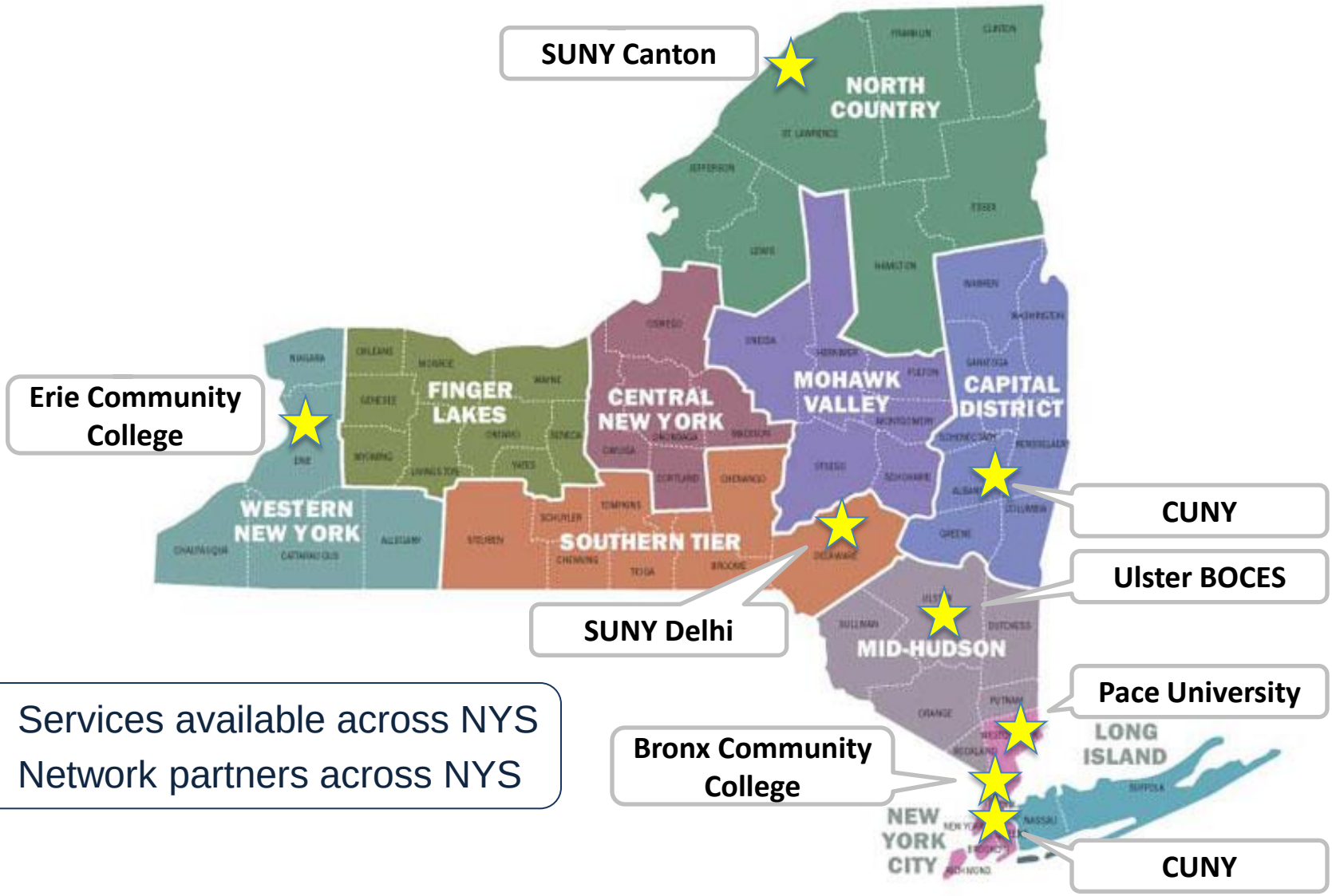
Delhi STATE UNIVERSITY of NEW YORK

SUNY CANTON

Shared Vision Shared Commitment Shared Success ULSTER BOCES Board of Cooperative Educational Services

SUNY ecc Workforce DEVELOPMENT

Program Covers Entire State

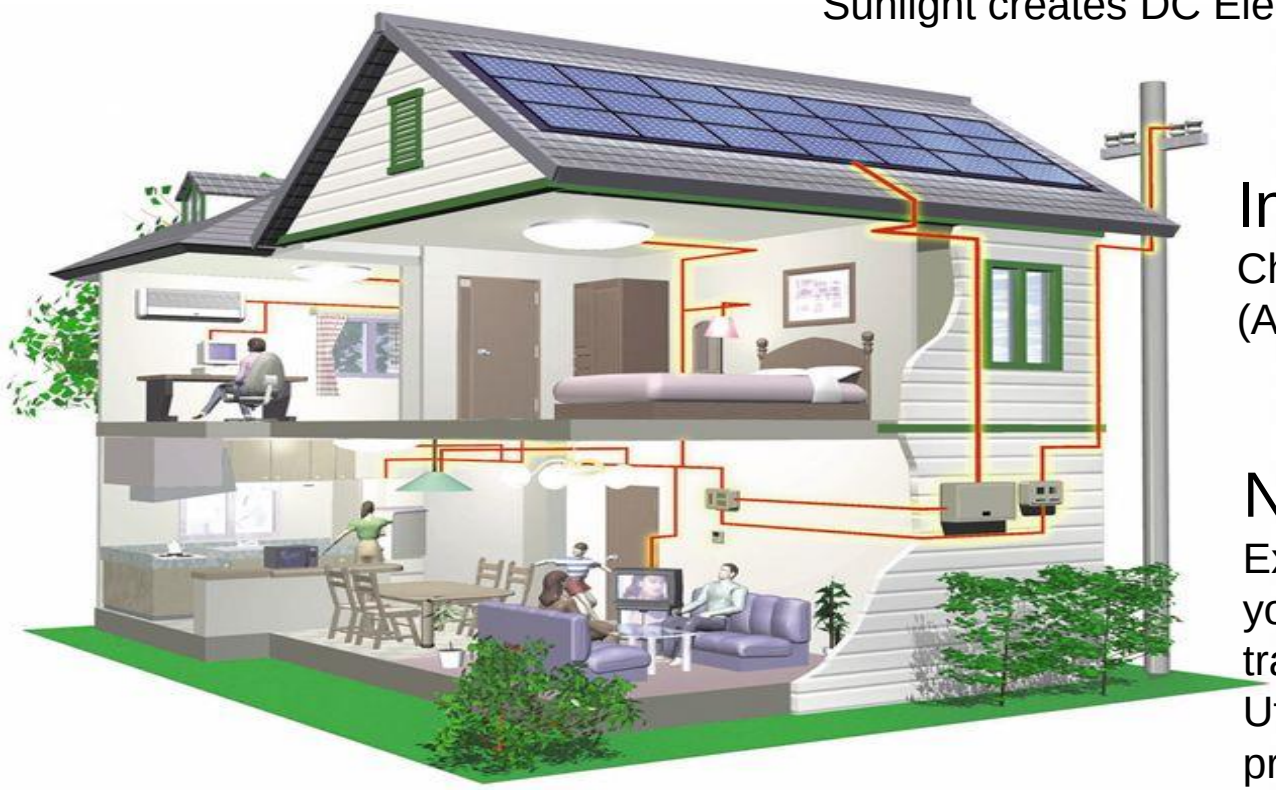


- Services available across NYS
- Network partners across NYS

Solar Technology Background

System Components

The Grid Tied Solar Electric System



Solar Panels

Sunlight creates DC Electricity

Inverter

Changes DC Power to AC
(AC Power used in Home)

Net Metering

Excess (Unused) power turns your meter backward and travels back into the grid. Utility issues credits for power produced.

Scale

Capacity

Residence
5-10 kW

Office
50 – 500 kW

Factory
1 MW+

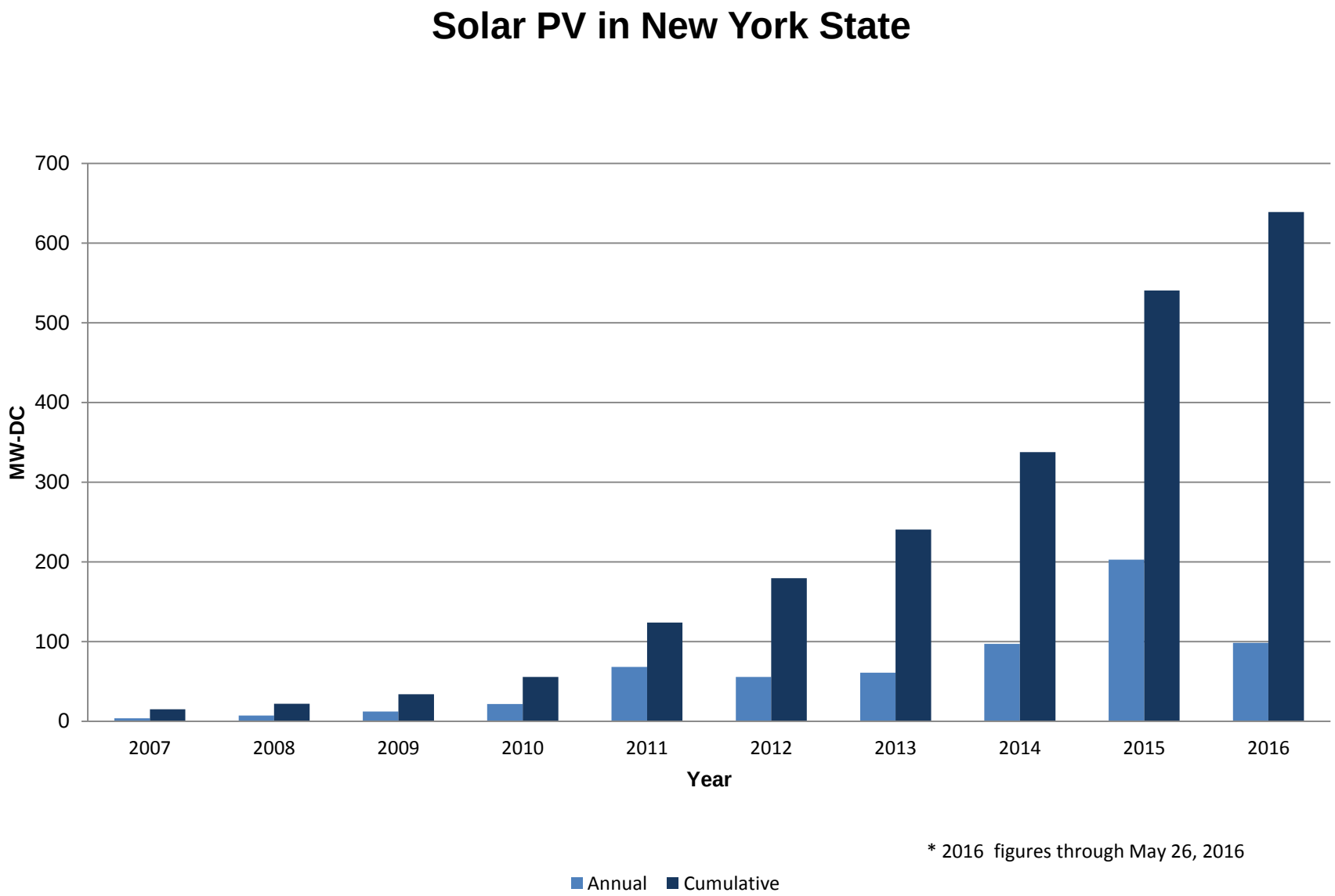
Utility
2 MW+

Rooftop/Land Area

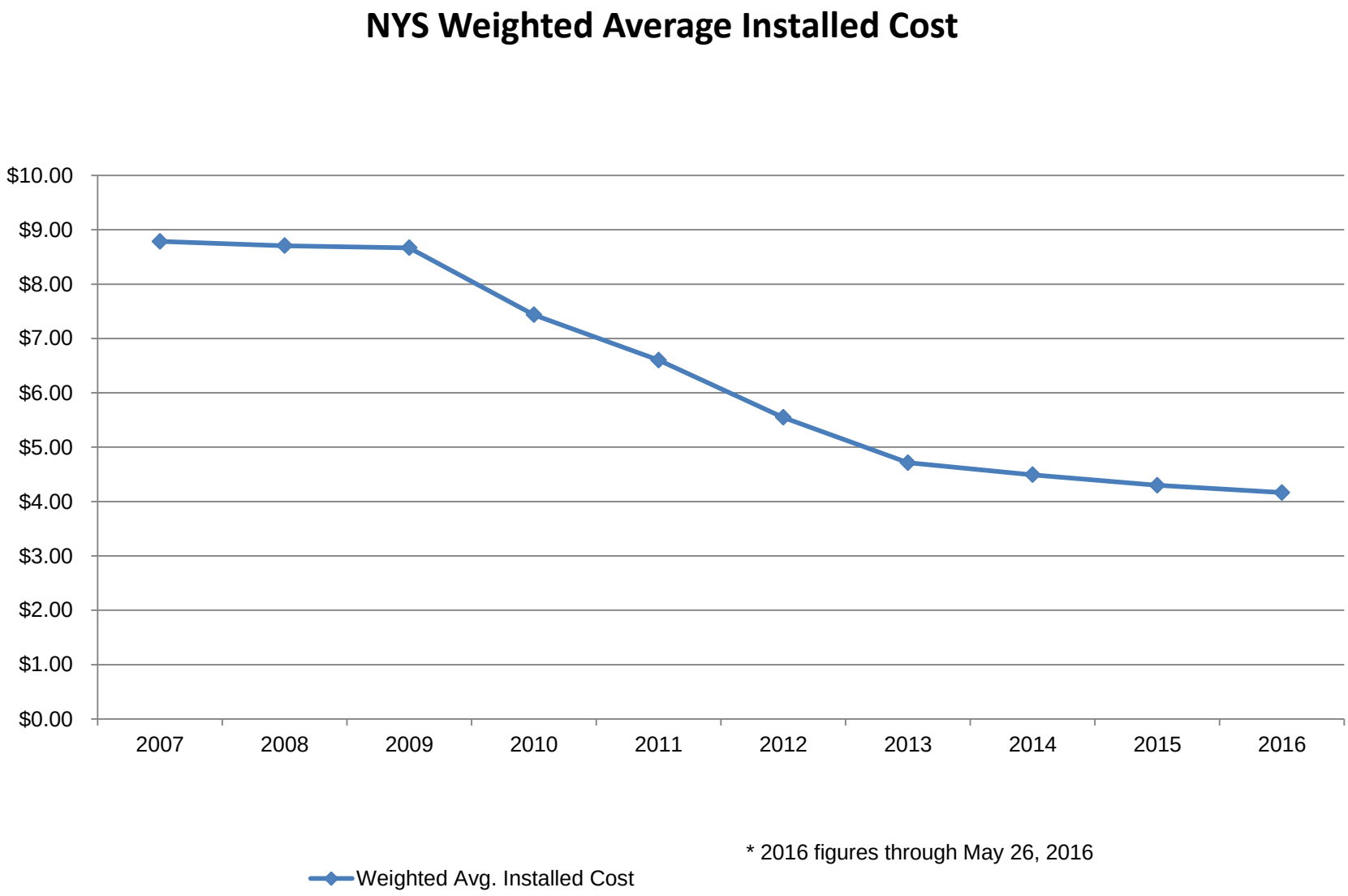
1 kW ≈ 100 SqFt

1 MW ≈ 6 acres

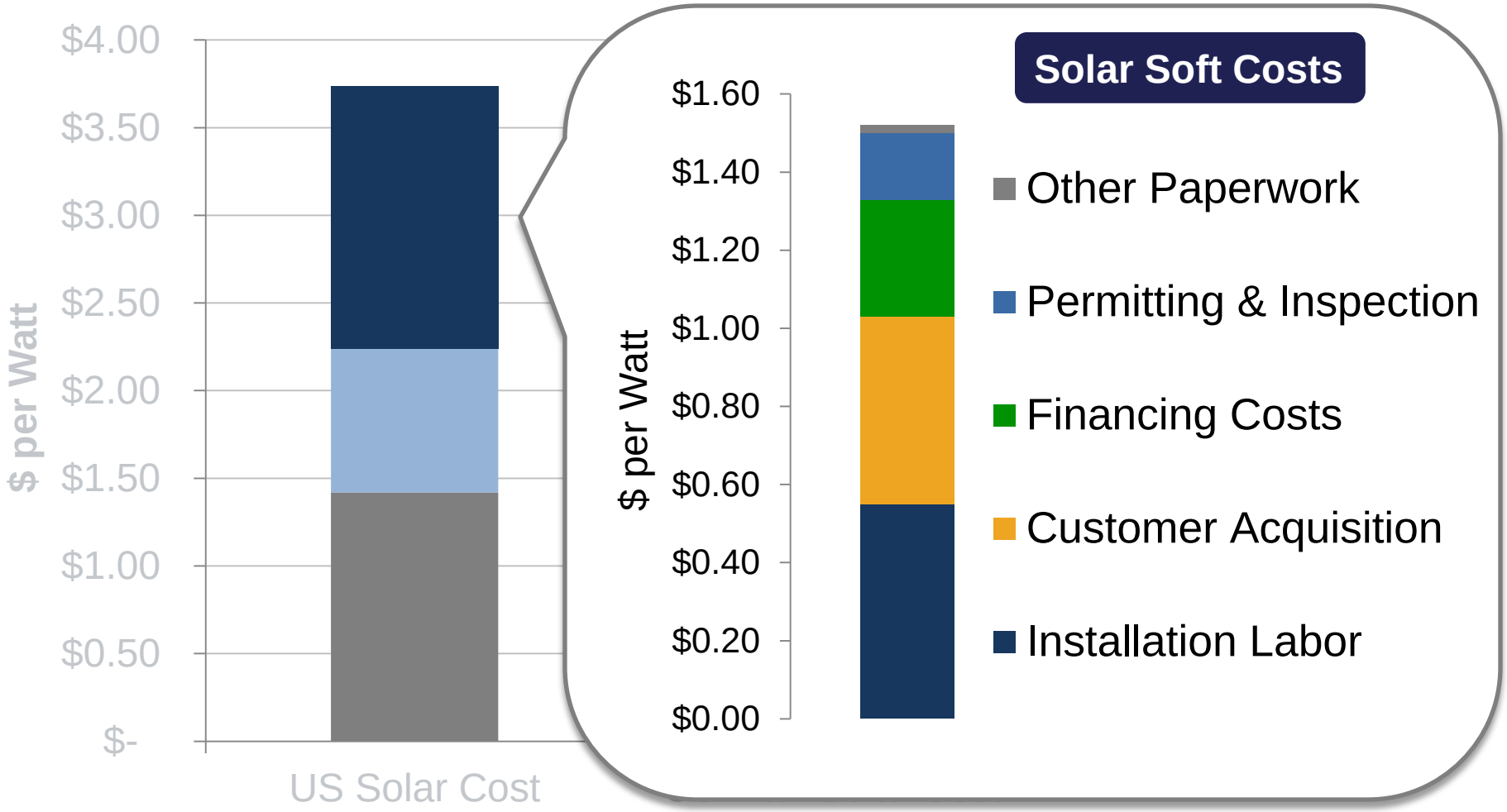
NY State Solar Market



NY State Solar Market



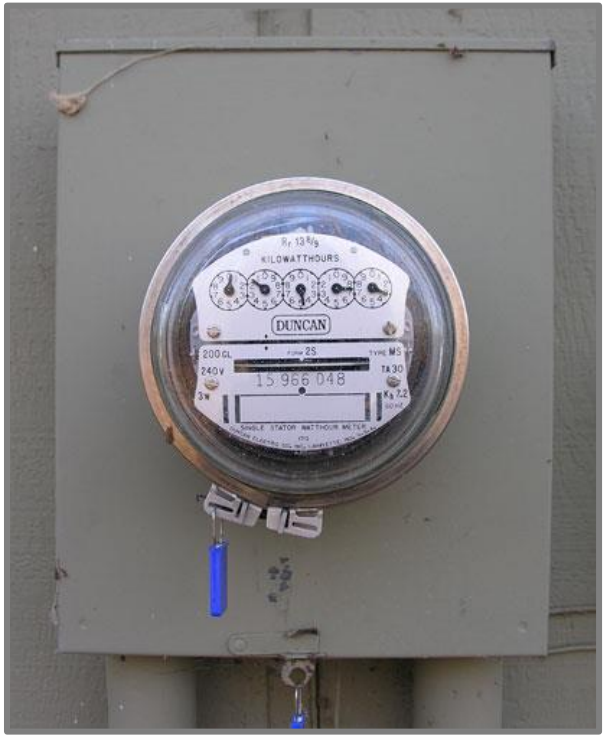
US Solar Costs



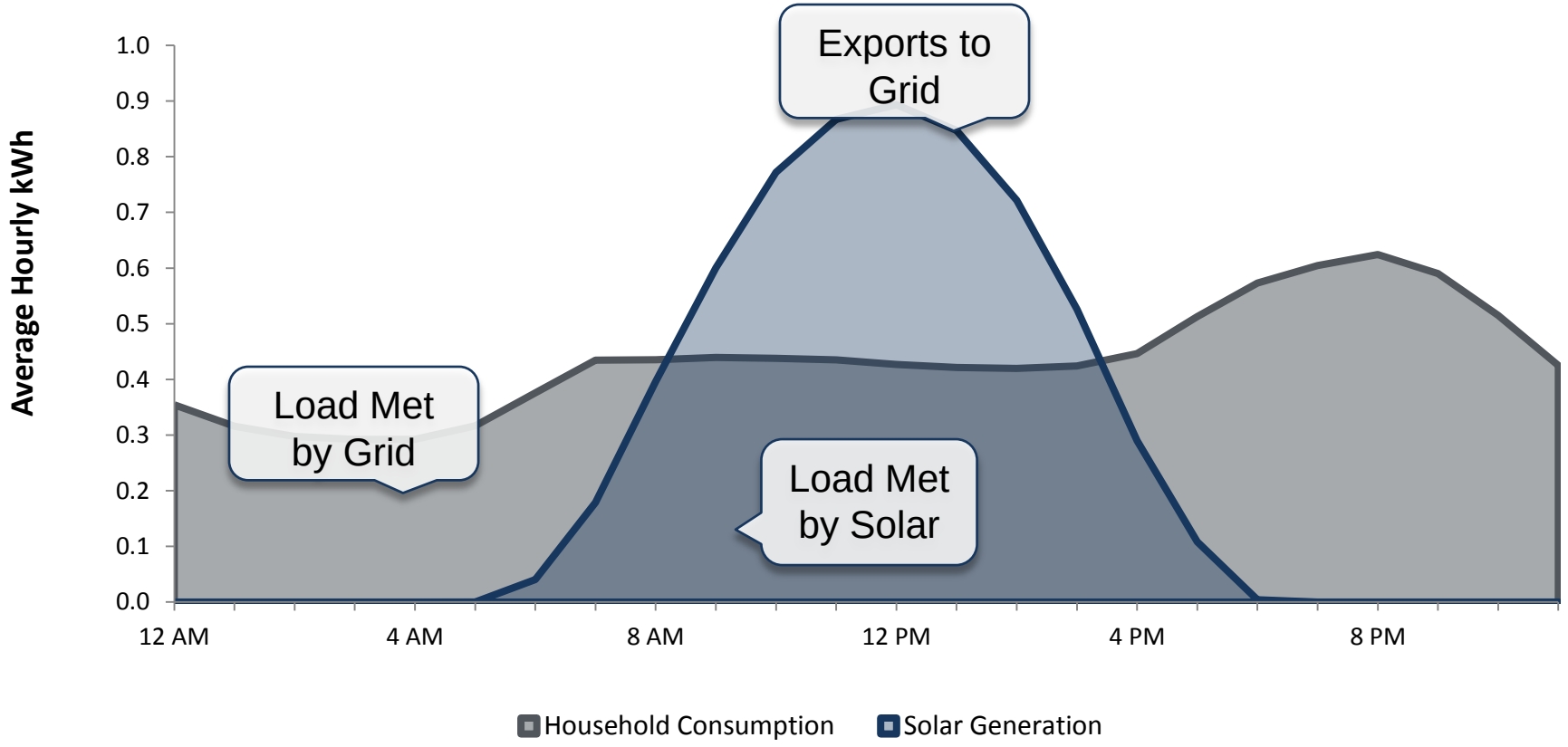
Incentives for Solar in New York State

Net Metering

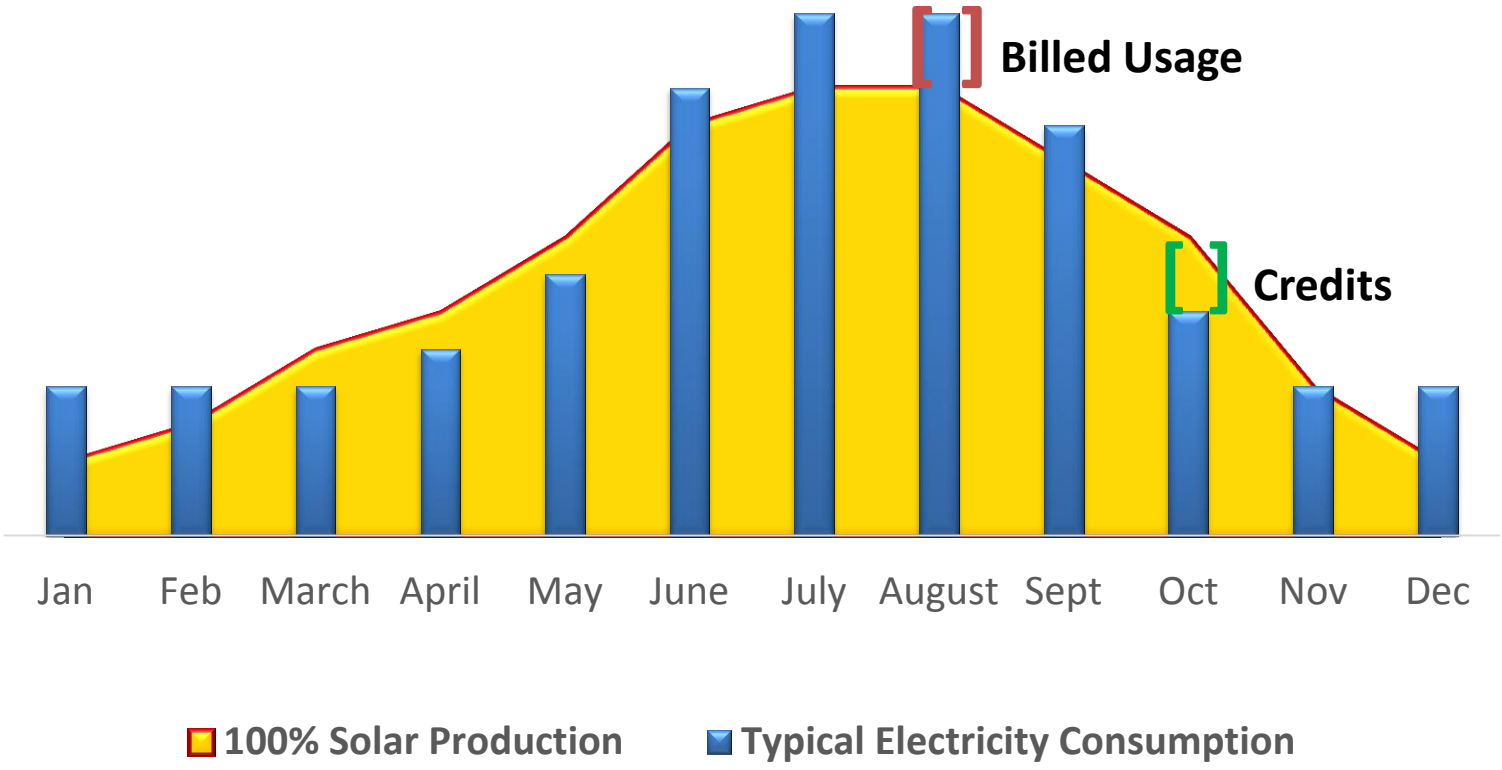
Net metering allows customers with PV to export power to the grid during times of excess generation, and receive credits that can be applied to later electricity usage



Net Metering



Net Metering Credits: Like Rollover Minutes



Example Net Metering Bill with Credit

July Reading (Actual)		56351	
June Reading (Actual)		-56,451	
Total Usage KWh 32 Days		-100	**Credit**
Net Metering Summary			
Prior Credit	-50		
Actual Metered Kwh	-100		
New Cumulative Credit	-150		
Billed KWH	0		
Anniversary Month	April	**Annual Reconciliation Month**	
Delivery Charges			
Basic Service Charge		17.00	**Cannot be offset with solar**
First	0 KWH @ 0.XXX	0	
Energy Cost Adj	0 KWH @ 0.XXX	0	
SBC/RPS Chg	0 KWH @ 0.XXX	0	
Government surcharges		0.5	
Total Delivery Charges		17.00	
Current Electric Charges		17.50	**Amount Due**

Prices vary

Investment Tax Credit

Type: Tax Credit

Eligibility: For-Profit Organization, Homeowner

Value: 30% of the installation cost

Availability: **Extended through 2022**

(declines to 26% in 2020, and 22% in 2021)

NY-Sun “MW Block” Incentive

Type: Cash incentive

Structure: Incentive offer declines as program grows

Separate Incentives for:

- Residential Customers *(up to 25 kW)*
- Small Non-Residential Customers *(up to 200 kW)*
- Large Non-Residential Customers *(>200 kW – 2 MW)*

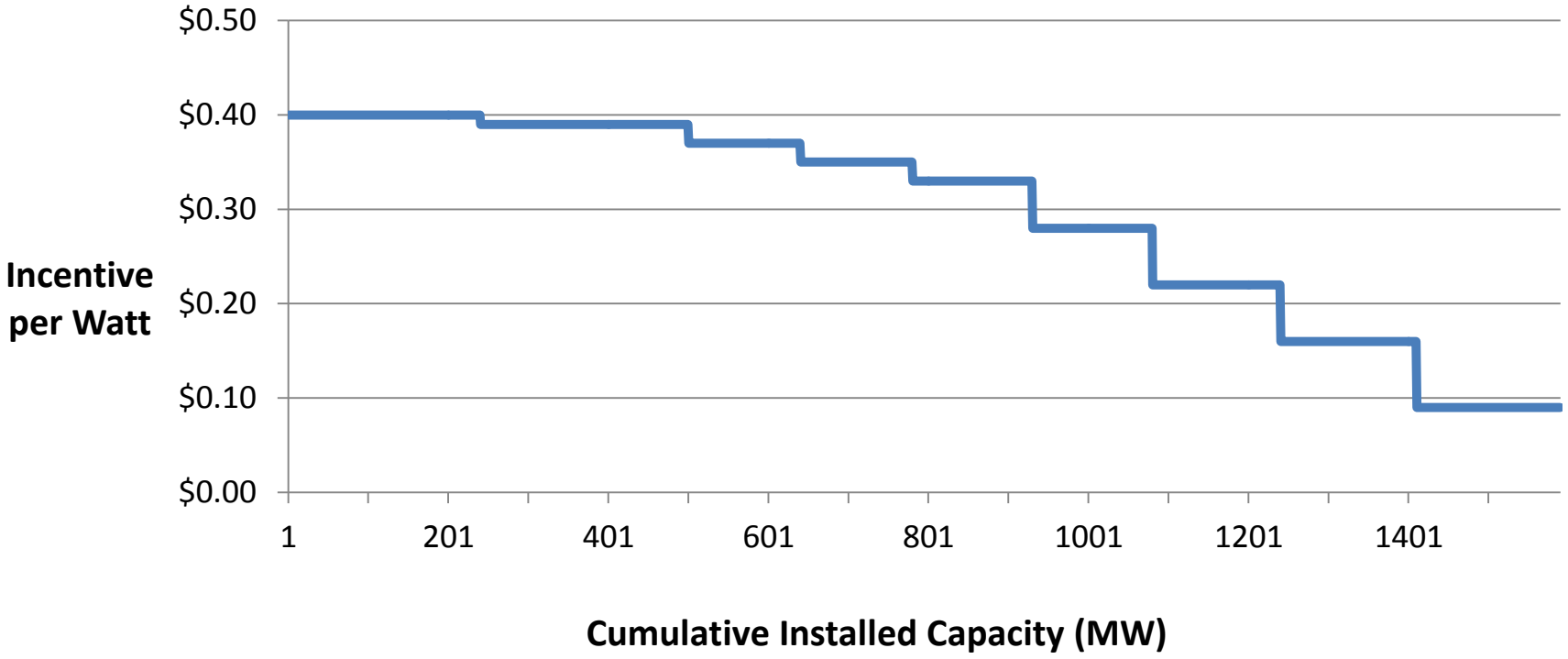
Program progress tracked separately by region

For Large (>200 kW) projects, 20% adder for projects located on constrained distribution circuits

Availability: Dec 29, 2023 or until funds run out

NY-Sun Incentive Program: MW Block

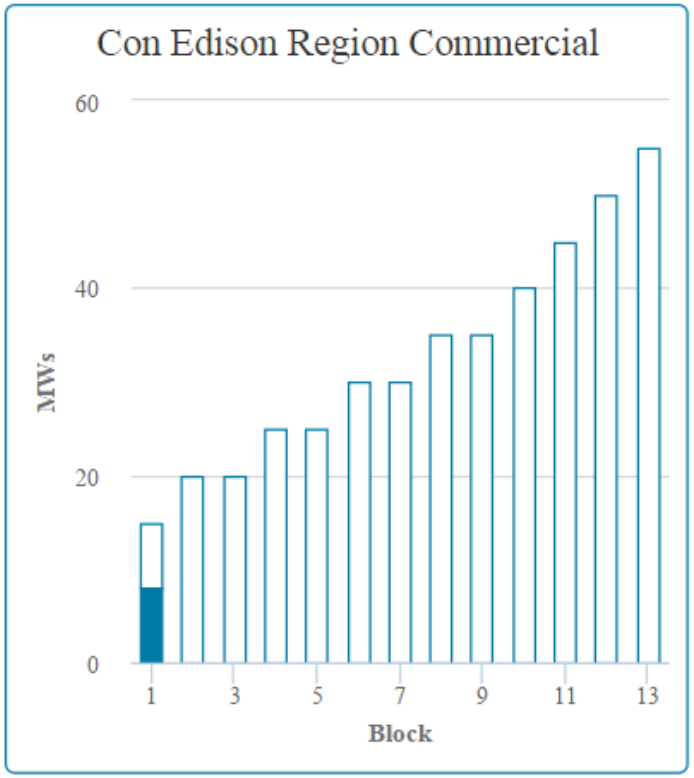
Non-NYC Commercial MW Block Incentive
Projects larger than 200 kW, volumetric crediting

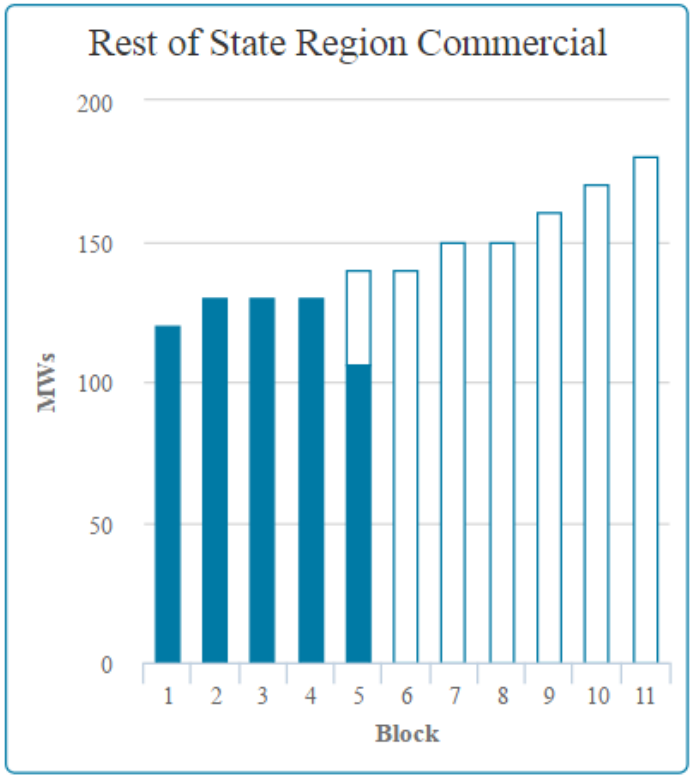


Incentives decline as program capacity fills
1,590 MW of capacity available outside of ConEd territory
Opened May 4, 2015

Current NY-Sun Incentives

Large Commercial Installations





Block 1
$0.63/W

Block 5
Monetary: $0.11/W
Volumetric: $0.37/W

Model Solar Energy Law Development

- CUNY's NYSolar Smart program
  - Funded by U.S. Department of Energy
  - SunShot Initiative: Rooftop Solar Challenge II
  - Supported by NY-Sun Initiative
  - Comprehensive strategic plan to reduce the soft costs of going solar in New York
- NYS Planning and Zoning Working Group
  - Collaborative approach
  - Input from local municipalities and experts

Powered by SunShot
U.S. Department of Energy

Your Presenter Today

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Planning & Zoning Working Group

Working Group Leads:

- Sustainable CUNY
- Pace Land Use Law Center

Member Municipalities:

- City of Albany
- Town of Clifton Park
- Town of Hempstead
- City of Ithaca
- City of Poughkeepsie
- City of Rochester
- City of Schenectady
- Town of Southampton
- City of Syracuse
- Village of Warwick
- City of While Plains

Model Solar Energy Law Goals

- Balance best practices that promote solar with common local requirements and concerns.
- Create practical, streamlined approach to facilitate solar energy.
- Develop Model Law Toolkit to facilitate customization and adoption.

Role of Local Gov't & Planning

1,550+ local jurisdictions in NY

With land use authority

Source: NREL

Delegation of Authority

Legislature

- Adopt Land Use Laws and Plans
- Site Plan Approval
- Subdivision Approvals
- Special Permits

Building Inspector/Zoning Enforcement Office

- Building permits
- Zoning Determination

Zoning Board of Appeals

- Variances
- Interpretation
- Special Permits

Planning Board

- Advises on Zoning Adoption
- Site Plan Approval
- Subdivision Approvals
- Special Permits

Appoint a Task Force

- Charge an existing sustainability task force or conservation advisory council
- Work with the Regional Planning Board or County
- Create a Solar/Renewable Energy Task Force

What is the Task Force's Role?

- Conducting studies & performing research
- Establishing a training program
- Partnering with adjacent communities
- Leveraging state and federal technical assistance grants
- Developing a community engagement process
- Amending the comprehensive plan
- Considering regulatory changes

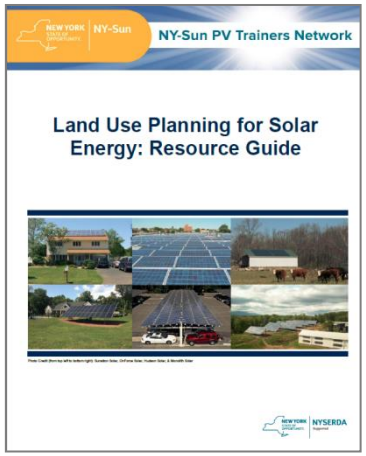
Zoning for Solar Energy

Zoning Must Be in Accordance with Comprehensive Plan

Photo Credit (from top left to bottom right): Sunation Solar, OnForce Solar, Hudson Solar, & Monolith Solar

Resources: NY-Sun PV Trainers Network

Land Use Planning for Solar Energy



https://training.ny-sun.ny.gov/images/PDFs/Land_Use_Planning_for_Solar_Energy.pdf

Model Solar Energy Law

Section 1: Authority
Section 2: Statement of Purpose
Section 3: Definitions
Section 4: Applicability
Section 5: Solar as an Accessory Use/Structure
Section 6: Approval Standards for Large-Scale Solar Systems as a Special Use
Section 7: Abandonment and Decommissioning
Section 8: Enforcement
Section 9: Severability

Section 1: Authority

"This Zoning for Solar Energy Law is adopted pursuant to [sections 261-263 of the Town Law, sections 7-700 through 7-704 of the Village Law, or sections 19 and 20 of the City Law] of the State of New York, which authorize the [Insert Town, Village, or City Here] to adopt zoning provisions that advance and protect the health, safety, and welfare of the community, and "to make provision for, so far as conditions may permit, the accommodation of solar energy systems and equipment and access to sunlight necessary therefor."

What Are the Benefits of Solar?

A. Econ. Development & job creation
B. Environ. & public health benefits
C. Reduced & stabilized energy costs
D. Energy independence & resilience
E. Value to utility
F. Community pride

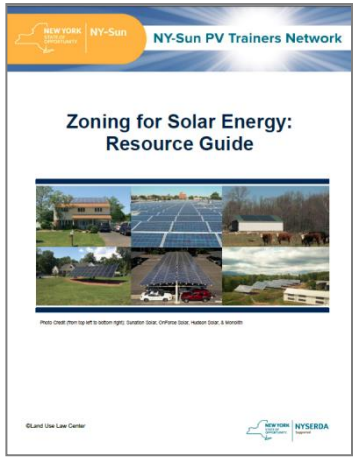
Section 2: Statement of Purpose

- Taking advantage of a safe, abundant, renewable, and non-polluting energy resource;
- Decreasing the cost of energy to the owners of commercial and residential properties, including single-family houses; and
- Increasing employment and business development in the region by furthering the installation of Solar Energy Systems.

Additional Benefits

- Decreasing the use of fossil fuels, thereby reducing the carbon footprint of [Insert Name of Municipality];
- Investing in a locally-generated source of energy and increasing local economic value, rather than importing non-local fossil fuels;
- Aligning the laws and regulation of the community with several policies of the State of New York, particularly those that encourage distributed energy systems;
- Becoming more competitive for a number of state and federal grants and tax benefits;
- Making the community more resilient during storm events;
- Aiding the energy independence of the country;
- Diversifying energy resources to decrease dependence on the grid;
- Improving public health;
- Encouraging a sense of pride in the community;
- Encouraging investment in public infrastructure supportive of solar, such as generation facilities, grid-scale transmission infrastructure, and energy storage sites;
- Creating synergy between solar actions of the community and the sustainability provisions of the Comprehensive Plan; and/or
- Creating 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.].

New York Zoning Resources



Zoning for Solar Energy: Resource Guide

https://training.ny-sun.ny.gov/images/PDFs/Zoning_for_Solar_Energy_Resource_Guide.pdf

Zoning for Solar: Webinar

https://training.ny-sun.ny.gov/zoning-for-solar-webinar

New York State Model Solar Zoning Ordinance

New York Model Solar Energy Law

http://www.cuny.edu/about/resources/sustainability/reports/NYS_Model_Solar_Energy_LawToolkit_FINAL_final.pdf

Types of Solar Energy Systems

Building Integrated

Small-Scale Roof

Large-Scale Roof

Small-Scale Ground

Large-Scale Ground

Defining Solar Energy Systems

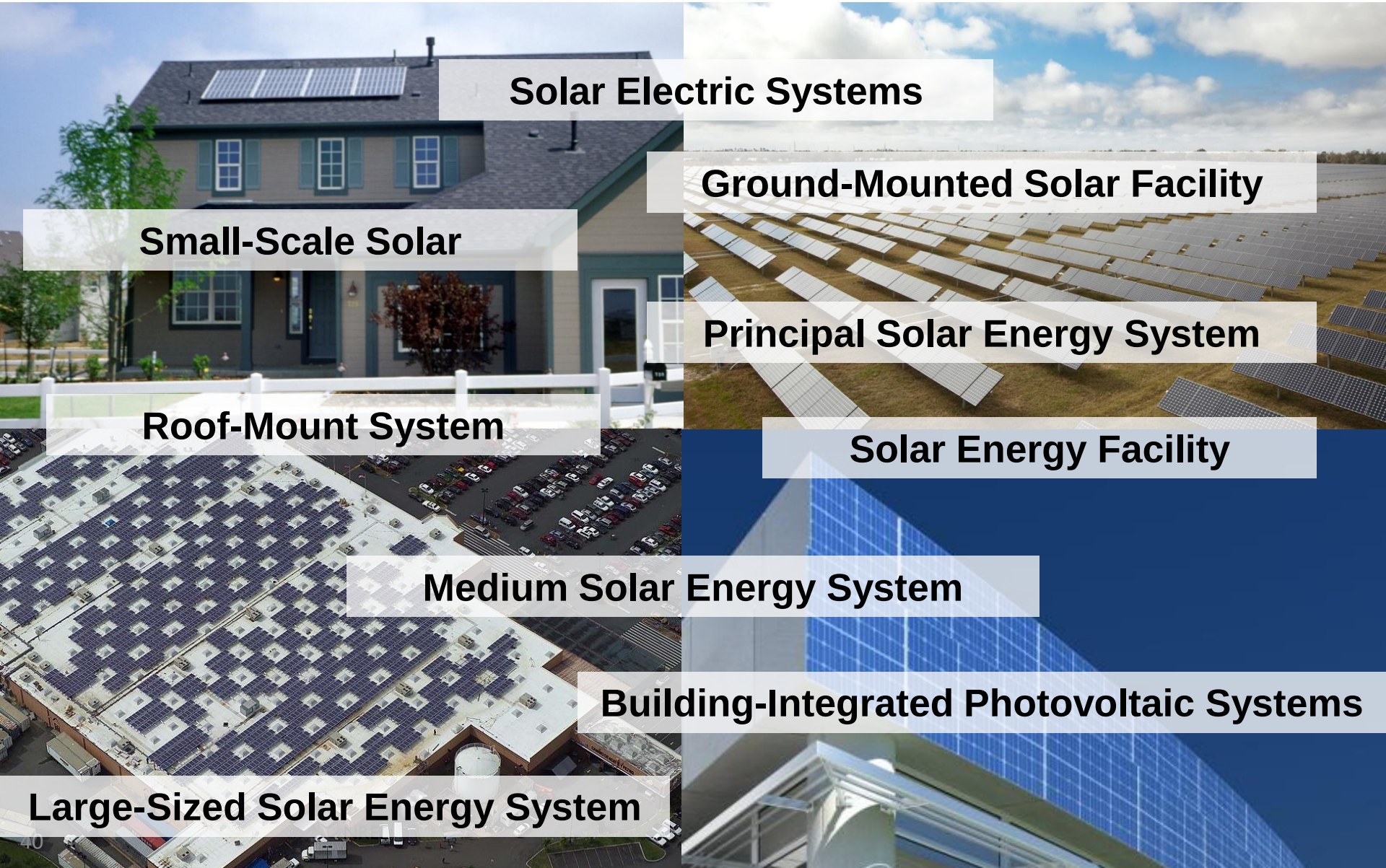
Zoning Definitions Section

§ 300-4 Definitions and word usage.

A. Word usage. Except where specifically defined herein, all words used in this chapter shall carry their customary meanings. Words used in the present tense include the future, and the plural the singular. The word "lot" includes the word "plot"; the word "building" includes the word "structure"; the word "shall" is intended to be mandatory; and "occupied" or "used" shall be considered as though followed by the words "or intended, arranged or designed to be used or occupied."

B. Definitions. As used in this chapter, the following terms shall have the meanings indicated:

Defining Solar Energy Systems



Section 3: System Type & Energy Usage

- Building-Integrated Photovoltaic
- Roof-Mounted – on or off site use
- Ground-Mounted – primarily used on-site
- Large-Scale System→ ground mounted & offsite energy consumption

Defining Solar: Four Factors To Consider

- Energy System Type
- Location Where System-Produced Energy is Used
- Bulk & Area of System Dimensions
- System Energy Capacity

System Type and Energy Capacity

PERMIT APPLICATION

NY State Unified Solar Permit

For Small-Scale Solar Electric Systems:

- Rated capacity of 25 kW or less
- Roof-mounted, ground-mounted, or pole-mounted

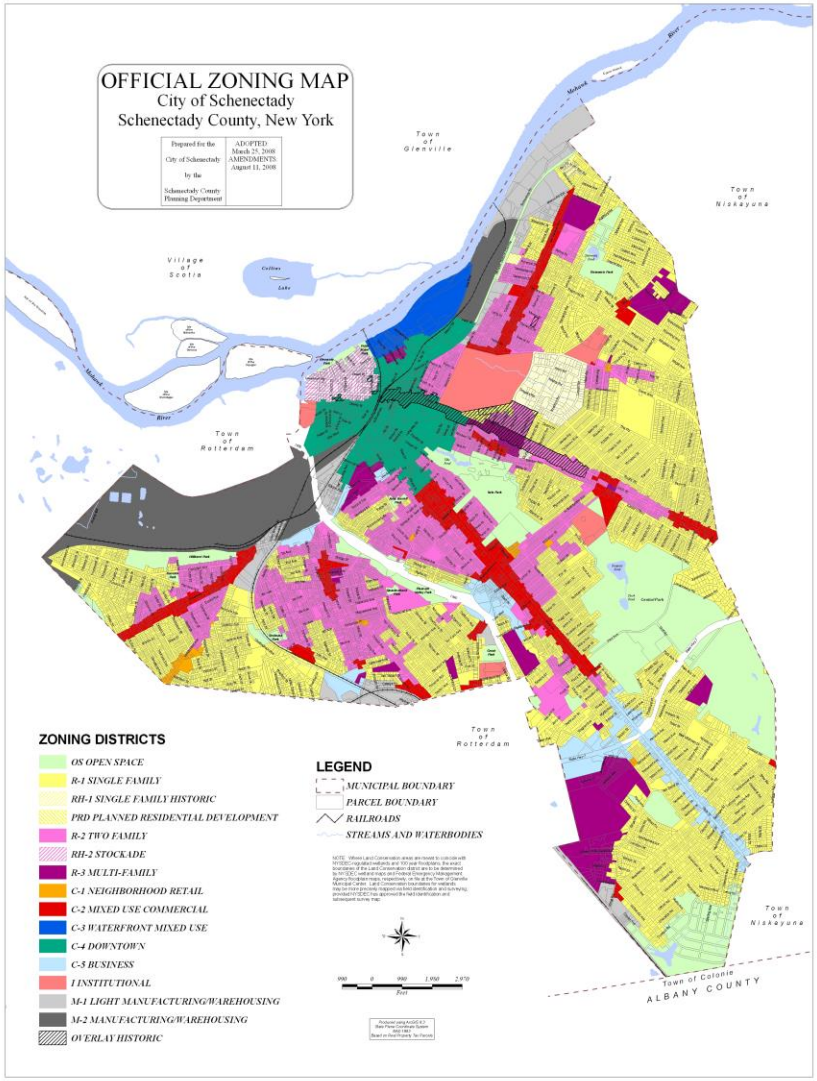
Link to Permit: https://www.nyserda.ny.gov/solarguidebook

Section 4: Applicability

"The requirements of this law shall apply to all Solar Energy Systems installed or modified after its effective date, excluding general maintenance and repair and Building-Integrated Photovoltaic Systems."

Update Zoning Code

Siting: Determine which zoning districts to permit each defined system



Select Districts

- Roof-mounted systems are permitted as an accessory use in **all zoning districts** when attached to lawfully permitted principal and accessory structures, subject to requirements.

- Ground-mounted solar energy systems that use electricity on site are permitted as an accessory structure **in [*Insert district(s)*],** subject to the requirements.

- Large-scale solar energy systems are permitted through the issuance of a special-use permit **within [*Insert district(s)*]** subject to requirements.

Amending District Use Regulations to Allow Solar

Land Uses Allowed in Districts As:

- Accessory Use
- Accessory Structure
- Principal Use
- Special Use

Model Solar EnergyLaw

- Roof-mounted systems are permitted as an **accessory use** in all zoning districts when attached to lawfully permitted principal and accessory structures, subject to the requirements.

- Ground-mounted solar energy systems are permitted as an **accessory structure** in [*Insert district(s)*], subject to the requirements.

Solar as Accessory Use/Structure

Solar as Special Use

Model Solar Energy Law

Large-scale solar energy systems are permitted through the issuance of a **special-use permit** within **[***Insert district(s)***]** subject to requirements.

Solar as Principal Use

Reviewing Bulk & Area Requirements

Sec.	District	Maximum Height		Minimum Requirements				Minimum Yards (7)			
		Ft.	Sty.	Lot Area Sq. Ft.	Lot Width	Lot Depth	Front Depth	Each Side Yard		Total Both Sides	Rear Depth
1	R-1 Single Family Residential	35	2.5	20,000	100'	100'	30'	10'		30'	30'
2	R-2 Two-Family Residential	35	2.5	7,000	50'	100'	20'	6'		16'	20'
3	R-3 Multi-Family Residential	40	4	1 Family: 7,000	50'	100'	20'	1,2,2.5 story:	6'	16'	20'
				2 Family: 3,000@DU(1)	40'						
				3+Family: 1,500@DU	40'			3 or 4 story:	15'	30'	20'
7	C-3 Commercial			Town House: 2,000(2)	18'						
4	B-1 Neighborhood Business	35(3)	2.5(3)	For Dwls: same as R-3 Other Bldgs: -- -- --			50'	Note (4)			
5	C-1 General Commercial	40(3)	3(3)				50'	Note (4)			
6	C-2 Central Commercial	45(3)	3					Note (4)			
8	M-1 Light Industrial	45(3)	3	(11) 1500 @DU	None	None	50'	20'		50'	None(5)
9	M-2 Heavy Industrial	125(6)	--	(11) 1500 @DU	None	None	50'	20'		50'	None(5)
10	FW Flodway	No Building Permitted		None	None	None	No Building Execpt Utility				
10	FF Flod-Fringe	Development shall be undertaken in strict compliance with flood-proofing and related provisions contained in all other applicable codes and ordinances.									

Roof-mounted Systems

- Height and setback requirements from underlying zoning
- Height exemptions granted to building-mounted mechanical devices or equipment apply

Ground-mounted systems

Setback & Height: Requirements of the zoning district

Ground-mounted systems

Location: Installed in rear or side yards (residential districts only)

Ground-mounted systems

- Size: Systems are limited to [Insert Lot Coverage Percentage]
- Panel surface area shall be included in total lot coverage

Large-scale Solar Energy Systems

Height and Setback:

- Requirements of the underlying zoning district
- Additional restrictions may be imposed during the special-use permit process

Large-scale Solar Energy Systems

Minimum lot size of [Insert Size Requirement] square feet

Large-scale Solar Energy Systems

Size: Systems are limited to [Insert Lot Coverage Percentage]

- Panel surface area shall be included in total lot coverage

Review and Approval Process

Project review and approval requirements generally intensify as impacts associated with permitted solar energy systems increase.

Land Use Review Options

For Building-Integrated:

- Building parts exempt from land use review
- Subject to building code compliance

No Site Plan Review

- Roof-mounted systems are permitted as an **accessory use** in all zoning districts when attached to lawfully permitted principal and accessory structures, subject to the requirements.

- Ground-mounted solar energy systems are permitted as an **accessory structure** in [*Insert district(s)*], subject to the requirements.

Land Use Review Options

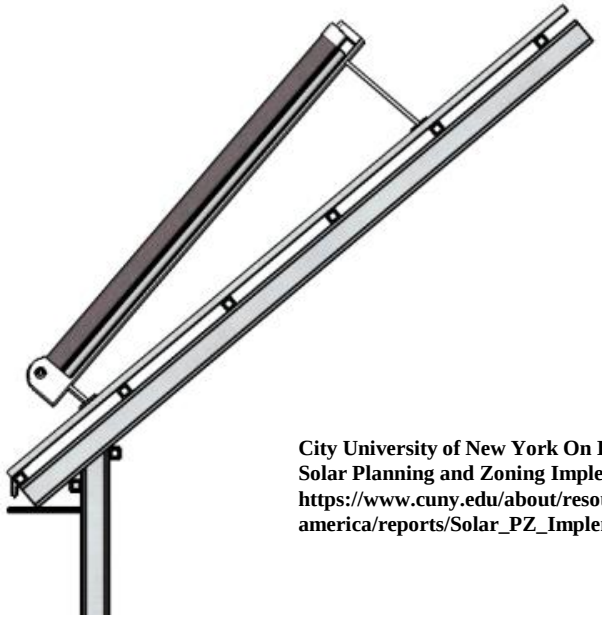
For Accessory Systems:

- Review by Zoning Enforcement Officer

Section 5(A)(3): Aesthetic Impacts

1) *Aesthetics. Roof-Mounted Solar Energy System installations shall incorporate, when feasible, the following design requirements:*

   Panels facing the front yard must be mounted at the same angle as the roof's surface with a maximum distance of 18 inches between the roof and highest edge of the system.



City University of New York On Behalf of New York City Solar Planning and Zoning Implementation Guide, Available at https://www.cuny.edu/about/resources/sustainability/solar-america/reports/Solar_PZ_Implementation_Guide_FINAL.pdf

Aesthetic Impacts

Municipalities particularly concerned with aesthetics may also consider adding the following provisions:

- *Solar Panels affixed to a flat roof shall be placed below the line of sight from a public right of way.*
- *Solar Energy Equipment shall be installed inside walls and attic spaces to reduce their visual impact.*
- *If Solar Energy Equipment is visible from a public right of way, it shall be compatible with the color scheme of the underlying structure.*

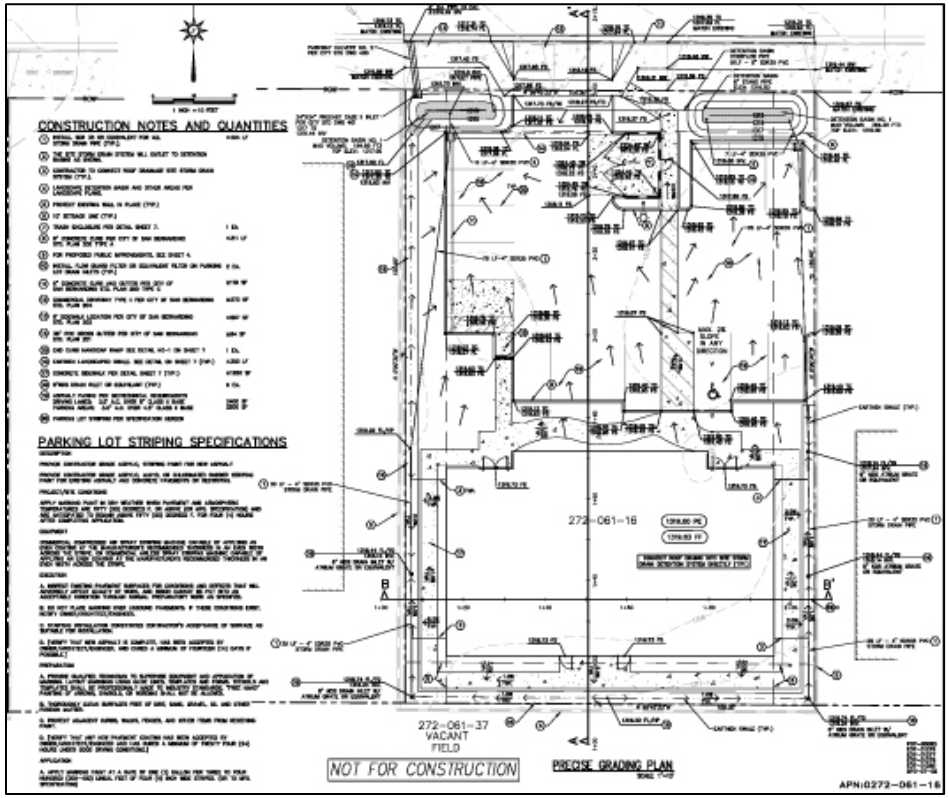
Land Use Review Options

For Larger-Scale Ground Mounted Systems with Greater Impacts:

- Site Plan Review
- Special Use Permit Review

Section 6: Approval Standards

- Large-scale solar energy systems are permitted through the issuance of a **special-use permit** within **[***Insert district(s)***]** subject to requirements.
  - **Site plan** approval is required. *WAIVERS* permitted.



Section 6(B): Special Use Permit

Requirements:

- Copies of easements and other agreements
- Blueprints showing the layout of the solar installation signed by a Professional Engineer or Registered Architect, equipment specification sheets
- Property Operation and Maintenance Plan
- Decommissioning Plan

Decommissioning

Decommissioning Plan:

- How the removal of all infrastructure and the remediation of soil and vegetation shall be conducted to return the parcel to its original state
- Expected timeline for execution
- Cost estimate detailing the projected cost
- If not decommissioned, the municipality may remove the system and restore the property and impose a lien

For more Information on decommissioning see the factsheet Decommissioning Solar Systems:
https://www.nyserda.ny.gov/-/media/NYSun/files/Decommissioning-Solar-Systems.pdf

Section 6(C): Special Use Permit Standards

- Enclosed by fencing to prevent unauthorized access
- Warning signs with the owner’s contact information

Section 6(C): Special Use Permit Standards

"Any application under this Section shall meet any substantive provisions contained in local site plan requirements in the zoning code that, in the judgment of the [Insert Regulatory Body Here], are applicable to the system being proposed. If none of the site plan requirements are applicable, the [Insert Regulatory Body Here] may waive the requirement for site plan review."

Section 6(C): Special Use Permit Standards

"The [Insert Regulatory Body Here] may impose conditions on its approval of any special use permit under this Section in order to enforce the standards referred to in this Section or in order to discharge its obligations under the State Environmental Quality Review Act (SEQRA)."

Section 7: Abandonment

"Considered abandoned after [Insert Time Period] without electrical energy generation and must be removed from the property. Applications for extensions."

Section 8: Enforcement

"Any violation of this Solar Energy Law shall be subject to the same civil and criminal penalties provided for in the zoning regulations of [Insert Town, Village, or City Here]."

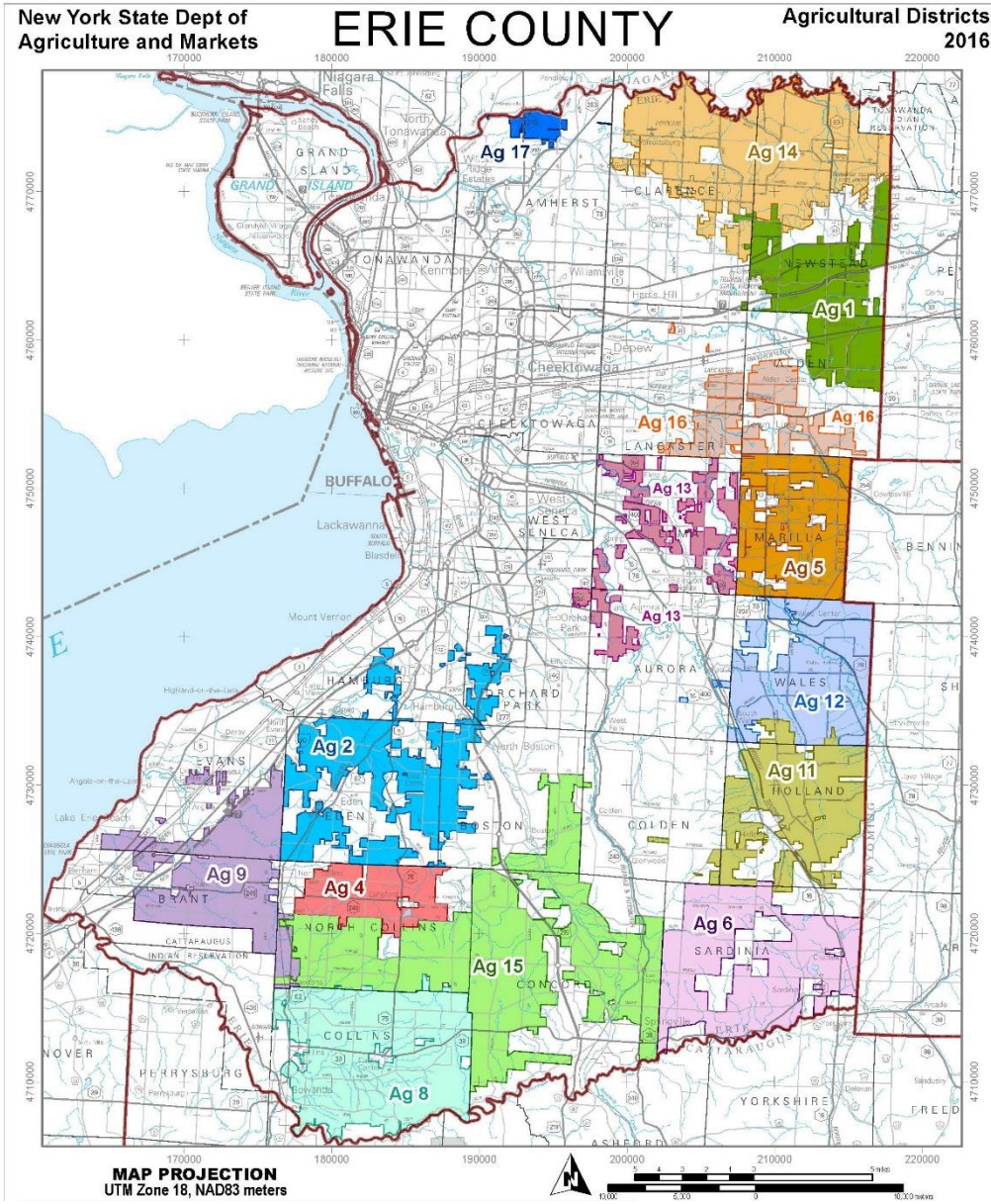
Section 9: Severability

"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."

Special Districts

Agricultural Districts

- **AUTHORITY:** Article 25-AA of the Agriculture and Markets Law
- **PROCESS:** Landowner initiates, preliminary county review, state certification, and county adoption
- **COVERAGE:**
  - 224 agricultural districts
  - 24,130 farms
  - 8.8 million acres
  - about 30 percent of the State's total land area



Farmer Benefits & Protections

- Preferential real property tax treatment

- Protections against
  - overly restrictive local laws
  - government funded acquisition or construction projects
  - private nuisance suits involving agricultural practices

Benefits & Protections for Solar

- Solar devices that do not exceed 110% of the farm's anticipated electrical needs are on-farm equipment.
  - If considered structure or building by local government, then it is an on-farm building.
  - On farm buildings are exempt from some local land use requirements, such as site plan review.

Generally Unreasonable Local Laws

- Site plan review, special use permits or non-conforming use requirements
- Height restrictions and excessive setbacks from buildings and property lines
- Long Environmental Assessment Form (EAF)
  - Designated Type II actions & do not require preparation of EAF and are not subject SEQR
- Visual impact assessments

Reasonable Local Laws

- Model streamlined site plan review process
  - Shorter Time Period
  - Less Submission Requirements
- Building Permit
  - Requirements for local building permits and certificates of occupancy to ensure that health and safety requirements are met are also generally not unreasonably restrictive.

Recommended Process for Review

- Sketch of the parcel on a location map (e.g., tax map) showing boundaries and existing features
- Show the proposed location and arrangement on the site
- Copies of plans or drawings prepared by the manufacturer
- Provide a description of the project and a narrative of the intended use
- A legible electrical diagram showing all major system components

Agricultural District Resources

Agricultural Districts Website

http://www.agriculture.ny.gov/ap/agservices/agdistricts.html

Guideline for Review of Local Zoning and Planning Laws

http://www.agriculture.ny.gov/ap/agservices/guidancedocuments/305-aZoningGuidelines.pdf

Guideline for Review of Local Laws Affecting Small Wind Energy Production Facilities and Solar Devices

http://www.agriculture.ny.gov/ap/agservices/guidancedocuments/Guidelines_for_Solar_and_Small_Wind_Energy_Facilities.pdf

Landowner Considerations for Solar Land Leases

http://www.agriculture.ny.gov/FactSheet/Solar_Land_Leases.pdf

Homenick, E. Sullivan County Real Property Tax Services, “Solar Array’s and Taxation”

https://s3.amazonaws.com/assets.cce.cornell.edu/attachments/12866/SOLAR_ARRAY%E2%80%99S.pdf?1452808160https://s3.amazonaws.com/assets.cce.cornell.edu/attachments/12866/SOLAR_ARRAY%E2%80%99S.pdf?1452808160

Review by Additional Local Boards

Example

SES <u>exempt</u> from design review if:

- On 1- or 2-family structures w/o variance
- Rated capacity ≤ 12 kW
- Mounted parallel to roof or with minimal tilt

Review by Additional Local Boards

Example: Historic Standards

Solar in Historic Districts or Treatment of individual historic properties

- Solar panels and BIPV systems are permitted by right on accessory structures that do not contribute to the historic significance of the site.
- Solar panels shall not alter a historic site's character defining features.
- All modifications to site must be reversible to reveal the original appearance of site.
- Exposed solar energy equipment must be compatible with the underlying structure.
  - Panels shall be placed flush to the roof's surface
  - BIPV shall complement the styles and materials of the building.
- The issuance of a Certificate of Appropriateness is required by a historic review board for ground-mounted systems, BIPV, exterior improvements to all historic structures.
  - Preference given to solar panels placed on new construction or additions.
  - Ground-mounted systems shall be screened from the public right of way by fencing or vegetation

Deep Dive

Understanding New York State's Real Property Tax Law Section 487

Real Property Tax Exemption

"Real Property which includes a solar energy system… shall be exempt from taxation to the extent of any increase in the value thereof by reason of the inclusion of such solar energy system for a period of 15 years…" - RPTL Section 487

- Special ad valorem and special assessments are not exempt (sewer, water, fire, library, etc.)
- After a 15-year period, the solar energy system is fully taxable at the assessed value at that point in time
- All municipalities, counties and school districts are automatically included in PTE unless they opt out through local law or resolution. This law is applicable until 2024.
- More than 92% of all taxing jurisdictions continue to offer this exemption.

Real Property Tax Exemption

Solar impacts the local economy

Jobs

- 8,250 solar jobs in NYS (3rd most in US)
- 631 solar companies (4th most in US)

Value of the solar industry

- $877 million in NYS in 2015

Local indirect impacts of solar project spending

Real Property Tax Exemption

Jurisdictions that opt out of RPTL § 487 will likely not collect substantial tax revenue

- Opting out makes investing in solar economically unfeasible for residential, commercial and larger-scale solar.
- Solar developers avoid jurisdictions that have opted out of the exemption.
- A list of municipalities, counties and school districts that opted out of RPTL § 487 can be found on the NYS Department of Taxation and Finance's website https://www.tax.ny.gov/research/property/legal/localop/487opt.htm

Process & Calculation of the Exemption

Property owners must file an application for exemption from county, city, town and school district taxes with the municipality's assessor who prepares the property assessment used in levying county, city or town and school district taxes.

Calculation of Exemption*.

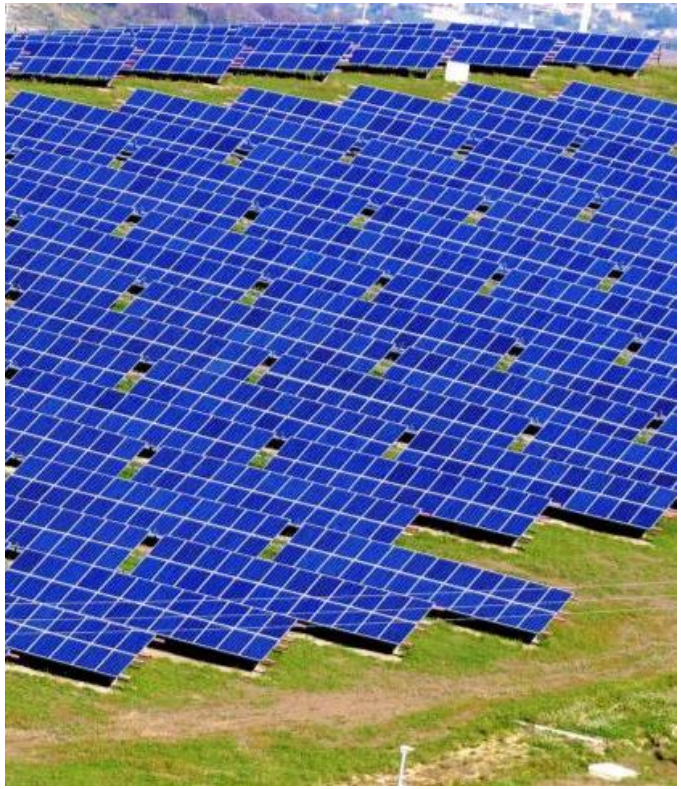
a.	Total cost of solar energy system:	$10,000
b.	Incremental cost of system:	$4,000
c.	Ratio of incremental cost to total cost [(b) divided by (a)]:	40%
d.	Increase in assessed value of property attributable to addition of solar energy system:	$6,000
e.	Assessed value exempt due to addition of system [(d) times (c)]:	$2,400

*Methodology for calculating the exemption is further explained in the NYS Department of Taxation and Finance's website

Source: Application for Tax Exemption for Solar or Wind Energy Systems or Farm Waste Energy Systems:
https://www.tax.ny.gov/pdf/current_forms/orpts/rp487_fill_in.pdf
Assessor's Manual, Volume 4, Exemption Administration:
https://www.tax.ny.gov/research/property/assess/manuals/vol4/pt1/sec4_01/sec487.htm

Payment in Lieu of Taxes (PILOT)

- Jurisdictions that have not opted out of the PTE may use Payment In Lieu of Taxes (PILOT) with specific projects.
- PILOTS can capture revenue for large projects without harming the residential market.
- PILOTs have typically been annual payments related to the system capacity ($/MW).
- PILOTS may not exceed a 15 year term and the value of taxes that would be paid without the exemption provided by the PTE.
- After a period of 15 years, the solar project is fully taxable at the assessed value at that point in time (e.g. the assessed value at year 16).



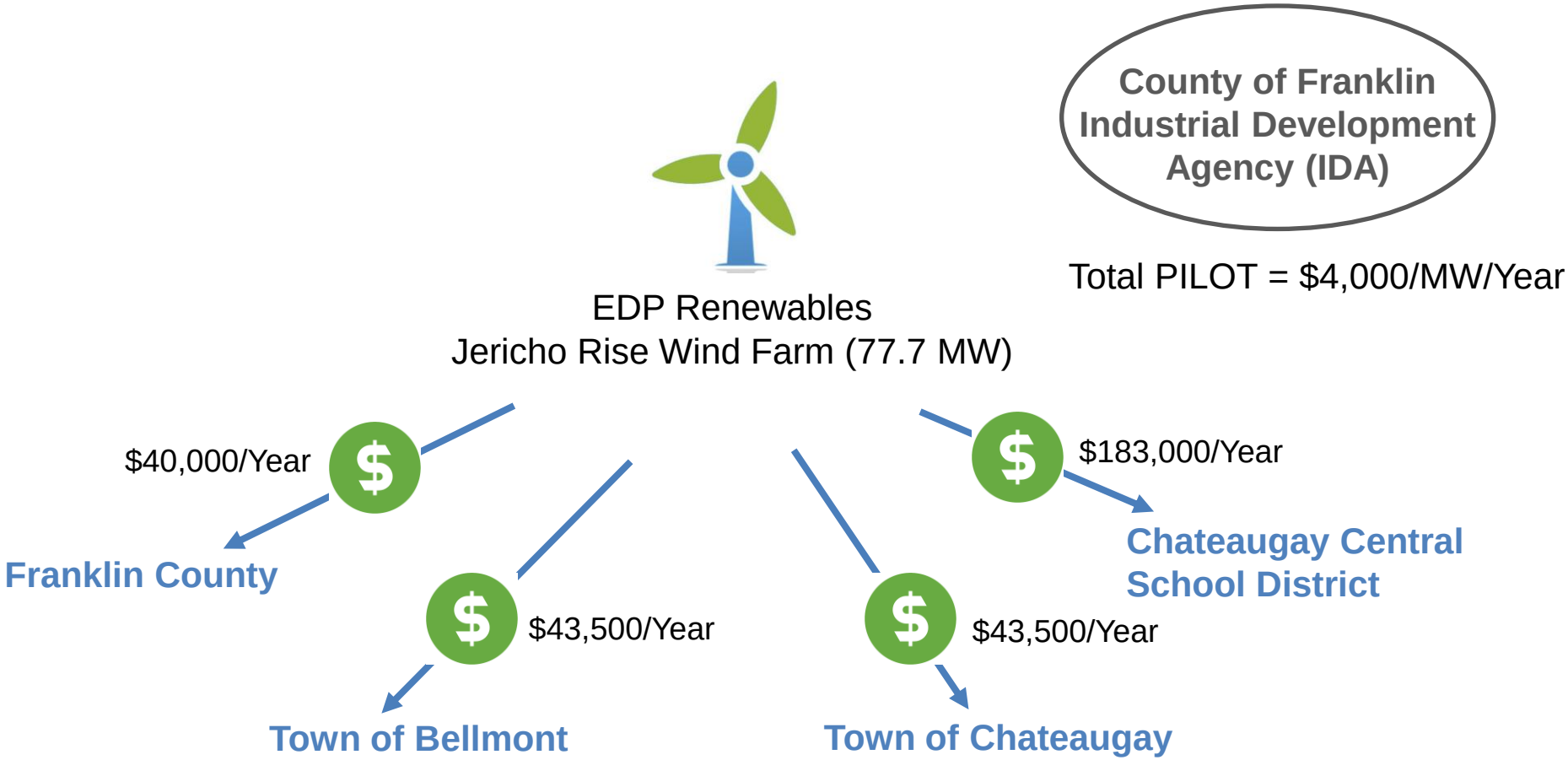
PILOT Development for Wind Projects

- Each taxing jurisdiction (county, city, town, village and school district) does not have to enter into its own PILOT with the wind project developer.
- **Multiple jurisdictions can be parties on the same PILOT agreement**, which outlines the amount the property owner pays to each taxing jurisdiction.
- Typically, the **county Industrial Development Agency (IDA) has negotiated the PILOT on behalf of the taxing jurisdictions**, but the agreement may be drafted by the county or local taxing jurisdiction's tax counsel.
- There is currently **no specific guideline for determining the appropriate amount under a PILOT agreement**.
- Most experience with PILOTS in New York is related to wind development.
- A survey found wind PILOTs averaged around $8,000-$9,000/MW for projects above 3 MW.

Source: New York State Wind Energy Toolkit. May 2009. http://www.nyserda.ny.gov/-/media/Files/EERP/Renewables/wind-energy-toolkit.pdf
New York State Solar Energy Industry Association. 2014. http://media.wix.com/ugd/a89dc9_d897eff4c20c45ac87920f5fc62dc8f0.pdf

PILOT Development for Wind Projects

Example of PILOT agreement for wind project in Franklin County



Source: Franklink County IDA set to finalize Jericho Rise PILOT: http://www.watertowndailytimes.com/news05/franklin-county-ida-set-to-finalize-jericho-rise-pilot-20160718

Supplemental Environmental Impact Statement; Jericho Rise Wind Farm: https://s3.amazonaws.com/Citations/jerichorise/Section+1.pdf

Range of PILOTS for Solar Projects in Massachusetts

In Massachusetts, PILOTS for solar projects range between $4,000/MW and $27,000/MW

Location	Project Size	Price/MW (without escalation)	Terms	Source
Holyoke, MA	4.5 MW	$5,000	Valid for 20 years	http://www.seia.org/sites/default/files/resources/Holyoke%20PILOT%20Agreement%20-%20Mueller%20Rd%20and%20Meadow%20St%20Solar.pdf
Berkley, MA	2.9 MW	$7,000	Valid for 20 years	http://www.seia.org/sites/default/files/resources/Berkley%20PILOT%20-%20executed.pdf
Holyoke, MA	Not specified	$5,000	Valid for 20 years; payment made twice a year	http://www.seia.org/sites/default/files/resources/Holyoke-Citizens%20PILOT%20Agreement%2011-16-2011.pdf
Rochester, MA	4.2 MW	$9,524	Valid for 20 years; payment made twice a year	http://www.seia.org/sites/default/files/resources/Rochester%20Signed%20PILOT%20agreement%206.4.12%20%281%29.pdf
Worcester, MA	3.3 MW	$12,000	Valid for 20 years; payment made quarterly	http://www.seia.org/sites/default/files/resources/Shrewsbury%20PILOT%20Agreement%20-%202012.pdf
Stow, MA	Not specified	$7,500	Valid for 20 years; payment made quarterly	http://www.seia.org/sites/default/files/resources/Stow%20-%20PILOT.pdf
Uxbridge, MA	2.5 MW	$17,000	Valid for 20 years; payment made quarterly;	http://www.seia.org/sites/default/files/resources/Uxbridge%20Final%20PILOT%20Constellation%20062911.pdf
	Average-->	$7,671		-

PILOT Development

- PILOTs add to the costs of solar projects
- Jurisdictions should **clearly outline their stance on PTE and PILOTs** as any uncertainty can jeopardize a project.
- **Developers should contact the taxing jurisdictions** about the project **in advance** to find out the various stances on PILOTs.
- If developer or property owner **formally contacts a jurisdiction through written notice** that they intend to construct a solar energy system within the municipality, **the municipality has 60 days** from receiving the notice of intent **to notify the developer or owner that it intends to require a PILOT.**
- The **owner or developer is not required to use a specific form or language** when giving a municipality notice of its intent to construct a solar project.
- The value of the PILOT is usually based on the **developers project costs, expected cash-flows and the developer's financing/investor requirements**.
- If a jurisdiction requires a PILOT higher than a developer can pay, the jurisdiction will most likely lose the project.
- Jurisdictions may want to **understand the taxable value of the project after year 15**, so they can plan their future expected revenues accordingly.

Assessing Property Value of Solar

Taxing jurisdictions that opt out of the exemption need to assess any increase in the value of the property due to the solar PV system in order to calculate the appropriate tax amount

Methodologies for assessing value of solar:

- **Comparable sales/market approach**: assessor compares the market value or sale price of similar properties located within the same jurisdiction to measure the property value added due to a solar PV system
- **Cost approach**: the value of a solar PV is measured based on the systems cost or the cost to replace it
- **Income approach**: value of solar based on current and projected revenue from power generation

Resources for a detailed explanation of methods of assessing the value of solar:
Property Taxes and Solar PV Systems: Policies, Practices, and Issues: https://nccleantech.ncsu.edu/wp-content/uploads/Property-Taxes-and-Solar-PV-Systems-2013.pdf
New York State Assessor's Association - Training: Valuation of Solar Panels: http://www.nyassessor.com/membersonly/trainingcalendar/tabid/240/ctl/viewdetail/mid/1046/itemid/1232/d/20161014/Solar-Panel-Valuation-(Central-Region).aspx

Property Tax Resources

NYS Department of Taxation and Finance. “Assessors Manual, Volume 4, Exemption Administration.”
https://www.tax.ny.gov/research/property/assess/manuals/vol4/pt1/sec4_01/sec487.htm

NYSERDA. “Factsheet: Understanding the Real Property Tax Law Section 487.”
https://training.ny-sun.ny.gov/images/PDFs/SUN-GEN-taxlaw487-fs-1-v1_FINAL.PDF

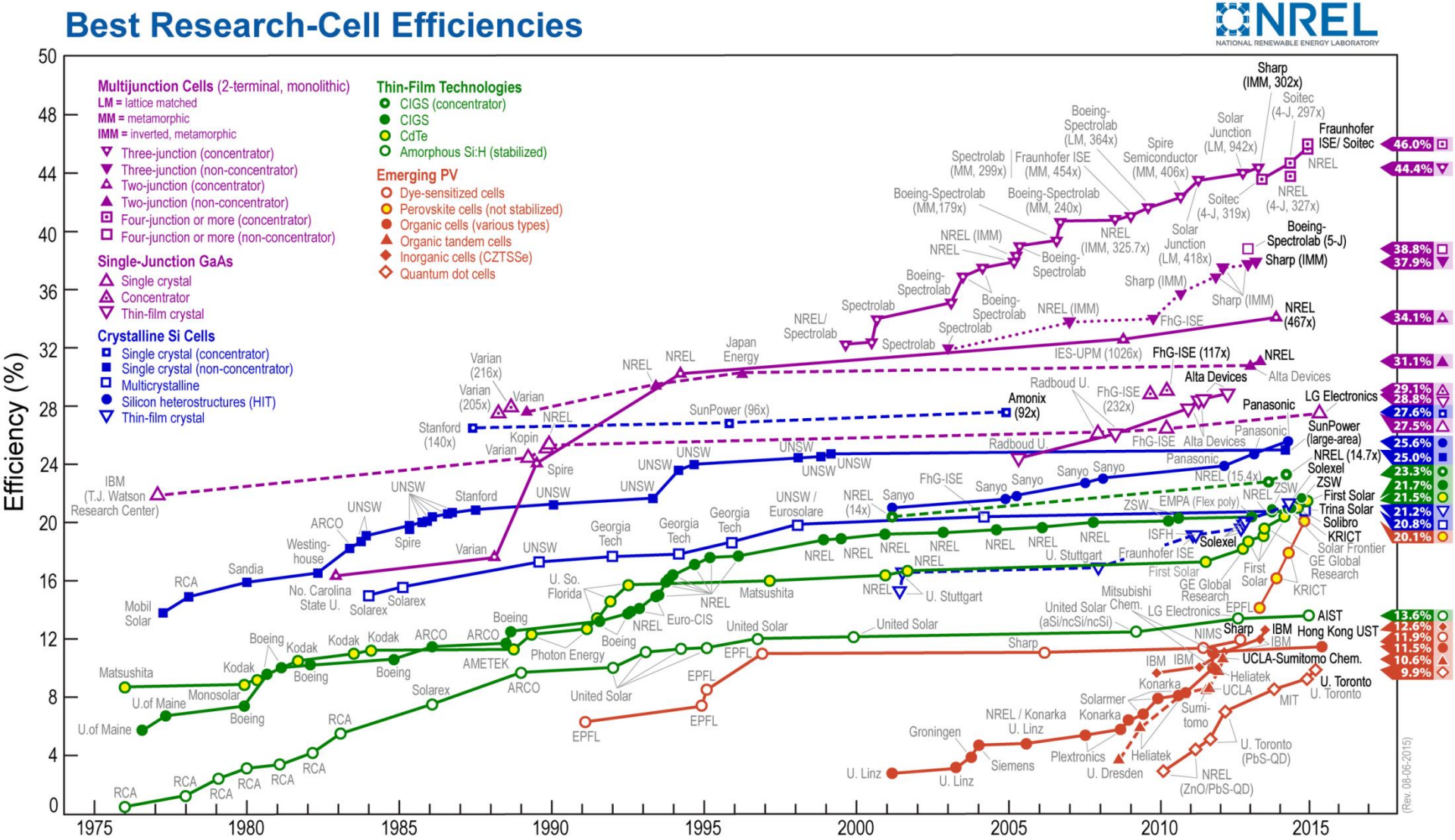
NYS Department of Taxation and Finance. “Recent Questions on the Real Property Tax Law and Solar Energy Systems.”
www.tax.ny.gov/pdf/publications/orpts/legal/raq2.pdf?_ga=1.225179802.1031257166.1423842465

Barnes et al. “Property Taxes and Solar PV Systems: Policies, Practices, and Issues.”
nccleantech.ncsu.edu/wp-content/uploads/Property-Taxes-and-Solar-PV-Systems-2013.pdf

NYSERDA Wind Energy Toolkit: “Section 7.2,page 30. Property Tax: Exemptions and PILOTS”
nyserda.ny.gov/-/media/Files/EERP/Renewables/wind-energy-toolkit.pdf

Other Considerations for Solar in New York State

Improvements in Solar Technology



Source: National Renewable Energy Laboratory, Best Research-Cell Efficiencies, Available at: http://www.nrel.gov/ncpv/images/efficiency_chart.jpg

Improvements in Solar Technology

- Technology improves incrementally over long periods of time, as opposed to cellphones, computers, etc.
- Technological advancements are made in terms of efficiency, i.e. the panel's ability to convert sunlight into electricity
- Waiting for PV technology improvements is not typically financially advantageous

≠

Solar Panels & Snow

Will not produce electricity if completely covered in snow **BUT:**

- Panels are typically located on the part of the roof that gets the most sun
- Snow slides easily off panels
- Once snow melts panels resume electricity production

Solar & Fire Safety

- Solar arrays rarely cause fires
- PV arrays go through multiple inspections to ensure code compliance and safety
- Solar can present additional challenges to first responders if attached to a building on fire
- The main issues are ensuring first responders can safely and easily access the roof and have adequate space to ventilate the building
- Fire codes are being updated to reflect safety concerns
- Trainings for first responders on how to safely interact with PV systems: PVTN "Fire and Safety Considerations for PV" training

Fire and Safety Training for PV: https://training.ny-sun.ny.gov/resources-5#pvtn-webinars-and-podcasts

Safety & Solar PV

- PV modules should be treated as electrically charged **at all times**.
- PV modules generate direct current (DC) electricity. An alternating current (AC) sensor will not detect a current ***even though there is one***
- PV modules present a shock hazard when damaged and/or appear to be disconnected from the site's electrical system
- Important for fire fighters to use hazard training when approaching PV technology

Solar & EMF

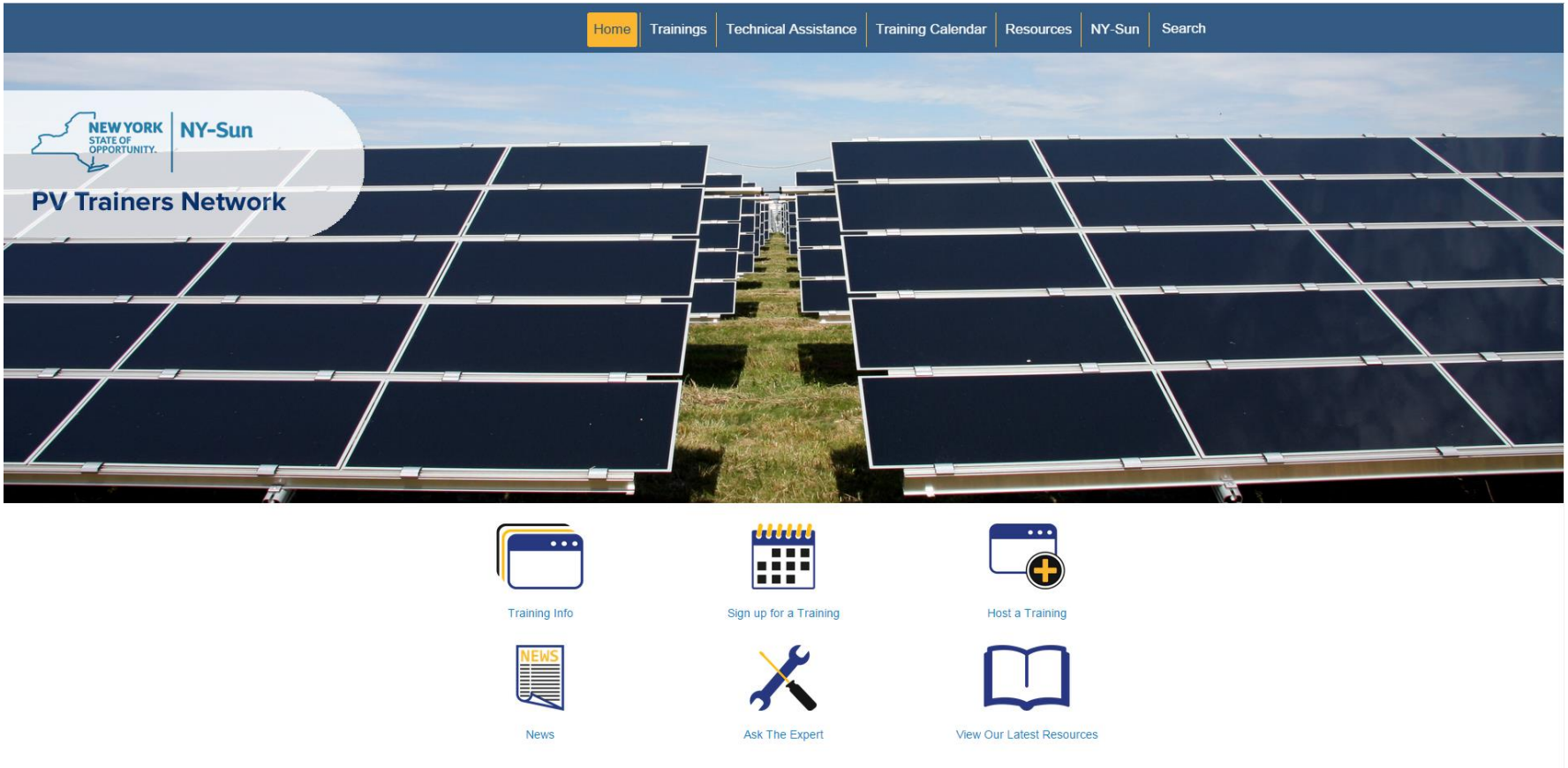
"The strength of electromagnetic fields produced by photovoltaic systems do not approach levels considered harmful to human health established by the International Commission on Non-Ionizing Radiation Protection." *– State of Oregon*

Table 3: Potential Magnetic Field Strength from Various Components of West Linn Solar Array

Source	Field Type	Field strength at 3 ft. (Milligauss)	Field strength at 10 ft. (Milligauss)	Corresponding ICNIRP exposure limit for the general public (Milligauss)
Parallel string of PV modules	Static	1,697	509	4,000,000
DC to AC power inverter	Power frequency	344	3	830
Grid interconnection	Power frequency	14	n/a	830

Sources: State of Oregon Department of Transportation, *Scaling Public Concerns of Electromagnetic Fields Produced by Solar Photovoltaic Arrays*, Available at: "http://www.oregon.gov/odot/hwy/oipp/docs/emfconcerns.pdf
State of Oregon Department of Transportation, *Health and Safety Concerns of Photovoltaic Solar Panels*, Available at: http://www.oregon.gov/odot/hwy/oipp/docs/life-cyclehealthandsafetyconcerns.pdf

Resources: NY-Sun PV Trainers Network



Visit: https://training.ny-sun.ny.gov/

NY State Solar Guidebook

Now Available!

- Understanding solar PV permitting and inspecting in NY State
- Residential Roof-top access and ventilation requirements
- Real Property Tax Law Section 487
- Land Lease Considerations for Solar
- Decommissioning Solar Factsheet
- Additional Resources

nyserda.ny.gov/solarguidebook

Thank You!

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Erie County can connect you to resources about State energy programs

Reach out any time to get connected!

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