



Central New York Regional Planning & Development Board

# Municipal Regulation of Solar Energy Systems

**Onondaga County Planning Federation  
Annual Symposium**

March 1, 2018

Chris Carrick, Energy Program Manager



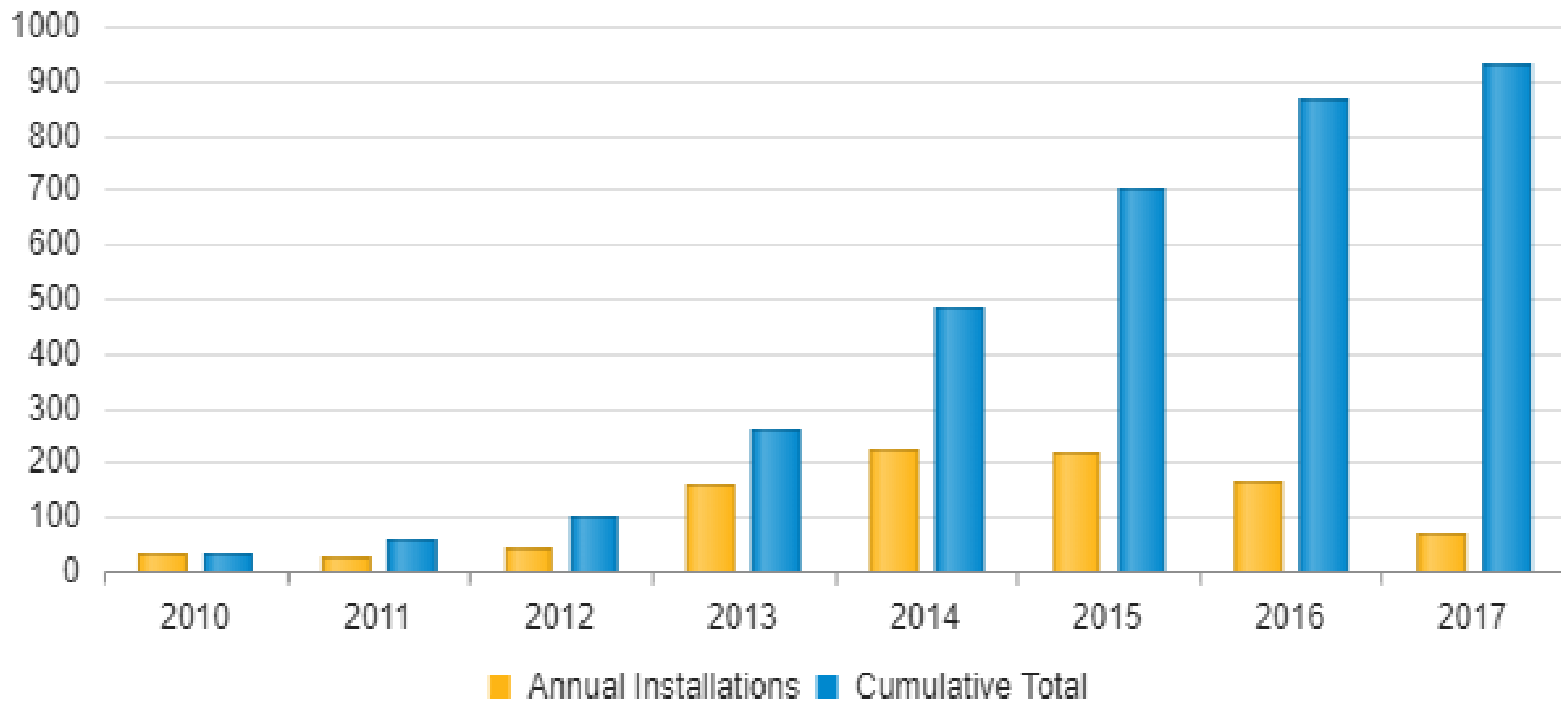
Central New York Regional Planning & Development Board

- Public agency established in 1966 by Cayuga, Cortland, Madison, Onondaga, and Oswego Counties
- Provides a range of services to Central New York communities with a focus on:
  - **Energy Management**
  - Comprehensive Planning
  - Economic Development
  - Environmental Management
  - Transportation Planning
  - Information and Research Services



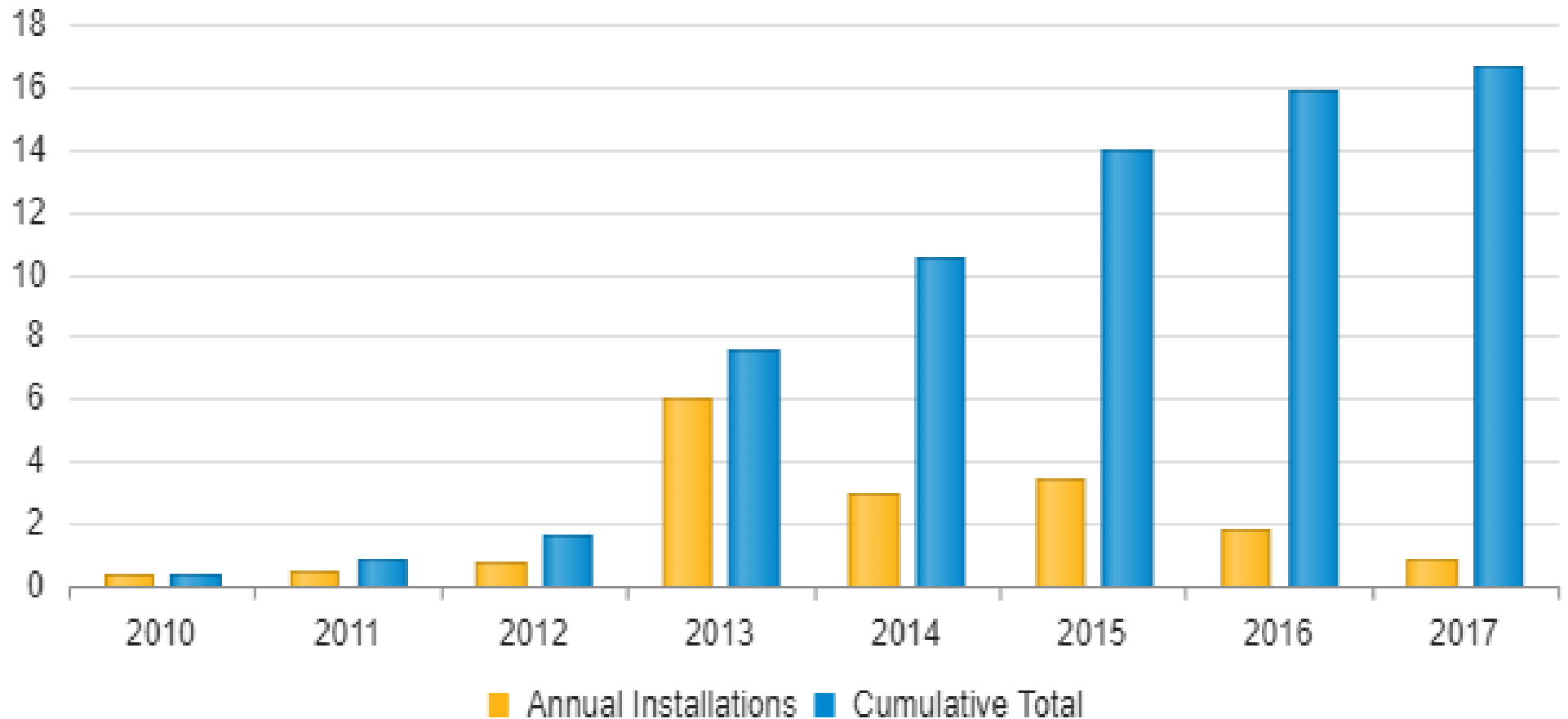
# Solar Market Growth - NYS

Installed Solar Power Generation Capacity (Megawatts)



# Solar Market Growth – Onondaga Co.

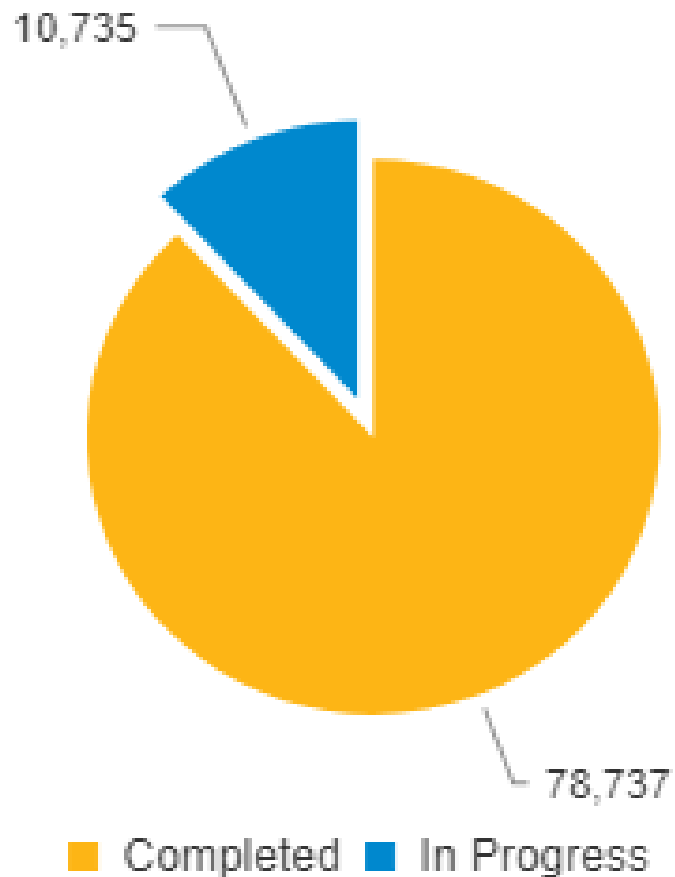
Installed Solar Power Generation Capacity (Megawatts)





# Status of Solar Projects

## New York

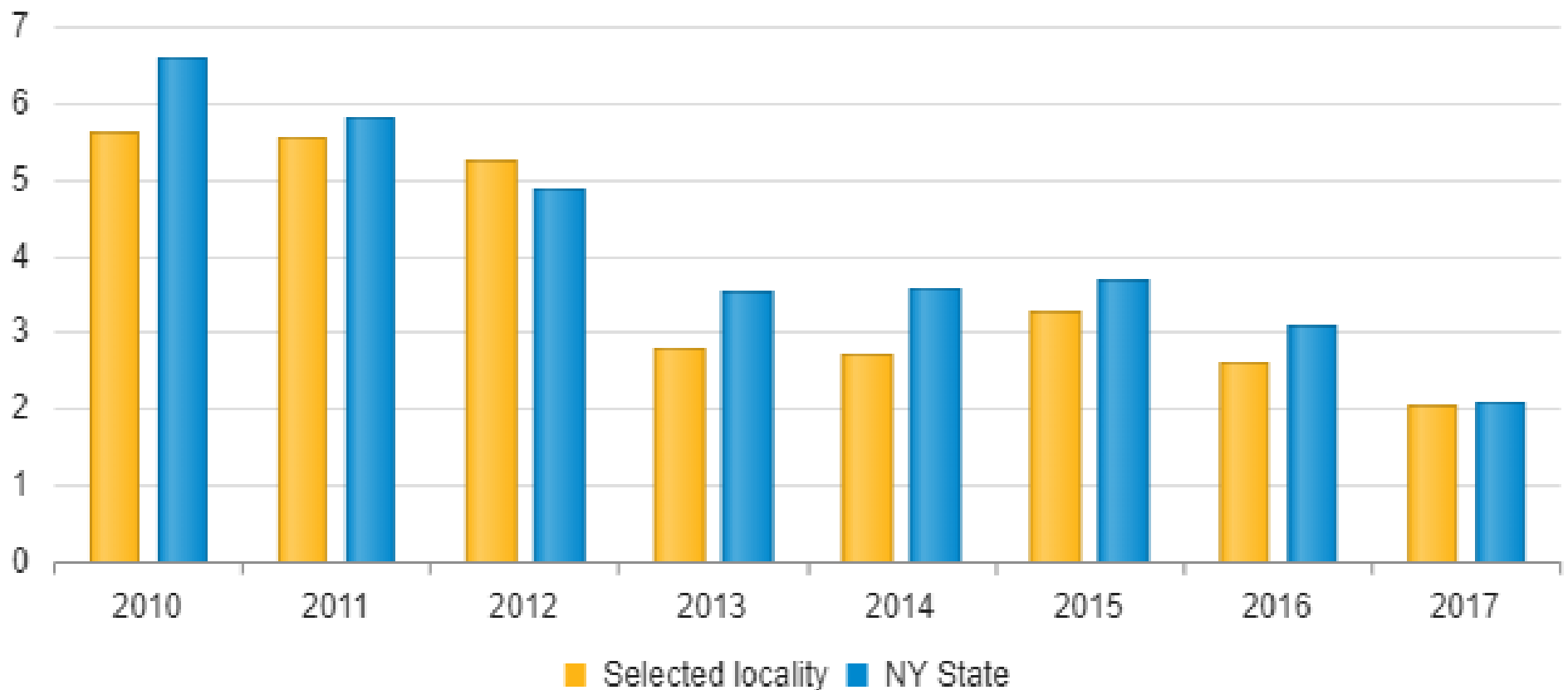


## Onondaga County



# Sharp Cost Reductions

Local Cost of Solar (\$/Watt) vs. State Average



# 2015 State Energy Plan: 2030 Targets



**40% Reduction**  
in GHG emissions from 1990 levels

Reducing greenhouse gas (GHG) emissions from the energy sector—power generation, industry, buildings, and transportation—is critical to protecting the health and welfare of New Yorkers and reaching the longer term goal of decreasing total carbon emissions 80% by 2050.

**50% Generation**  
of electricity from renewable energy sources

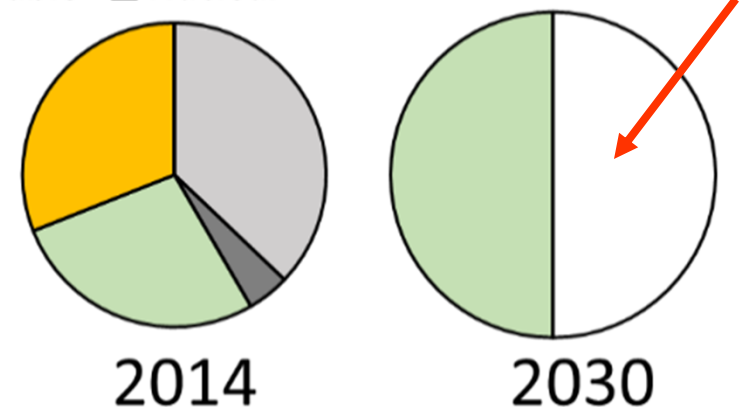
Renewable energy sources, including solar, wind, hydropower, and biomass, will play a vital role in reducing electricity price volatility and curbing carbon emissions.

**23% Decrease**  
in energy consumption in buildings from 2012 levels

Energy efficiency results in lower energy bills and is the single most cost-effective tool in achieving energy objectives. 600 trillion British thermal units (TBtu) in energy efficiency gains equates to 23% reduction in energy consumption by buildings.

## NY Generation

Gas and Oil   Coal  
Renewable   Nuclear



“New Yorkers stand ready to do their part. We are committed to requiring that 50 percent of the power used in our state is from renewable resources by 2030.”

- Governor Andrew Cuomo

# NY-Sun Initiative

## Making solar affordable for all New Yorkers

### Goal:

- 3 GW by 2023 (equal to 400,000 homes)

### Progress:

- 800% increase since 2011
- 9,000+ people in industry (ranks 3<sup>rd</sup> in U.S.)
- Costs cut in half in 5 years
- 932 MW solar installed

### Why:

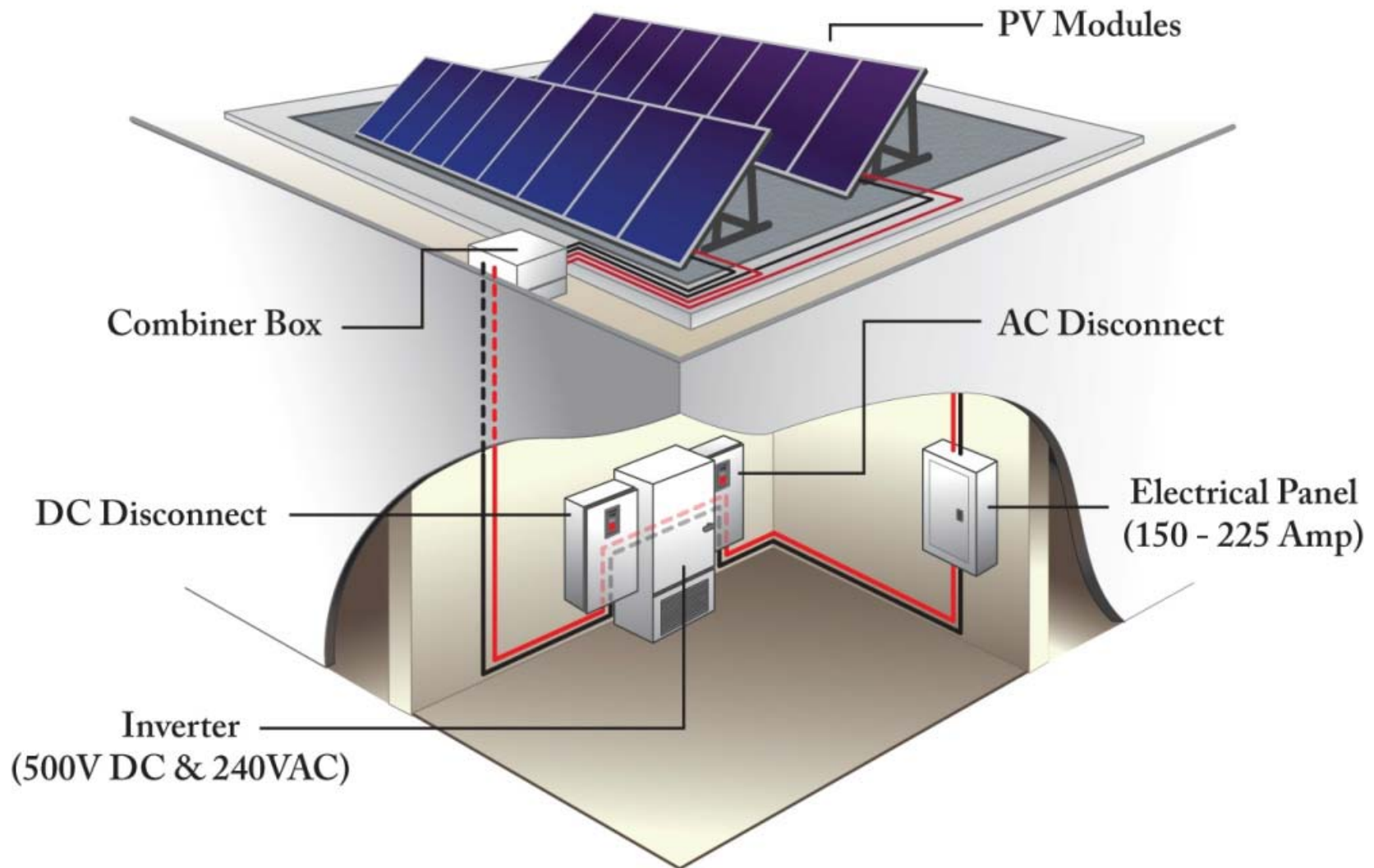
- Expand installed solar capacity
- Attract private investment
- Enable sustainable development of a robust industry
- Create well-paying skilled jobs
- Improve grid reliability
- Reduce air pollution







# Solar 1.0





# Inverter













# Residential Rooftop



# Residential Rooftop





# Residential Rooftop



# Residential Rooftop - Flat





# Commercial Rooftop



# Commercial Rooftop





# Building-Integrated



# Ground-Mounted



# Ground-Mounted





# Carport

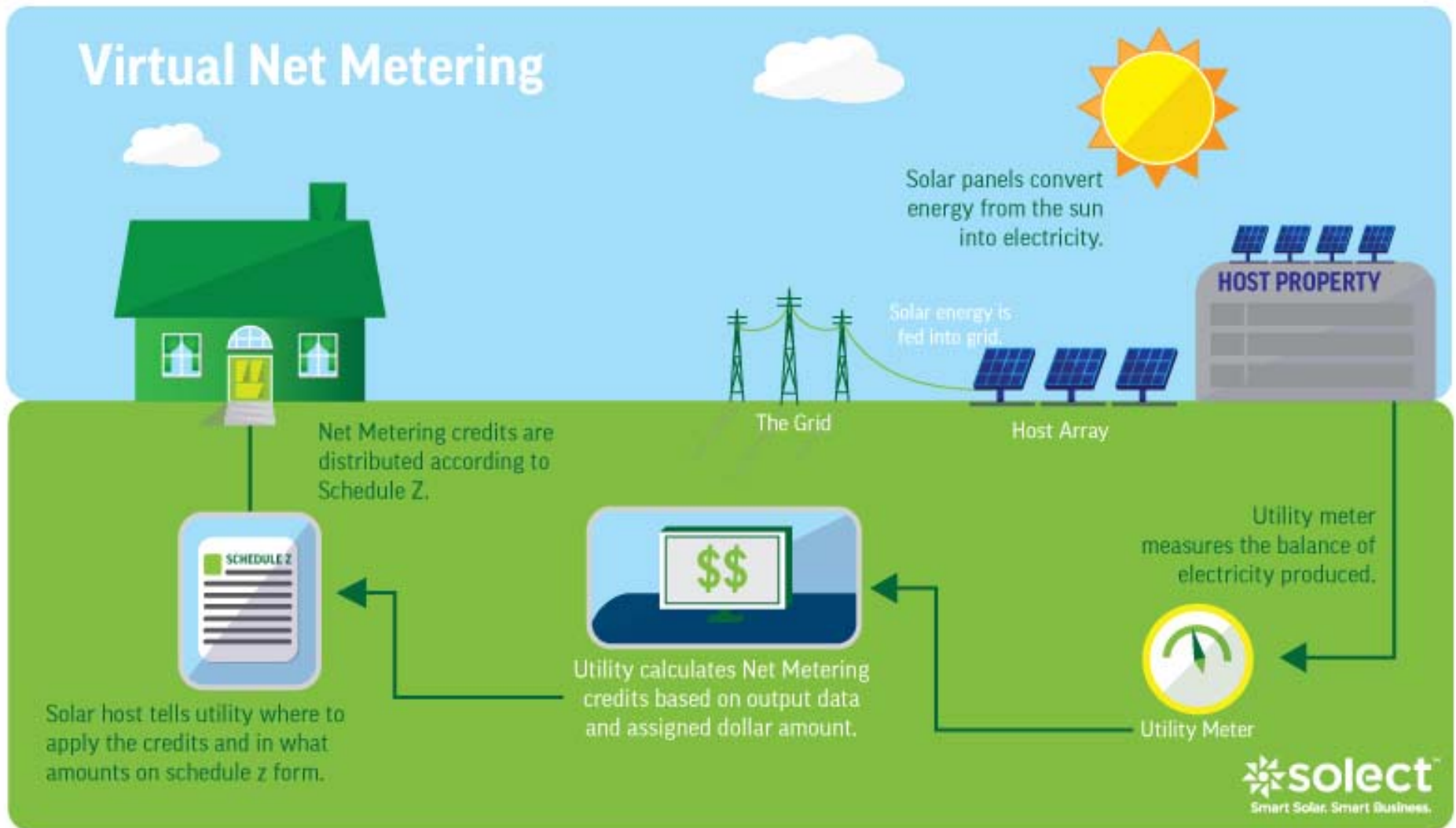


# GE Power Carport





# Solar 2.0



# Size, Location & Cost of Shared Solar

## How large is a shared solar project?

- Limited to 2 MW\*
  - 1 kW  $\approx$  100 SqFt
  - 1 MW  $\approx$  6 acres
- 2 MW project serves 200-400 households

## Where can a project be located?

- Private land
- Public land
- Rooftops

## What is estimated cost?

- 2 MW project: \$6-8 million for project development (before incentives)





# Brownfields / Landfills





# “Greenfields”





# Repurposed Land





# Repurposed Land





# Ellensburg, Washington (2006-10, 100 kW)





# Poultney, Vermont (2015, 113 kW)





# Millport, NY (2017, 650 kW)





# Alburgh, VT (2016, 1.28 MW)





# Brookhaven, NY (2011, 32 MW)

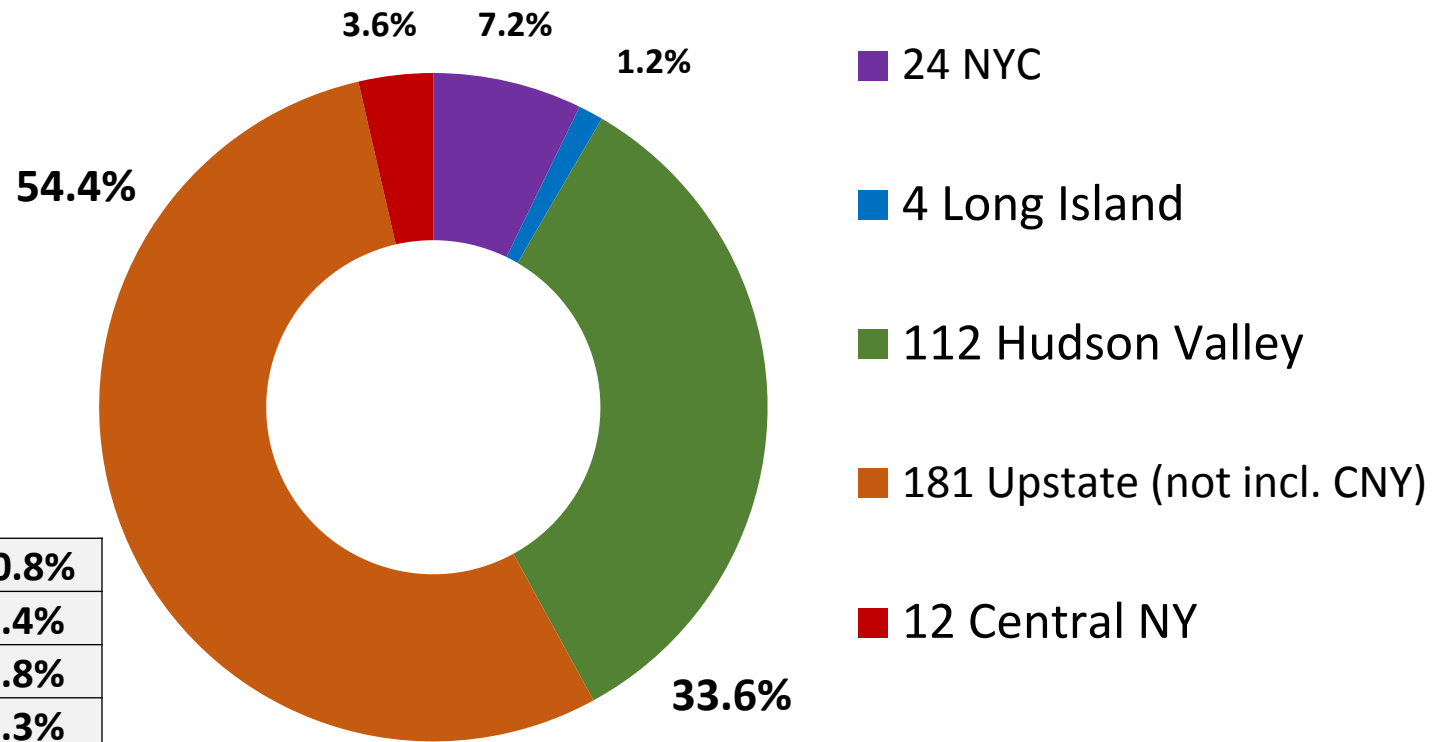




# Rehoboth, Massachusetts (2014, 1 MW)



# Community Solar Pipeline (Statewide)



Projects	County	Percentage
36	Orange	10.8%
28	Tompkins	8.4%
26	Erie	7.8%
21	Sullivan	6.3%
20	Ulster	6.0%
17	Bronx	5.1%
16	Monroe	4.8%
15	Dutchess	4.5%
14	Chemung	4.2%
11	Tioga	3.3%

39.3%

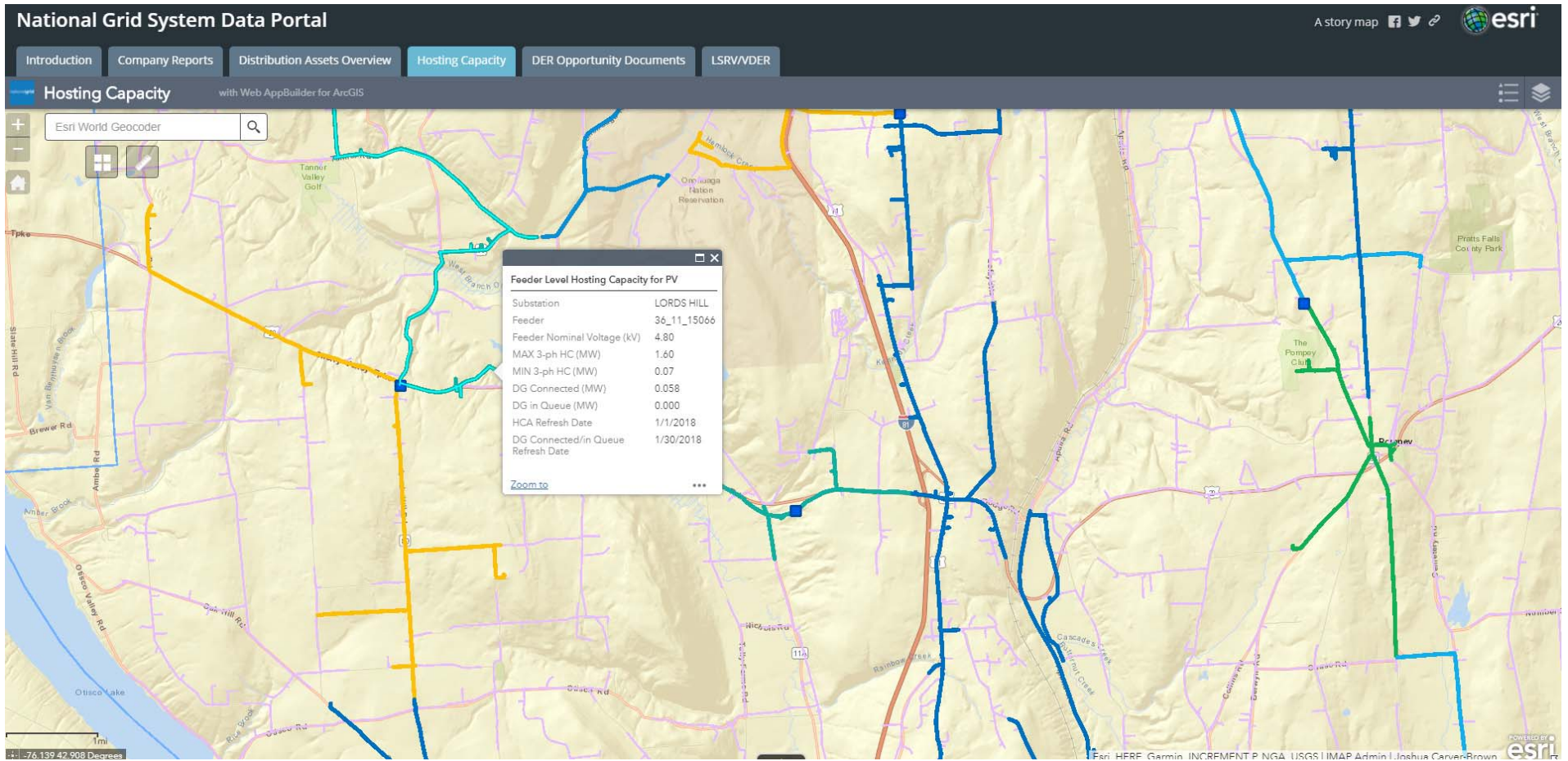
61.3%



# Community Solar Pipeline (Central NY)

<u>City</u>	<u>Developer</u>	<u>Status</u>	<u>NYSERDA Date</u>	<u>kW</u>
<b>Cortland</b>				
Cortlandville	SolarCity Corporation	Pipeline	3/3/2017	2,669
Cortlandville	SolarCity Corporation	Pipeline	3/3/2017	2,836
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Cortlandville	SolarCity Corporation	Pipeline	3/7/2017	2,669
Cortlandville	SolarCity Corporation	Pipeline	3/14/2017	2,669
<b>Oswego</b>				
Sandy Creek	High Peaks Solar	Pipeline	4/18/2017	2,765
Mexico	Cypress Creek Renewables, LLC	Pipeline	5/1/2017	3,000
Sandy Creek	Cypress Creek Renewables, LLC	Pipeline	7/26/2017	3,000
Phoenix	ForeFront Power, LLC	Pipeline	8/11/2017	2,901
<b>Onondaga</b>				
Jamesville	Cypress Creek Renewables, LLC	Pipeline	6/10/2016	3,000
Jamesville	Cypress Creek Renewables, LLC	Pipeline	7/19/2016	3,000

# Scale and Pace of Possible Development





# Why Address Solar in the Zoning Code?

- Energy planning is a critical local issue
  - Solar energy is a valuable local resource
  - People in your community will want to take advantage of their solar resources
  - Solar development, like other development, is a locally regulated land use with synergies and conflicts with other local resources
  - Planning maximizes opportunities and minimizes risks

# Why Address Solar in the Zoning Code?

- To create a supportive regulatory environment
  - Eliminate uncertainty in the development process
  - Ensure appropriate system placement
  - Prevent nuisances





# Why Address Solar in the Zoning Code?

- Mitigate potential conflicts between solar and other community values
  - Tree preservation
  - Historic preservation
  - Redevelopment



# Goal for Solar Zoning Ordinance

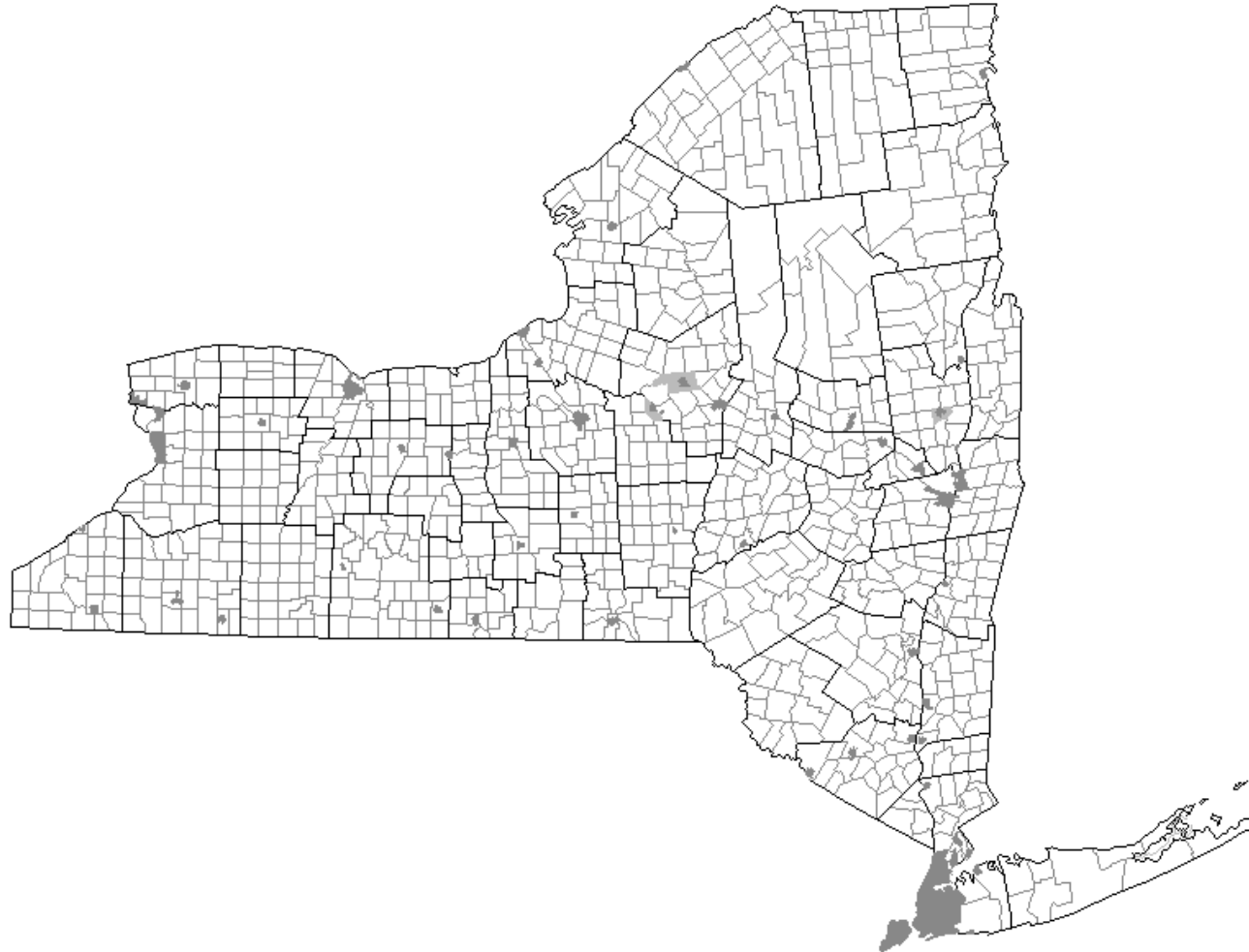
To enable local governments to remove land use barriers for solar energy systems and ***encourage the use of solar energy*** through effective regulation, while ***protecting community resources and character.***



# Developing Your Solar Zoning



# New York's Local Governments



**1,550+** local jurisdictions in NY  
With land use authority



# Solar in Your Community

- How closely does solar help meet existing community goals?
- What scales and contexts are appropriate?
- How much development is possible within the appropriate scales and contexts?

# What are the Impacts of Solar?

- No on-site pollution
- No discernable noise
- No or little on-site lighting, no glare
- Relatively low profile (with 10-12 max. height)
- Does not increase traffic
- Fencing and/or landscape buffers
- Retain most vegetation
- Minimal impacts on hydrology



# Ways to Mitigate Impacts

- Siting
- Height Limits
- Setbacks
- Screening
- Safety (fencing, signage)
- Utility Interconnection
- Required Studies (environmental, economic)
- Decommissioning/Site Restoration



# Zoning “101”

## GENERAL CRITERIA



- (1) not endanger public health or safety
- (2) not substantially injure the value of adjoining properties
- (3) in harmony with the character of the surrounding area
- (4) meet all required specifications



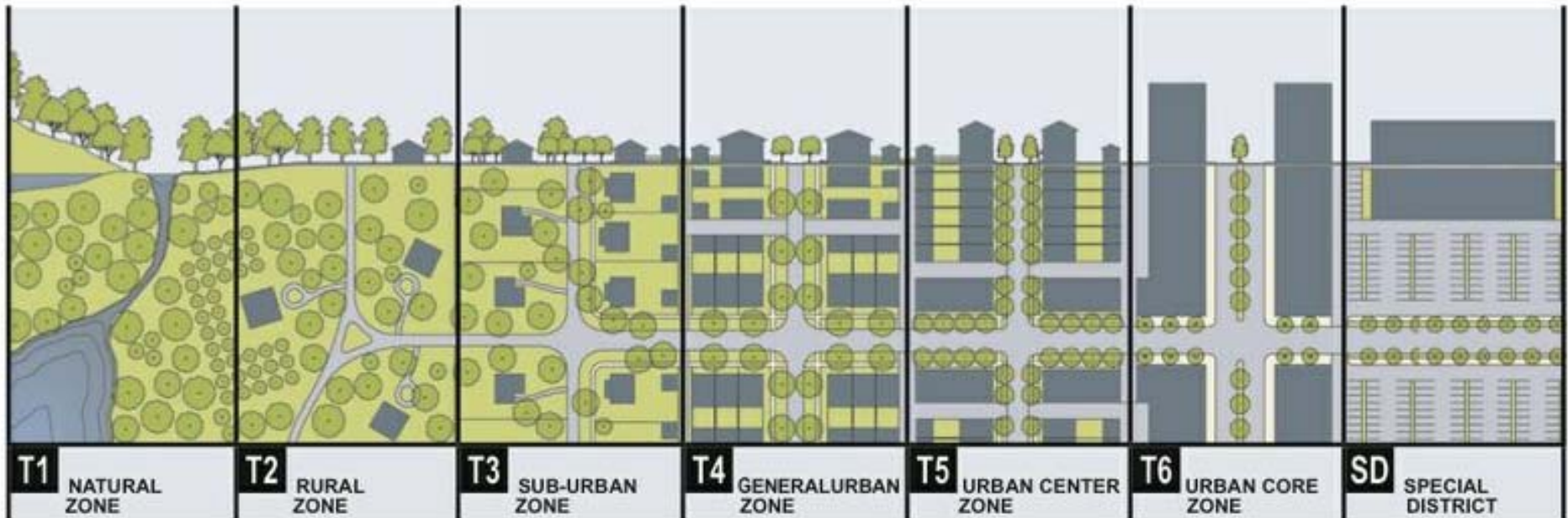
# Solar-Specific Zoning

## USE SPECIFIC CRITERIA



- setbacks
- screening/fencing
- height
- signage
- decommissioning

# Context is Key





# Paperwork = Soft Costs



# CNY RPDB Model Code - Articles

1. Purpose
2. Definitions
3. Applicability
4. Permitted Locations
5. Permitted Zoning Districts
6. Design and Installation Standards
7. Setback Requirements
8. Height Restrictions
9. Screening and Visibility
10. Impervious Property Coverage Restrictions
11. Non-Conformance
12. Signage and/or Graphic Content
13. Inspection, Safety and Removal
14. Permit Requirements

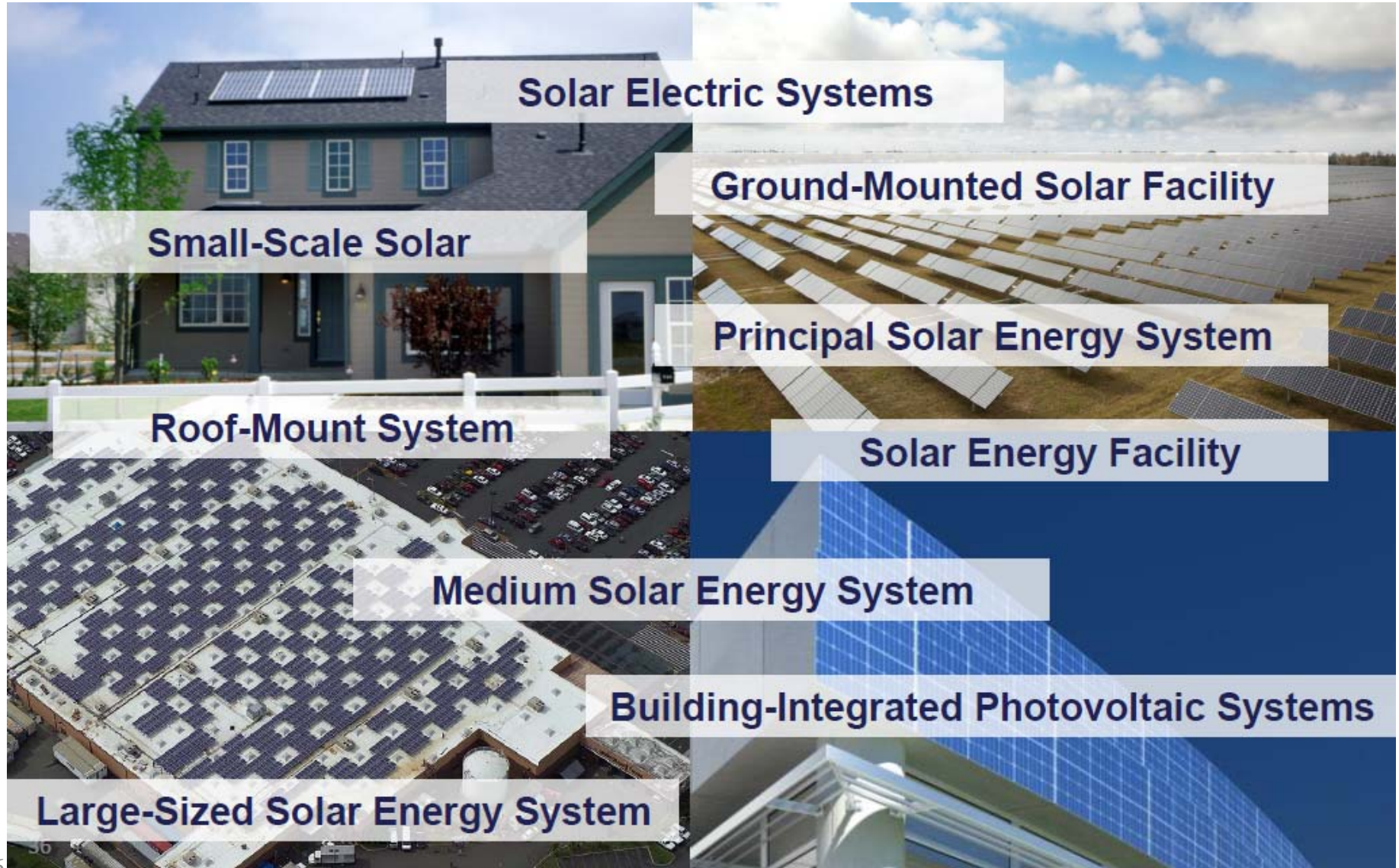
# Article 1. Purpose

This Ordinance seeks to:

1. Provide property owners and business owners/operators with flexibility in satisfying their energy needs.
2. Reduce overall energy demands within the community and to promote clean energy.
3. Integrate solar energy systems seamlessly into the community's neighborhoods and landscapes without diminishing quality of life in the neighborhoods.

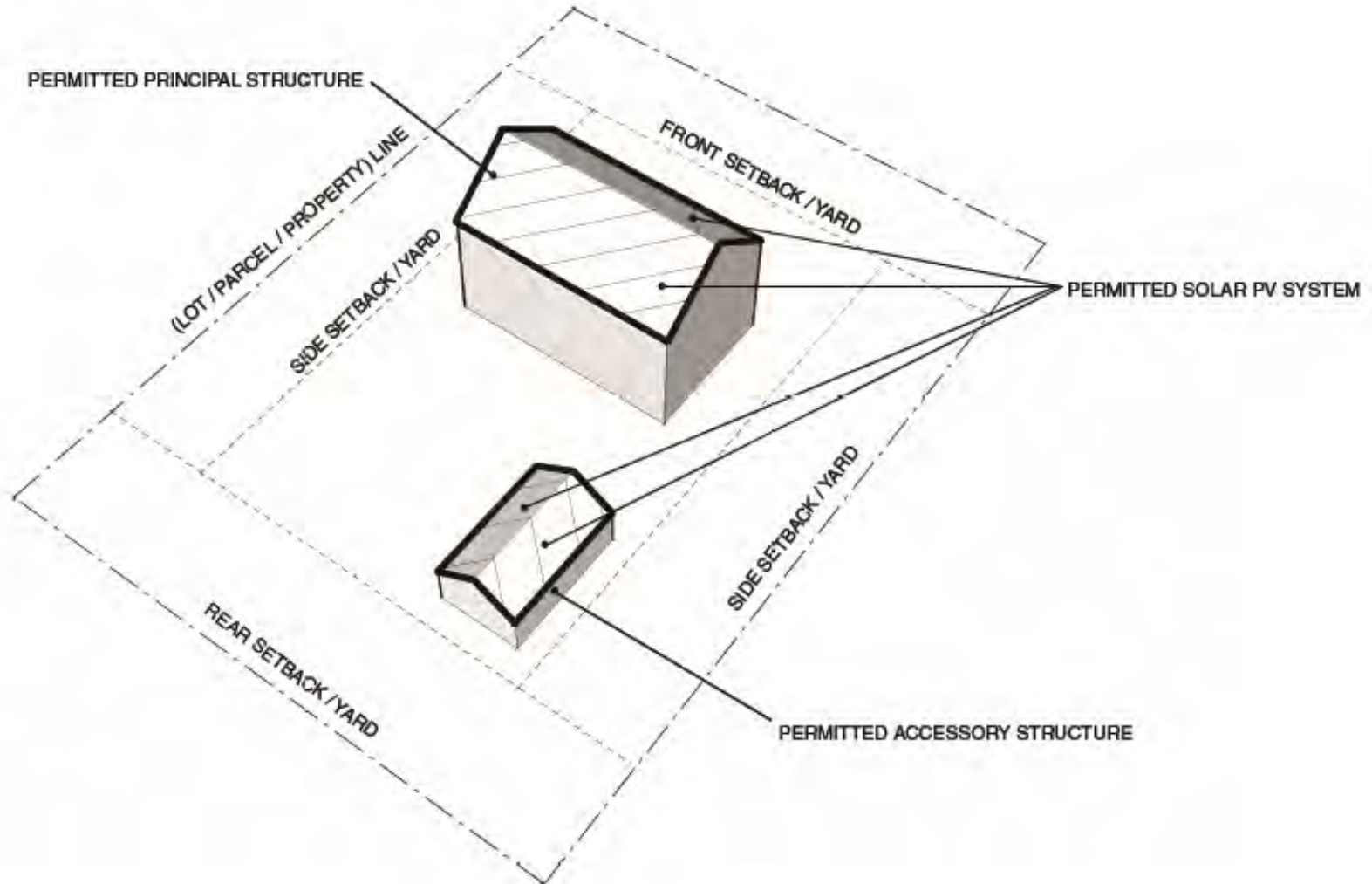


# Article 2. Definitions



# 4. Permitted Locations

PERMITTED LOCATION: BUILDING-MOUNTED SOLAR PV SYSTEM  
ISOMETRIC



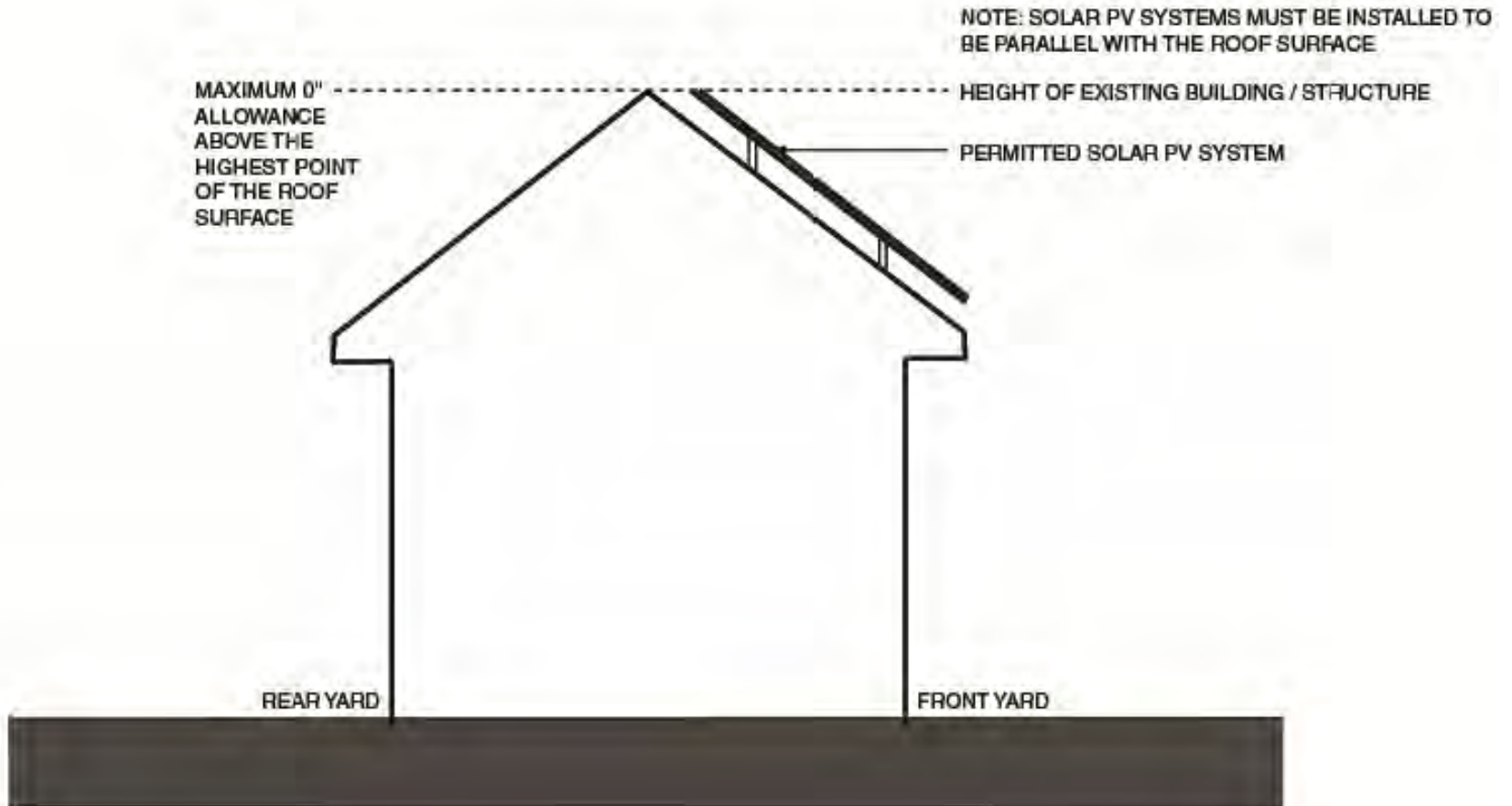
# 5. Permitted Zoning Districts

All building-mounted and ground-mounted systems are permitted in all zoning districts as a primary use or as an accessory use to any lawfully permitted principal use on the same property upon issuance of the proper permits pursuant to Article 4 and upon compliance with all requirements of this section and as elsewhere specified in this Ordinance.



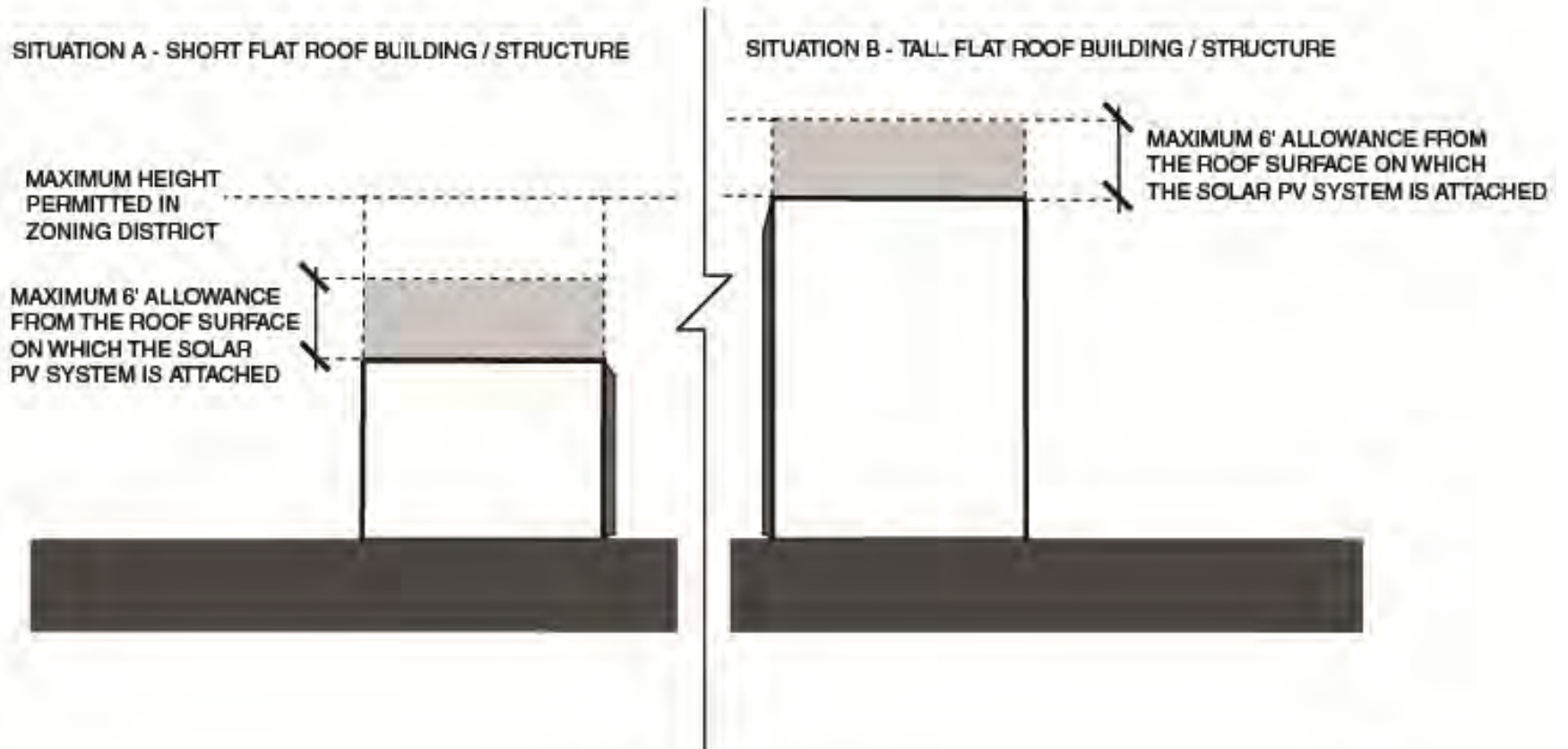
# 8. Height Restrictions

## HEIGHT RESTRICTION, SLOPED ROOF FACING FRONT YARD: BUILDING-MOUNTED SOLAR PV SYSTEM ELEVATION



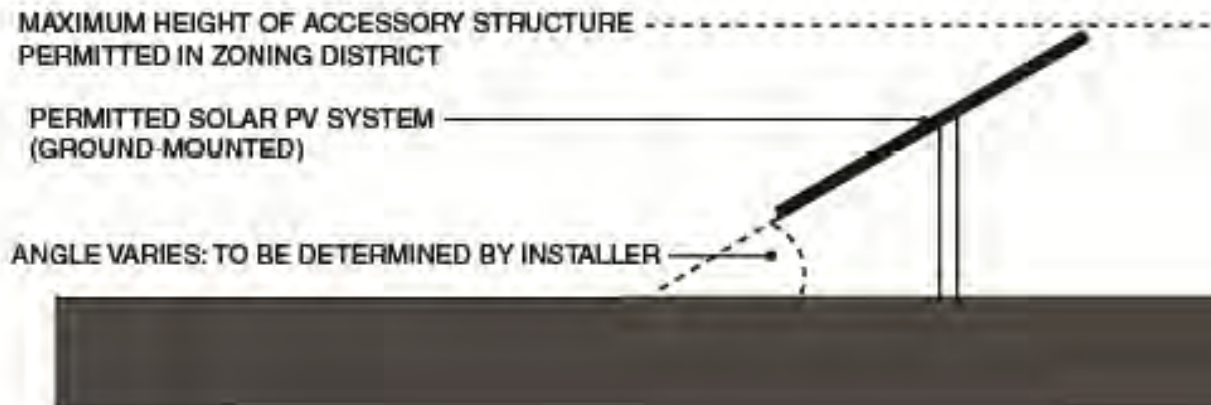
# 8. Height Restrictions

## HEIGHT RESTRICTION, FLAT ROOF: BUILDING-MOUNTED SOLAR PV SYSTEM ISOMETRIC



# 8. Height Restrictions

## HEIGHT RESTRICTION: GROUND-MOUNTED SOLAR PV SYSTEM ELEVATION





# 9. Screening and Visibility



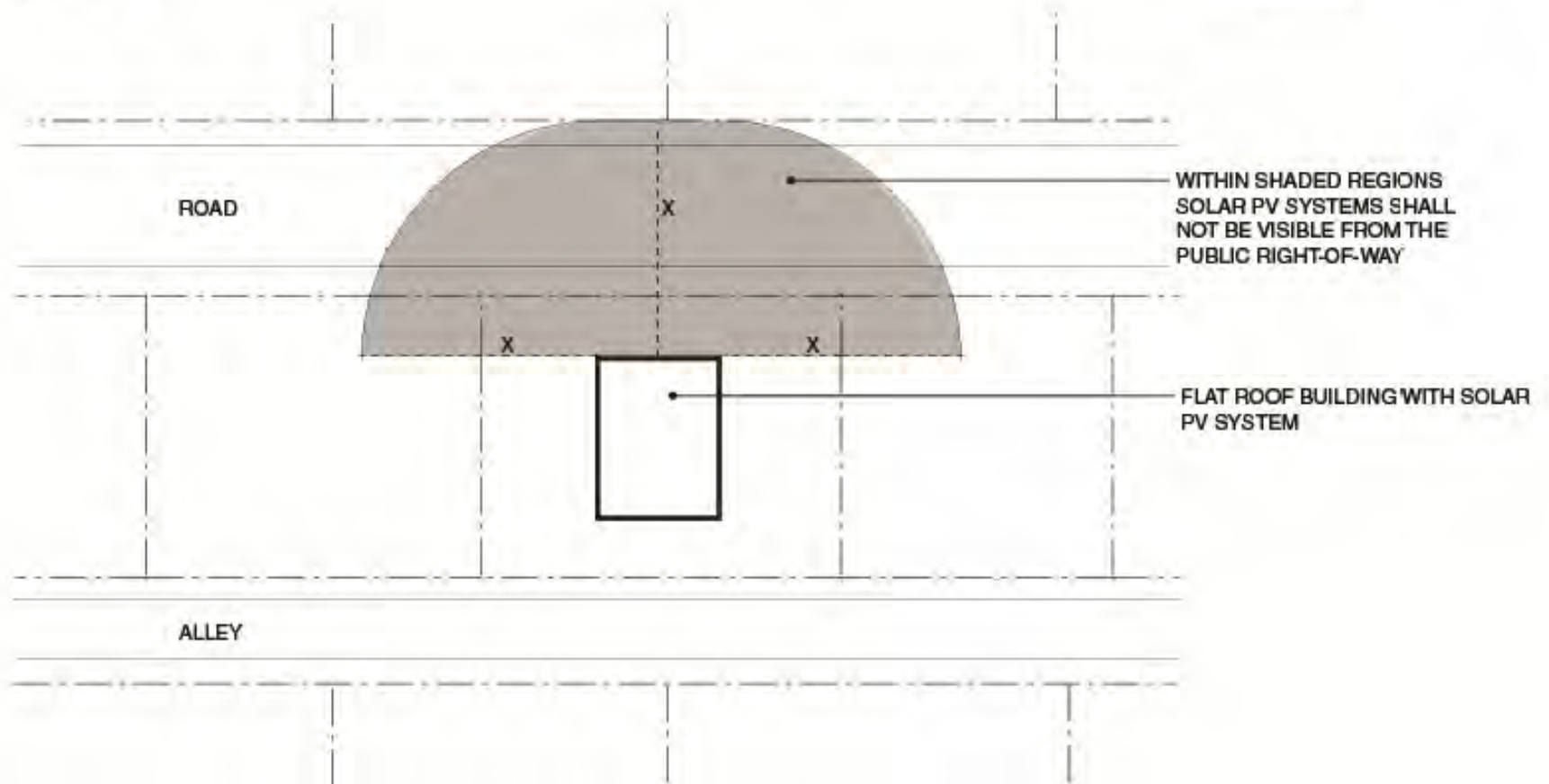


# 9. Screening and Visibility

## SCREENING & VISIBILITY, FLAT ROOF: BUILDING-MOUNTED SOLAR PV SYSTEM PLAN

SITUATION B: INTERIOR LOT

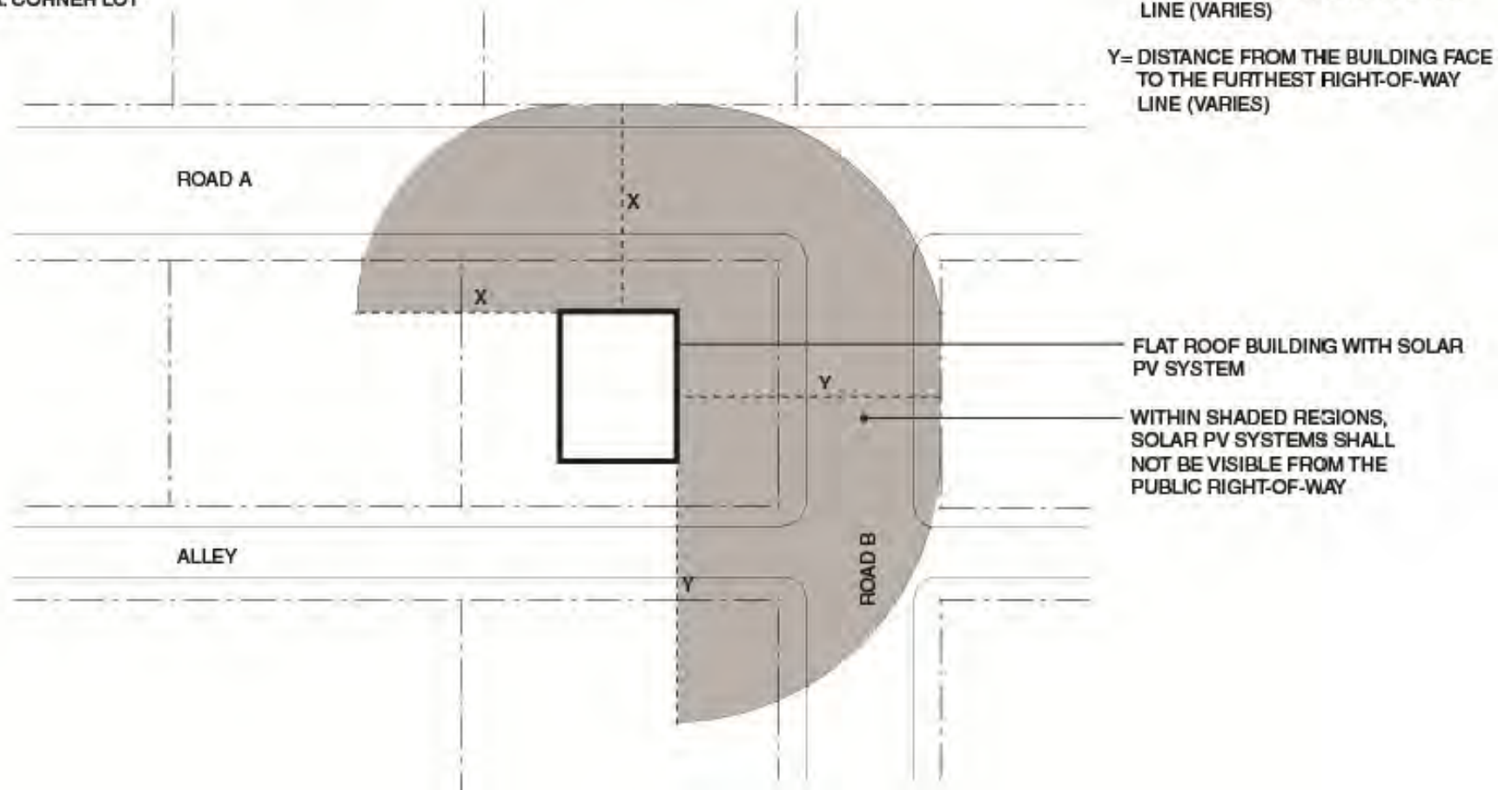
X = DISTANCE FROM THE BUILDING FACE TO THE FURTHEST RIGHT-OF-WAY LINE (VARIES)



# 9. Screening and Visibility

## SCREENING & VISIBILITY, FLAT ROOF: BUILDING-MOUNTED SOLAR PV SYSTEM PLAN

SITUATION A: CORNER LOT



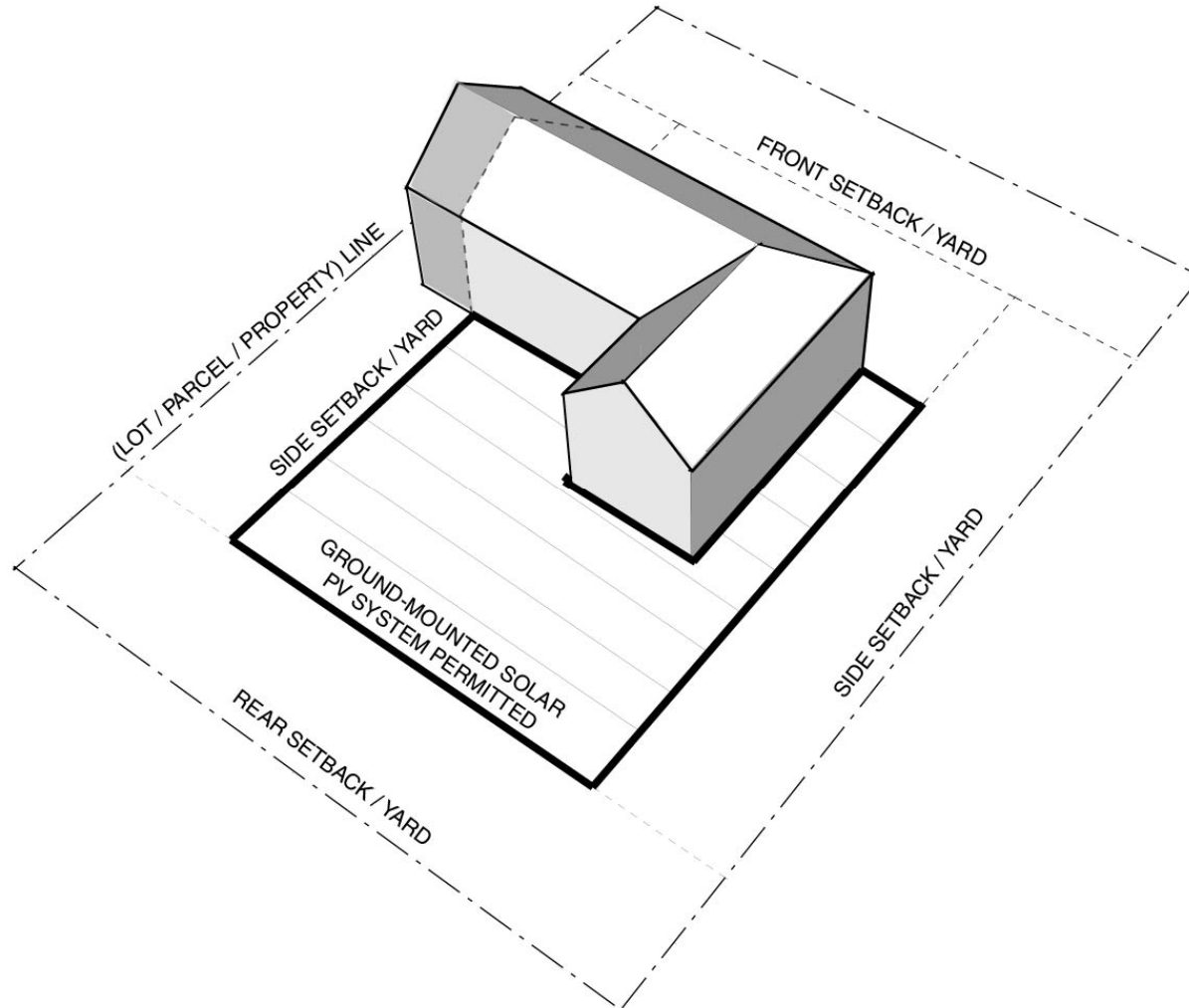


# 9. Screening and Visibility (Historic Buildings)



# 11. Non-Conformance

NON-CONFORMING LOT, SETBACKS: GROUND-MOUNTED SOLAR PV SYSTEM  
ISOMETRIC

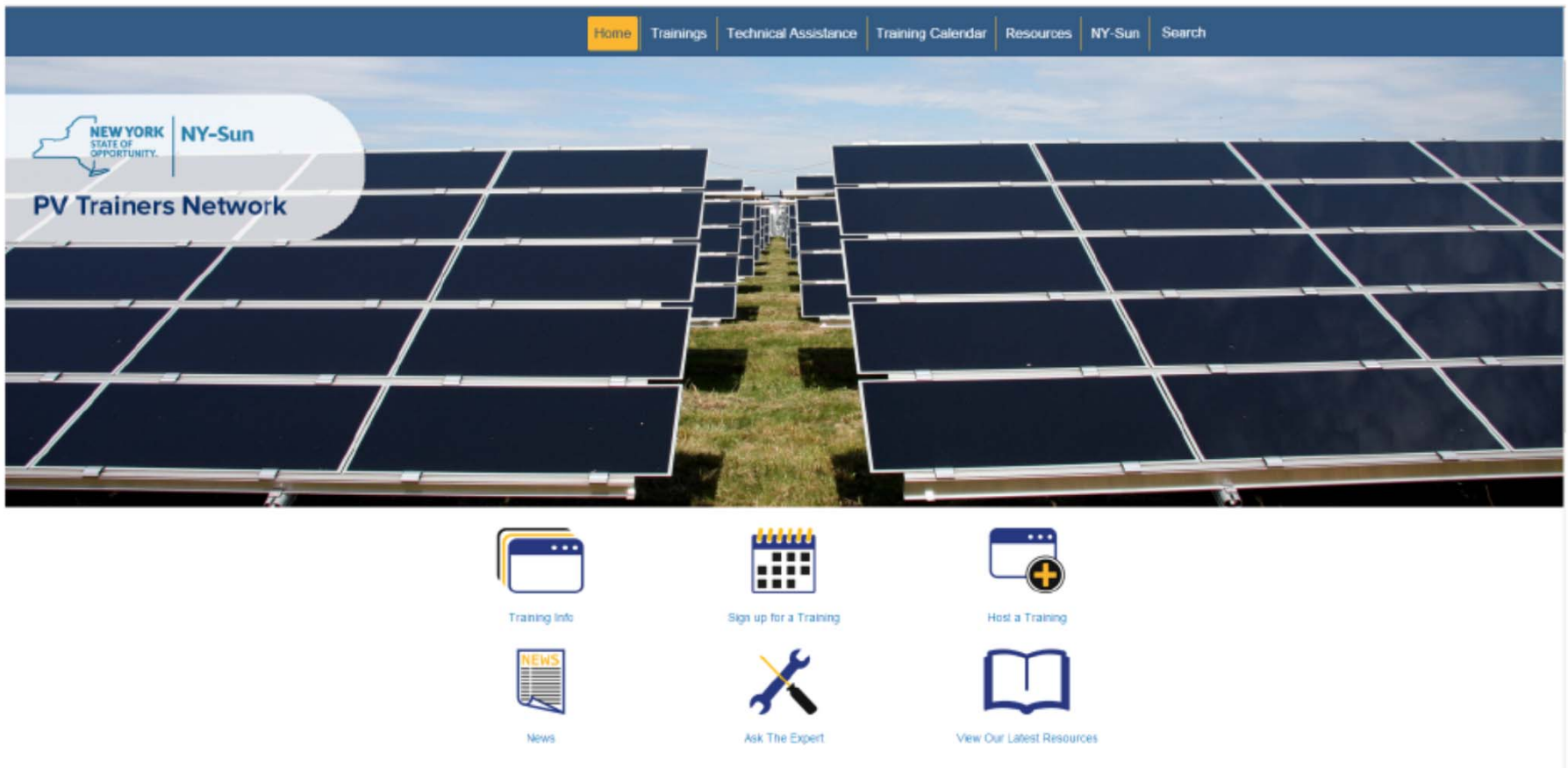


# Final Thoughts

- Think comprehensively about the range of issues to be addressed
- Important to understand the range of possible options
- No one “right way” to tackle this issue
- Develop a tailored approach that will best suit your community’s needs



# Resources: NY-Sun PV Trainers Network



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

# Resource: APA Solar Planning & Zoning Data Search

The screenshot shows the top portion of the American Planning Association's website. At the top left is the APA logo with the tagline "American Planning Association" and the slogan "Making Great Communities Happen". A navigation menu includes links for "About APA", "Membership", "Events", "Education", "Outreach", "Resources", "Jobs & Practice", and "APAPanningB". A search bar is located in the top right corner.

Below the navigation is a dark blue bar with the text "SolarOPs". Underneath is a search bar with the text "Search Solar:" on the left, "Enter search word(s)" in the input field, and a "GO" button on the right.

On the left side, there is a "Geographic Region" dropdown menu with a downward arrow. Below it is a map of the United States divided into colored regions: West (yellow), Midwest (red), South (green), and Northeast (blue). A globe icon is positioned at the bottom right of the map.

The main content area features the heading "Solar Planning & Zoning Data Search" in green. Below the heading is a welcome message: "Welcome to the Solar Planning & Zoning Data Search! From this portal you can search hundreds of examples of solar-supportive plans, development regulations, and other planning-related implementation tools. Whether your community is large or small and has mild or harsh winters, you're likely to find some peers here that have taken steps that make it easier for residents and businesses to use solar energy." At the bottom of this section, it states: "The Solar Planning & Zoning Data Search is a new pilot program. **Suggestions or comments? Let us know.**"

[www.planning.org/solar/data/](http://www.planning.org/solar/data/)

# If Not Solar, Then What Else?





# No Energy Source is Perfect



# Questions?

For Further Information Contact:

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[www.cnyrpdb.org](http://www.cnyrpdb.org)

[www.cnyenergychallenge.org](http://www.cnyenergychallenge.org)

[www.solarizecny.org](http://www.solarizecny.org)



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