# Can Solar Development and Agriculture Work Together?

Chris Carrick

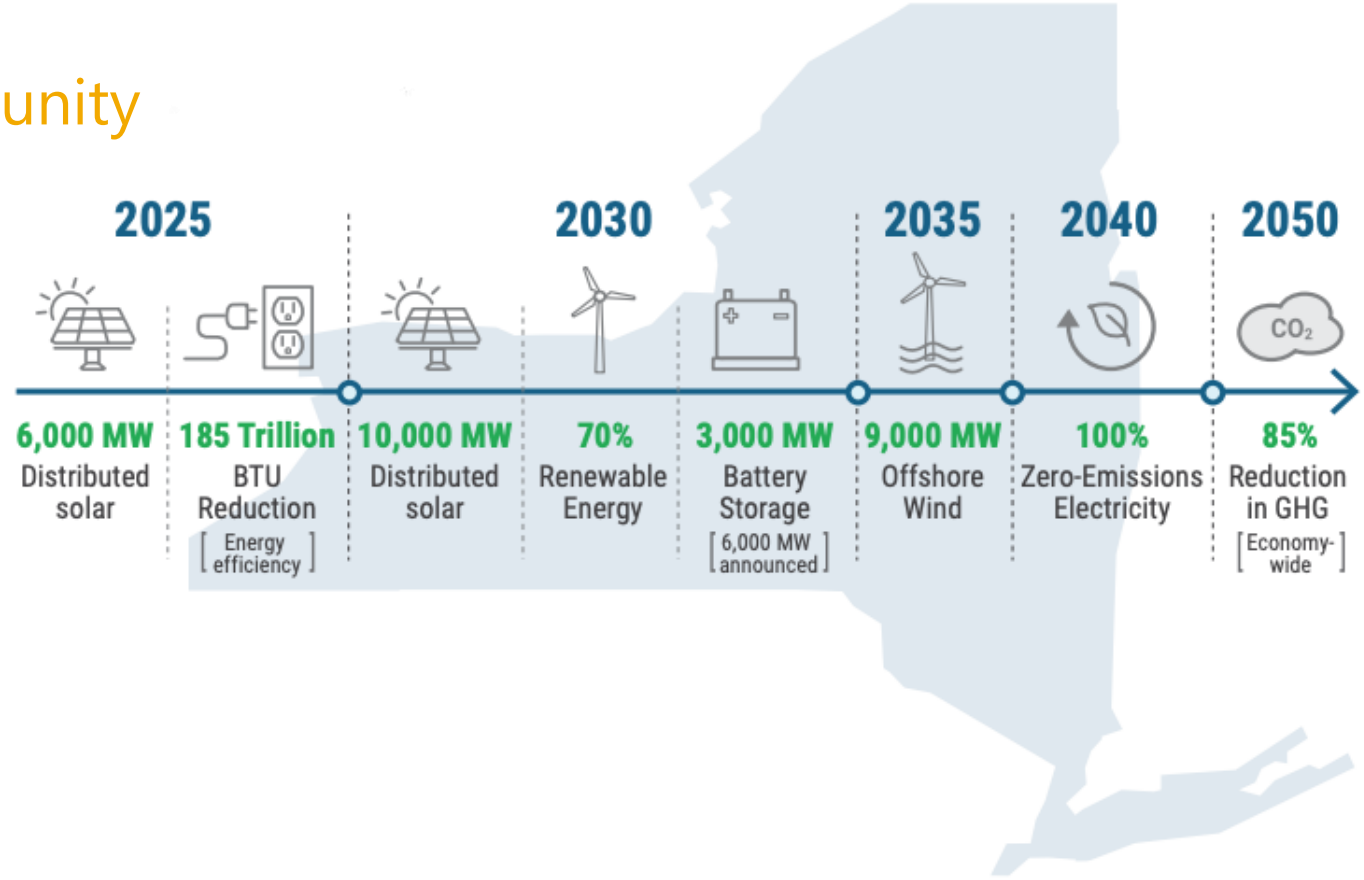
Energy Program Manager, Central NY Regional Planning & Development Board

NEW YORK STATE | NYSERDA

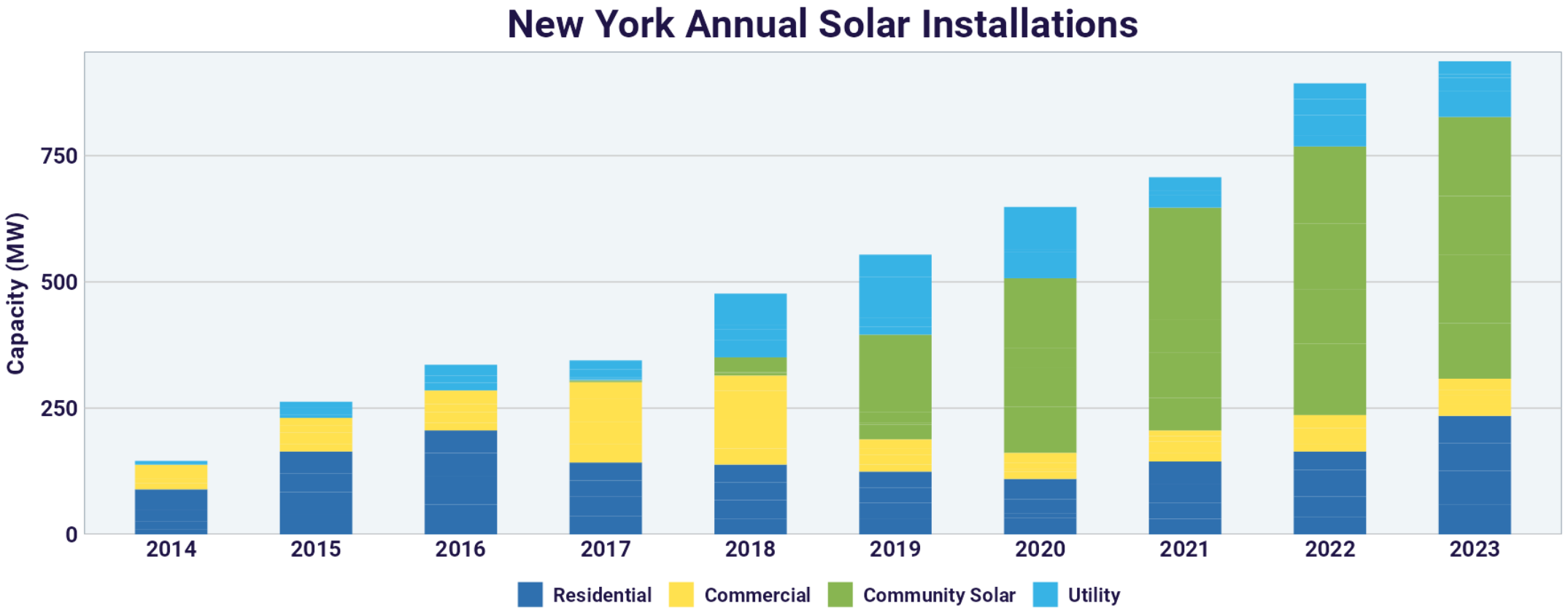
# NYS Clean Energy Landscape

**Notable legislation & milestones:**

- **2019**: Climate Leadership & Community Protection Act
- **2020:** Accelerated Renewable Energy Growth and Community Benefit Act
- **2022**: Climate Action Council Scoping Plan

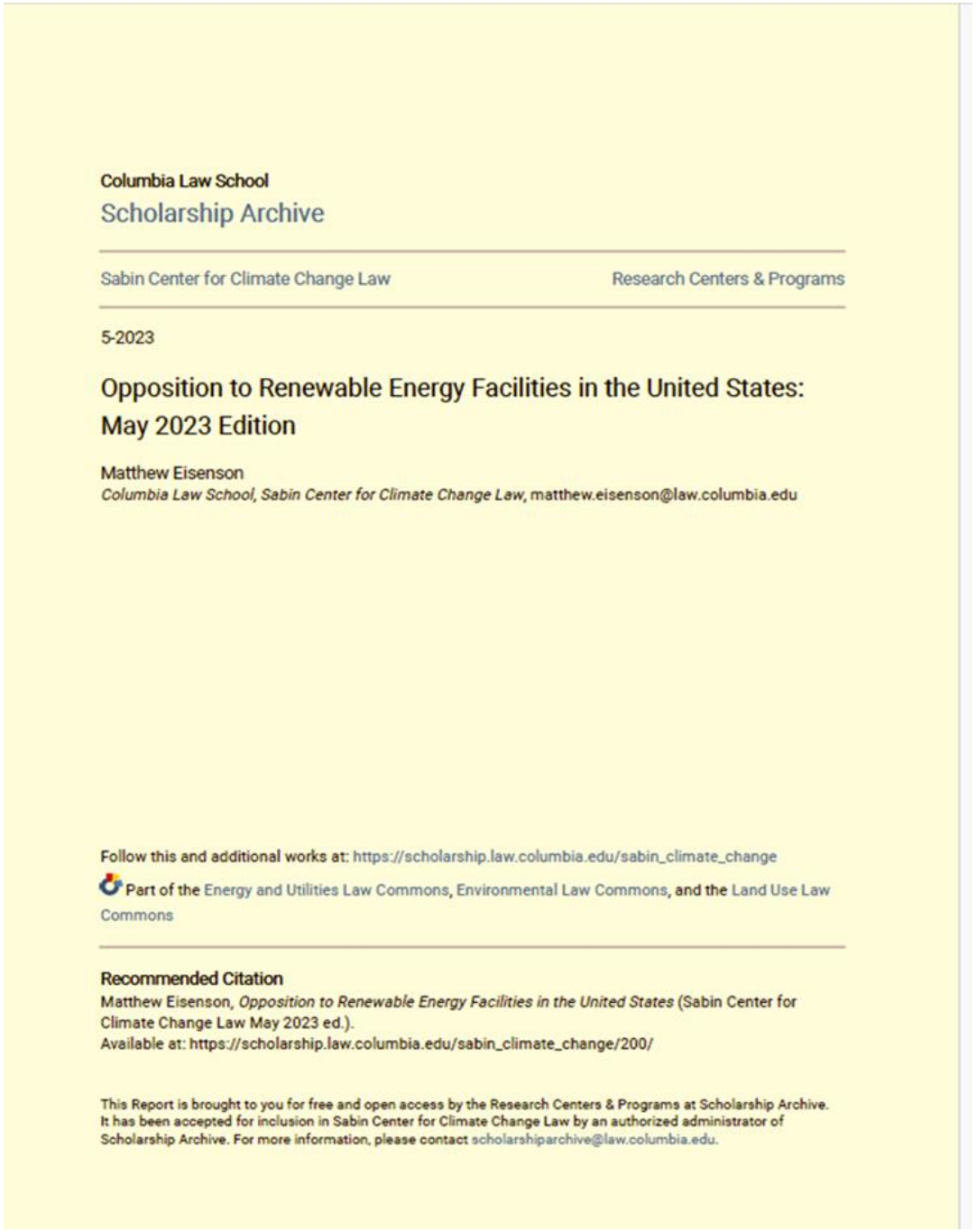


# New York Solar Market



# Community Concerns

- Visual
- Community Character
- Property Values
- Loss of Agricultural Land





Opposition to Renewable Energy Facilities in the United States: May 2023 Edition

Matthew Eisenson
*Columbia Law School, Sabin Center for Climate Change Law*, matthew.eisenson@law.columbia.edu

# Permitting for Clean Energy Generators (e.g. solar, wind):

Permitting process varies based on size and location of the installation:

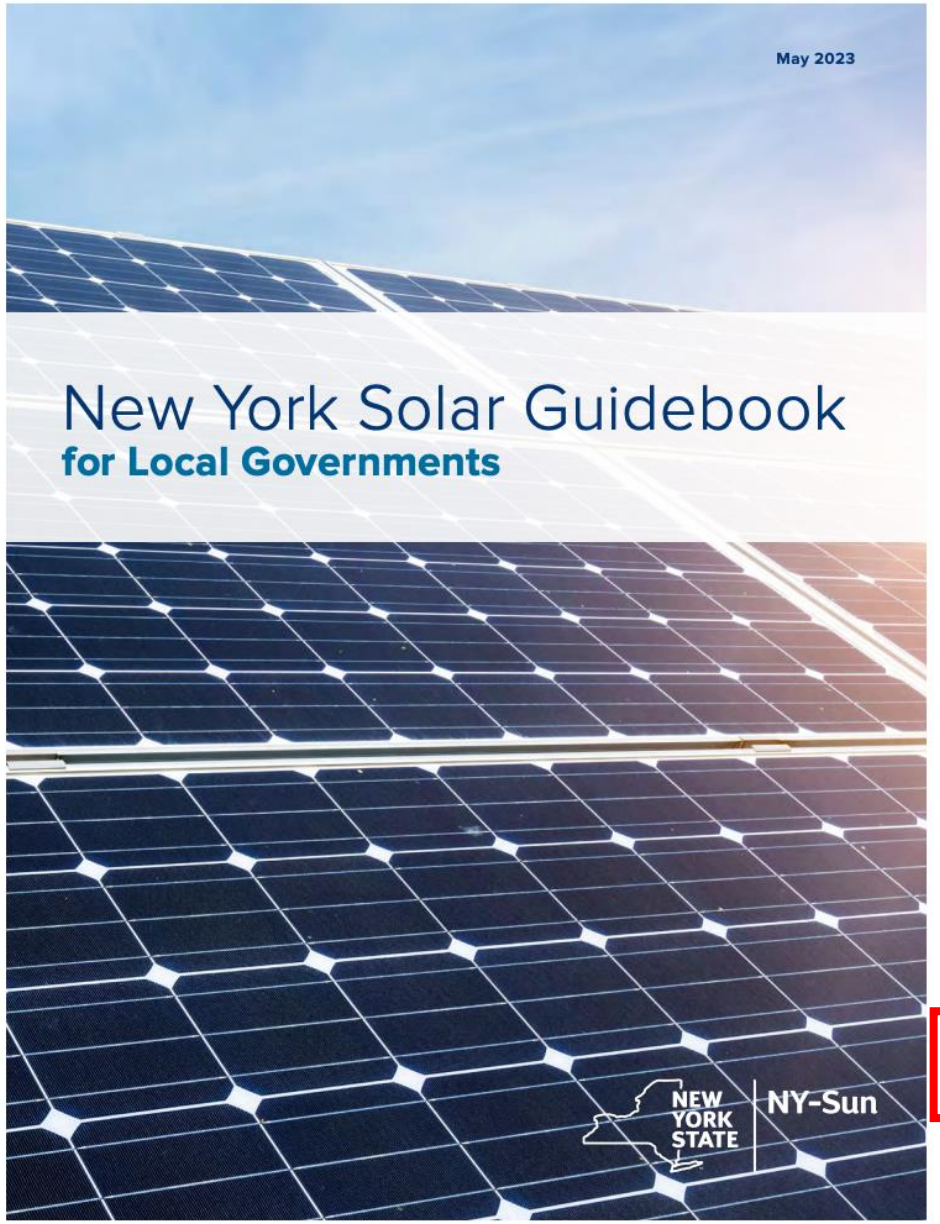
- Projects < 25 MW: Permitted at **local level** (SEQR, municipal requirements)
- Projects > 25 MW: Permitted at **state level** (Article 10, Office of Renewable Energy Siting [ORES])
- Projects between 20 – 25 MW: ***May opt-in*** to State-level siting process through ORES

SEQR: State Environmental Quality Review

## Primary Land Use/ Local Considerations:

- Interconnection
- Appropriate location/zoning
- Bulk/area standards
- Environmental impacts
- Fire safety
- Incident management training
- Visual/aesthetic impacts
- Agricultural land impacts
- Decommissioning
- Taxation
- Noise

# NY Solar Guidebook for Local Governments



# Model Solar Law Updates

**Template ordinance has been revisited and updated multiple times; recent updates include:**

- Narrative discussion of regulatory tool options for solar (floating, overlay, traditional zoning)
- **Delineation between community solar-scale and "utility-scale" projects**
- **Modifications to mitigate impacts on agricultural lands, encourage co-location of solar and farm operations**
- Additional setback requirements
- Improved alignment with state-level permitting process

# Model Solar Law Contents

# Section 3: Definitions

## System Energy System Classifications

- **Tier 1 Solar Energy System:**
  - Roof-Mounted
  - Building-Integrated
  - Ground Mounted – Nameplate capacity up to 25 kW AC or panel surface area up to 4,000 sq ft
  - On-Farm Solar Systems

- **Tier 2 Solar Energy System:** Ground-Mounted systems not included in Tier 1 with a nameplate capacity up to [1] MW AC OR facility area up to [8] acres and generates no more than 110% of the energy used on this site.

- **Tier 3 Solar Energy System:** Ground-Mounted systems not included in Tier 1 or 2 with a nameplate capacity up to [5] MW AC OR facility area of up to [40] acres.

- **Tier 4 Solar Energy System:** Not included under Tier 1, Tier 2 of Tier 3 Solar Energy System.
  - Categorically includes any project subject to the state level ORES permitting process.

# Solar Energy Projects by Tiers

## Tier 1

## Tier 2

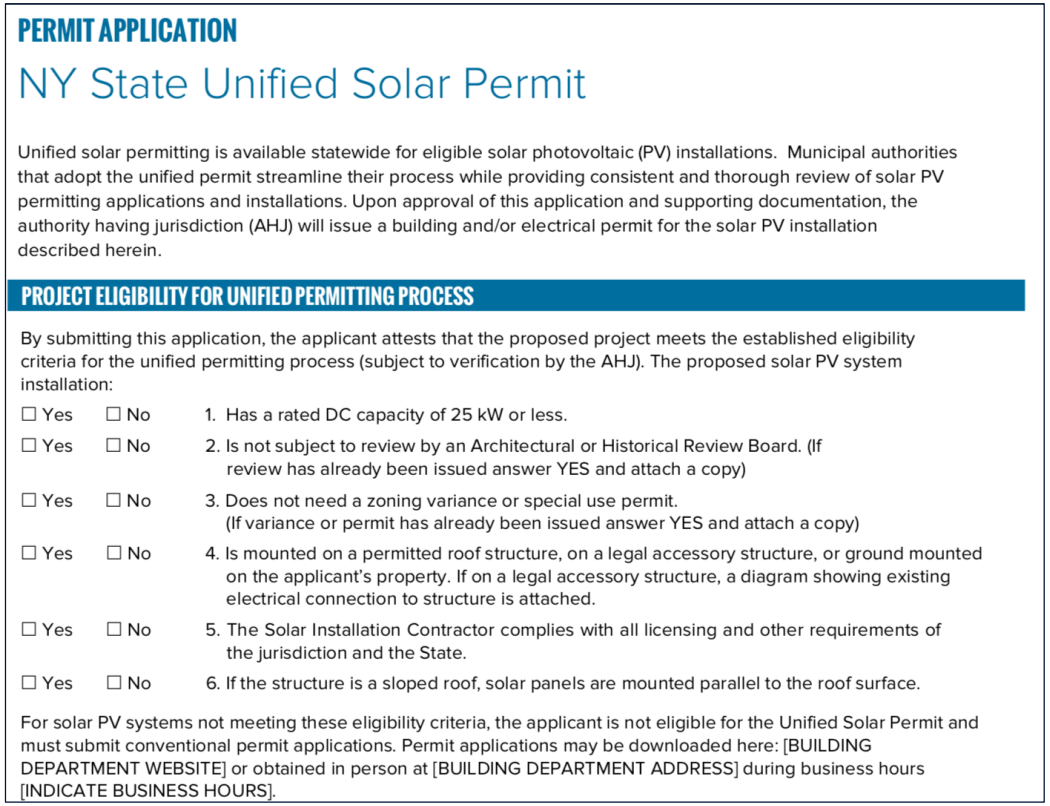
# Solar Energy Projects by Tiers

## Tier 3

## Tier 4

# Permitting Solar Energy Projects

- Important to base solar planning decisions on feasibility and priorities – utilize Utility Hosting Capacity maps, transmission line maps, zoning map, soil maps, etc.
- Model Law permitting methodology:
  - Tier 1: permitted in all districts } Building Permit; NYS Unified Solar Permit
  - Tier 2: permitted in all districts as accessory structures
  - Tier 3 and Tier 4: permitted in ___ districts using **Special Use Permit**, **Site Plan Review**



**PERMIT APPLICATION**

NY State Unified Solar Permit

Unified solar permitting is available statewide for eligible solar photovoltaic (PV) installations. Municipal authorities that adopt the unified permit streamline their process while providing consistent and thorough review of solar PV permitting applications and installations. Upon approval of this application and supporting documentation, the authority having jurisdiction (AHJ) will issue a building and/or electrical permit for the solar PV installation described herein.

**PROJECT ELIGIBILITY FOR UNIFIED PERMITTING PROCESS**

By submitting this application, the applicant attests that the proposed project meets the established eligibility criteria for the unified permitting process (subject to verification by the AHJ). The proposed solar PV system installation:

| | | |
|---|---|---|
| ☐ Yes | ☐ No | 1. Has a rated DC capacity of 25 kW or less. |
| ☐ Yes | ☐ No | 2. Is not subject to review by an Architectural or Historical Review Board. (If review has already been issued answer YES and attach a copy) |
| ☐ Yes | ☐ No | 3. Does not need a zoning variance or special use permit. (If variance or permit has already been issued answer YES and attach a copy) |
| ☐ Yes | ☐ No | 4. Is mounted on a permitted roof structure, on a legal accessory structure, or ground mounted on the applicant's property. If on a legal accessory structure, a diagram showing existing electrical connection to structure is attached. |
| ☐ Yes | ☐ No | 5. The Solar Installation Contractor complies with all licensing and other requirements of the jurisdiction and the State. |
| ☐ Yes | ☐ No | 6. If the structure is a sloped roof, solar panels are mounted parallel to the roof surface. |

For solar PV systems not meeting these eligibility criteria, the applicant is not eligible for the Unified Solar Permit and must submit conventional permit applications. Permit applications may be downloaded here: [BUILDING DEPARTMENT WEBSITE] or obtained in person at [BUILDING DEPARTMENT ADDRESS] during business hours [INDICATE BUSINESS HOURS].

# Section 8: Tier 3 Systems Permitting Requirements

## Process for Approval

- Choose which zoning district(s) to permit systems.
- Applications shall be reviewed for completeness within 10 business days.
- Applications shall be subject to a public hearing and a notice shall be published in the official newspapers 5 days in advance.
- Referred to the [County Planning Department] pursuant to General Municipal Law § 239-m as required.
- Upon closing the public hearing, the reviewing board shall have 62 days to take action on the application. The 62-day period may be extended.

## Requirements for Approval

1. **Site Plan Application**
2. **Special Use Permit Standards**
    1. Underground Requirements
    2. Vehicular Paths
    3. Signage
    4. Glare
    5. Lighting
    6. Multiple Lots
    7. Lot Size
    8. **Setbacks**
    9. Height
    10. Lot Coverage
    11. **Fencing Requirements**
    12. **Screening and Visibility**
    13. **Environmental Resources**
    14. **Agricultural Resources**
3. Ownership Changes

# Section 9: Tier 4 Systems Permitting Requirements

## Process & Requirements for Approval

Choose which zoning district(s) to permit systems.

Subject to Site Plan and Special Use permit Requirements established for **Tier 3 Systems**.

Applications shall be reviewed for completeness within 60 business days.

Applicants must conduct a **Pre-Application Meeting** with the Reviewing Board.

Applications must include a **Community Engagement Plan**.

Additional Special Use Permit Standards.

# Decommissioning Requirements

**B.13. Decommissioning Plan**

- Signed by the owner and /or operator of the solar system and submitted by the applicant.
  - States the time required to remove the system and ancillary structures.
  - States time required to repair property damage caused by installation/removal
  - States the cost of decommissioning and removal of the system and necessary remediation or restoration.

- Requires a decommissioning financial surety to ensure system removal and site restoration at the end of a project's useful life (or other condition which may trigger decommissioning).
  - The amount shall be [115]% of the cost of removal and site restoration, and shall be revisited every [5] years and updated as needed to reflect any changes.

# Setback Requirements

## Tier 3 Setback options:

- Subject to the setback requirement of the underlying zoning district.
- Follow the suggested setback requirement for each zoning district.

## Tier 4 Setback options:

- Carries over Tier 3 setback approaches, with added layer of setback to non-participating occupied residences.

| Zoning District | Front | Side | Rear | Non-Participating Occupied Residence |
|---|---|---|---|---|
| Residential Low Density | 100′ | 100′ | 100′ | 250′ |
| Residential High Density | -- | -- | -- | -- |
| Commercial / Business | 30′ | 15′ | 25′ | 250′ |
| Light Industrial | 30′ | 15′ | 25′ | 250′ |
| Heavy Industrial | 30′ | 15′ | 25′ | 250′ |
| Agricultural / Residential | 30′ | 15′ | 25′ | 250′ |

# Special Use Permit Standards:
## Agricultural Resource Requirements

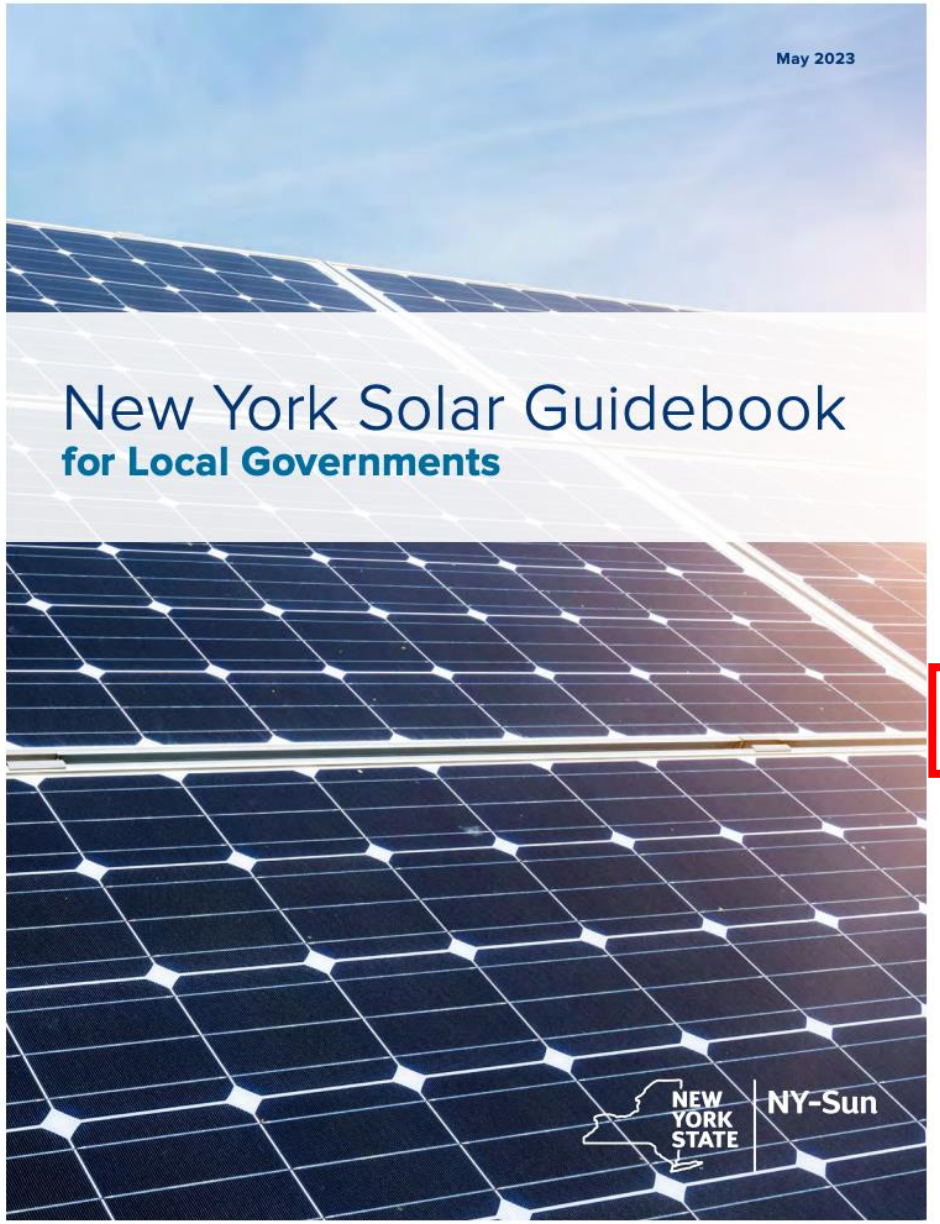
### Tier 3 and Tier 4 systems:

- System components shall occupy no more than [50]% of the **Mineral Soil Groups (MSG) 1-4 area**
  - May exceed the [50]% threshold if it incorporates onsite Farm Operation
  - Review Board may exempt portions if MSG 1-4 land is not viable for agricultural production
- Decommissioned according to NYS Department of Agriculture and Markets guidelines

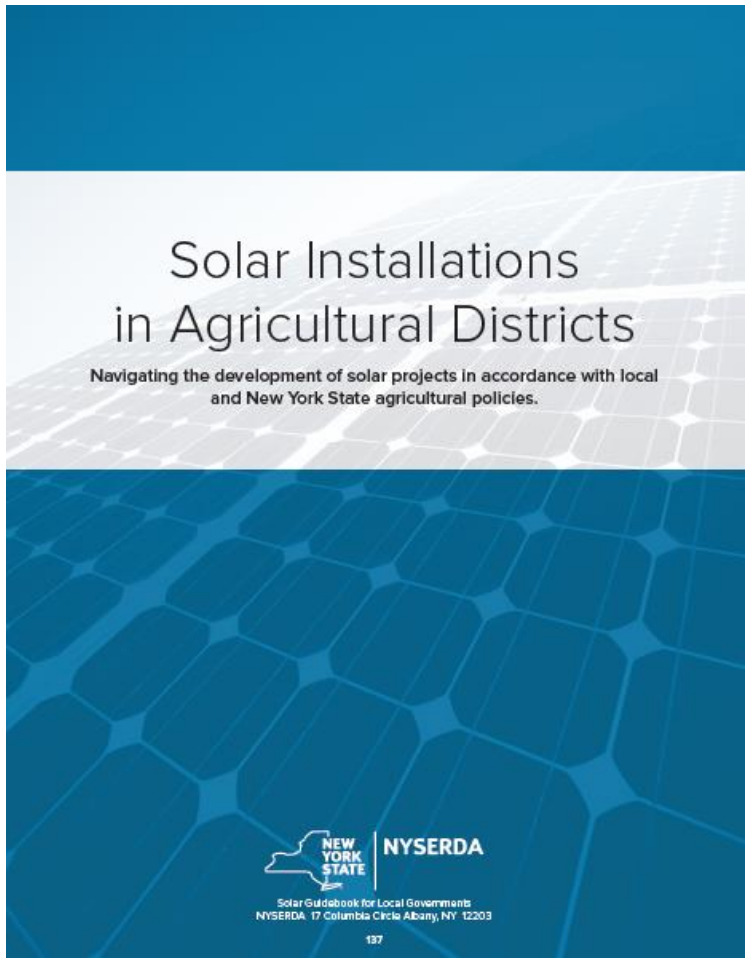
### Additional requirements for Tier 4 :

- Tier 4 System components, equipment, and associated impervious surfaces shall not occupy more than [50%] of the **Active Agricultural Lands** within the Facility Area
  - Exceedance of [50%] threshold may be allowed based on the Reviewing Board's determination that the land is being used for a Farm Operation
- Require full adherence to NYSAGM Guidelines

# NY Solar Guidebook for Local Governments



# Solar Installations on Agricultural Lands




## Section Contents



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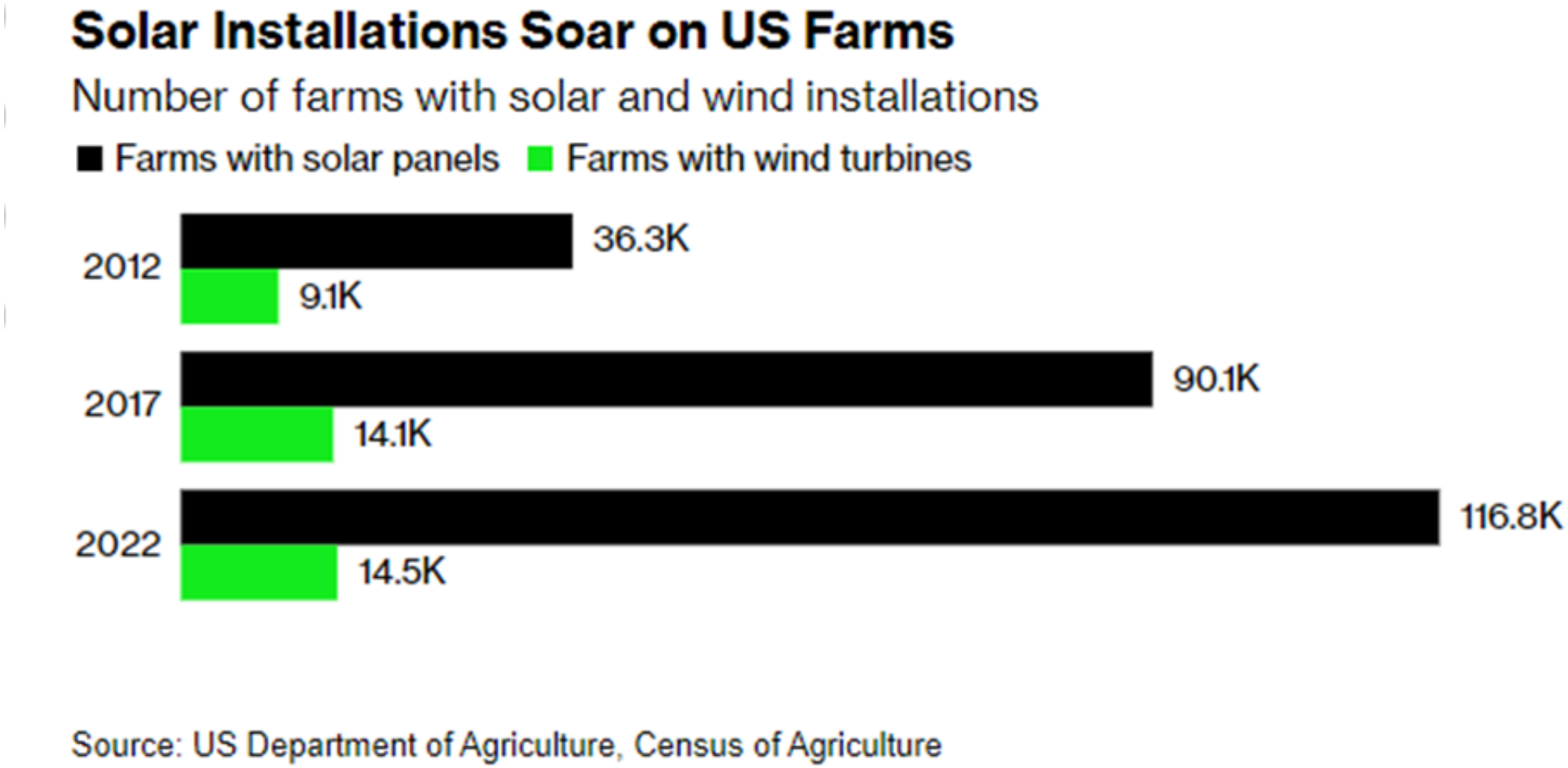
# Solar Installations on Agricultural Lands



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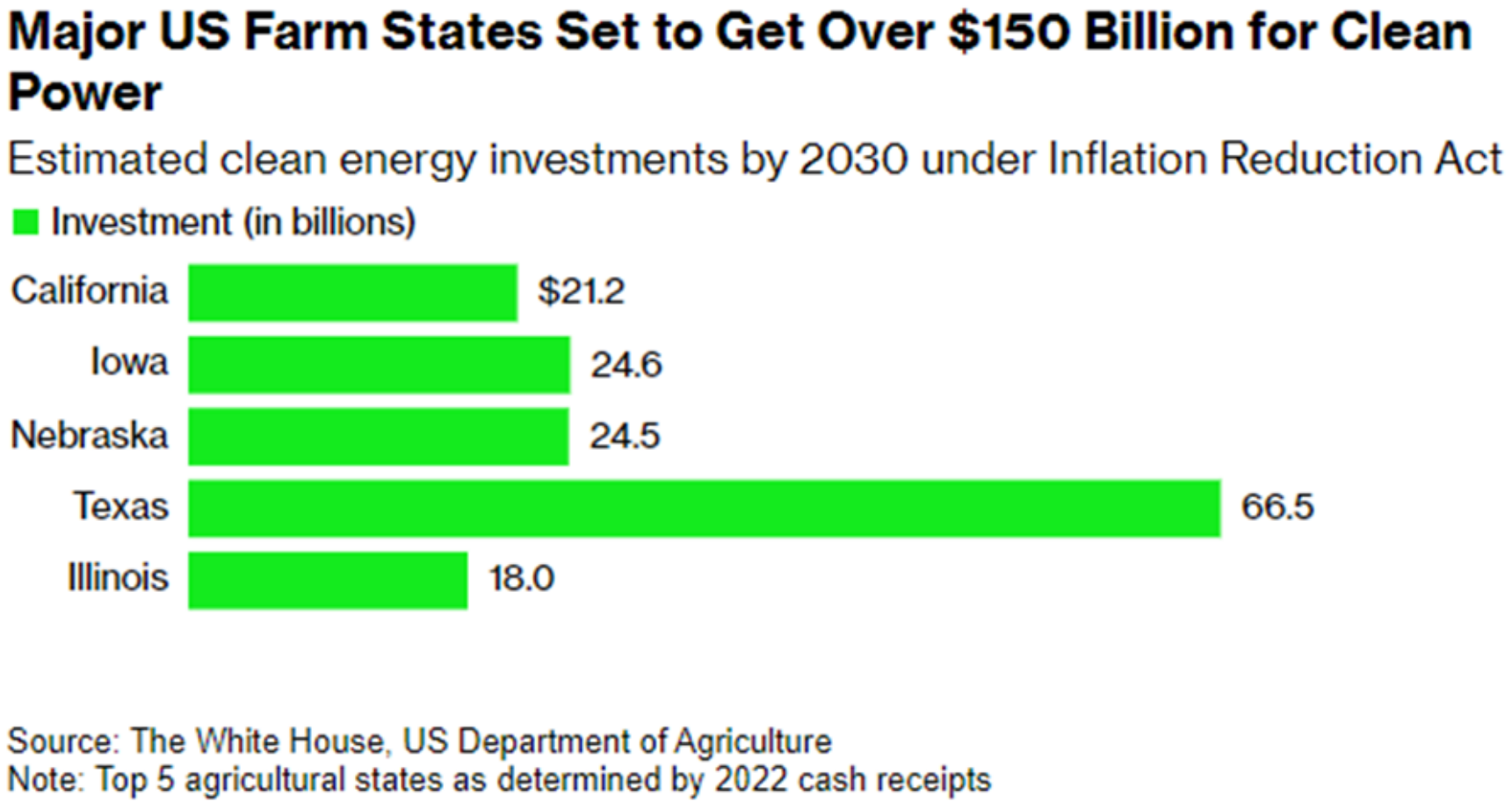
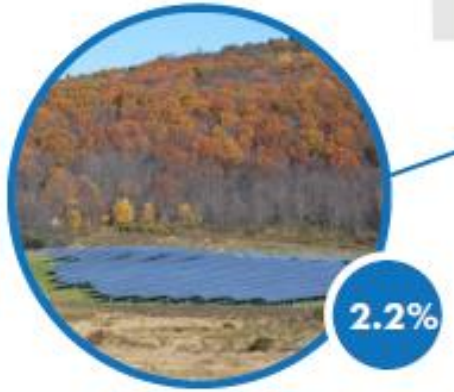
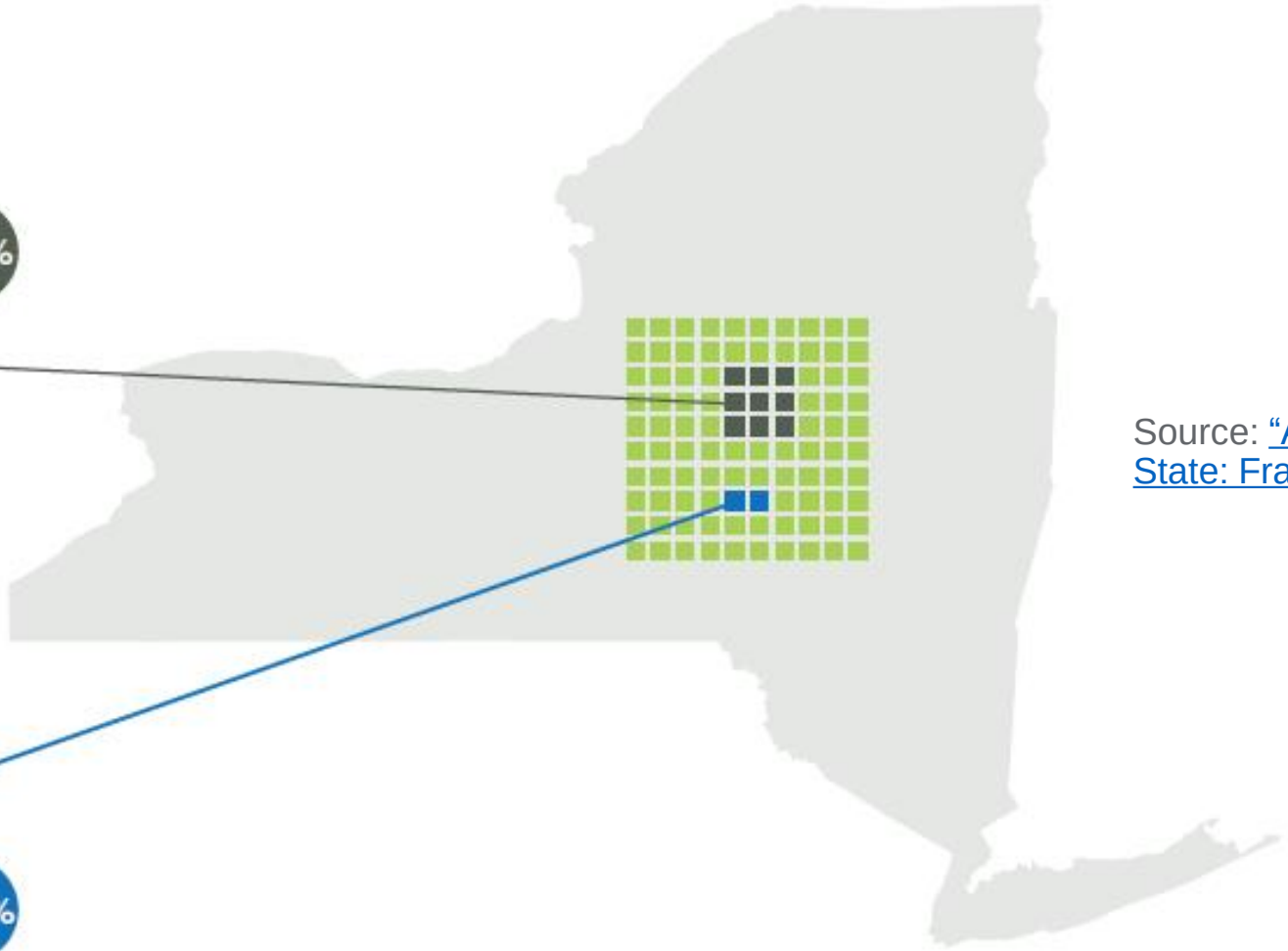


# Solar Installations on Agricultural Lands

Up to 642,200 acres of NYS farmland is projected to be converted to low-density development by 2040.


In contrast, by the same year, only 151,250 acres of NYS farmland is projected to be converted to solar development.

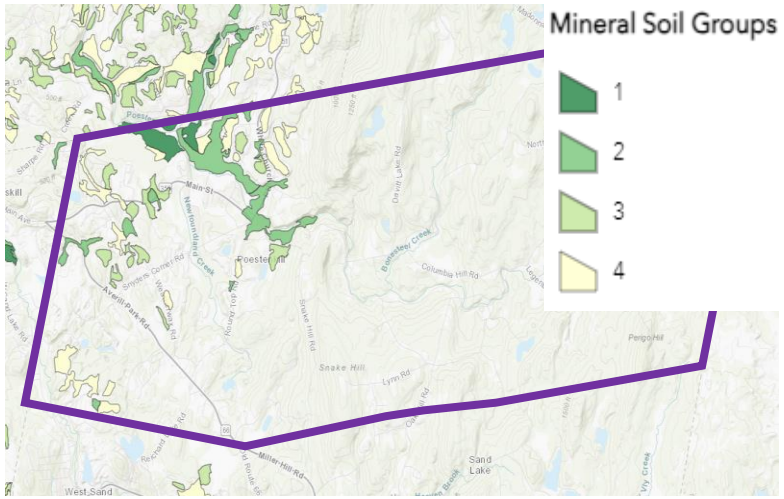


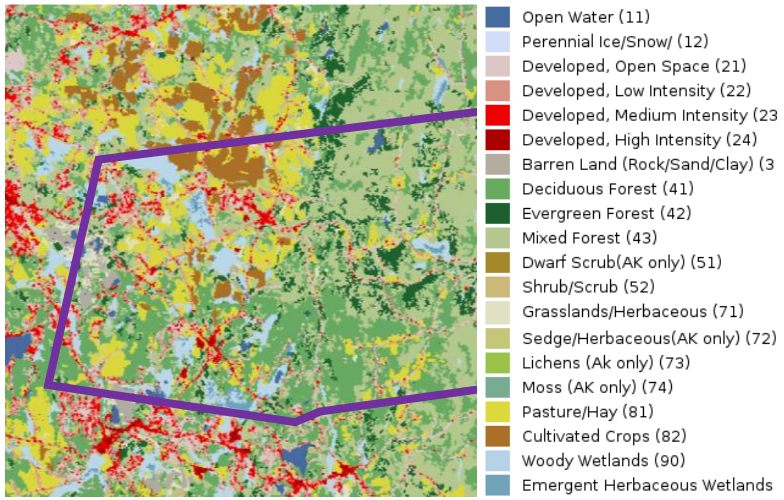
Source: "Agrivoltaics in New York State: Framing the Opportunity"

# Solar Installations on Agricultural Lands

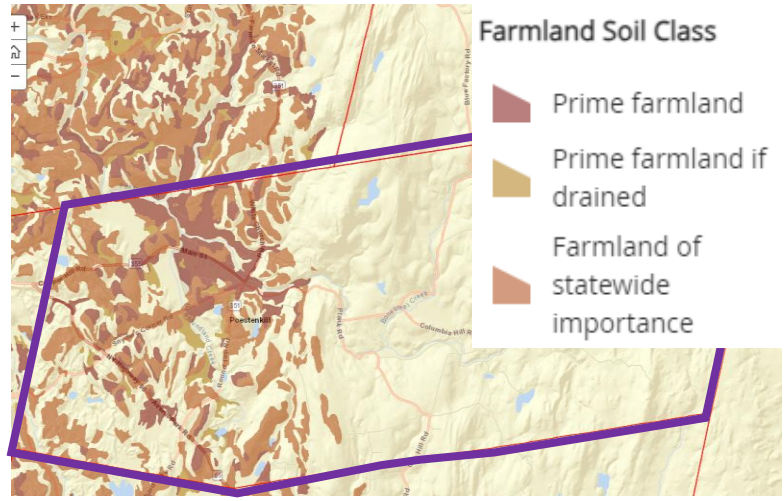
# Protecting Agricultural Resources




Mineral Soil Groups were established to create a uniform statewide land classification system based on the differences in soil productivity and capability. **MSG 1-4** are recognized highly productive soils based on their combination of physical and chemical properties.




**Active Agricultural Land**: used for a Farm Operation in accordance with Agriculture and Markets Law § 301 – uses of which include production of crops, livestock, and livestock products – within the past 5 years.




**Prime Farmland** soils have the combination of physical & chemical characteristics for producing food, fiber, and/or other crops.

**Farmland of Statewide Importance:** do not meet the criteria for Prime Farmland or Prime Farmland if Drained, but are classified as mineral soils in priority land capability classes.

USDA NRCS: United States Department of Agricultural Natural Resources Conservation Service

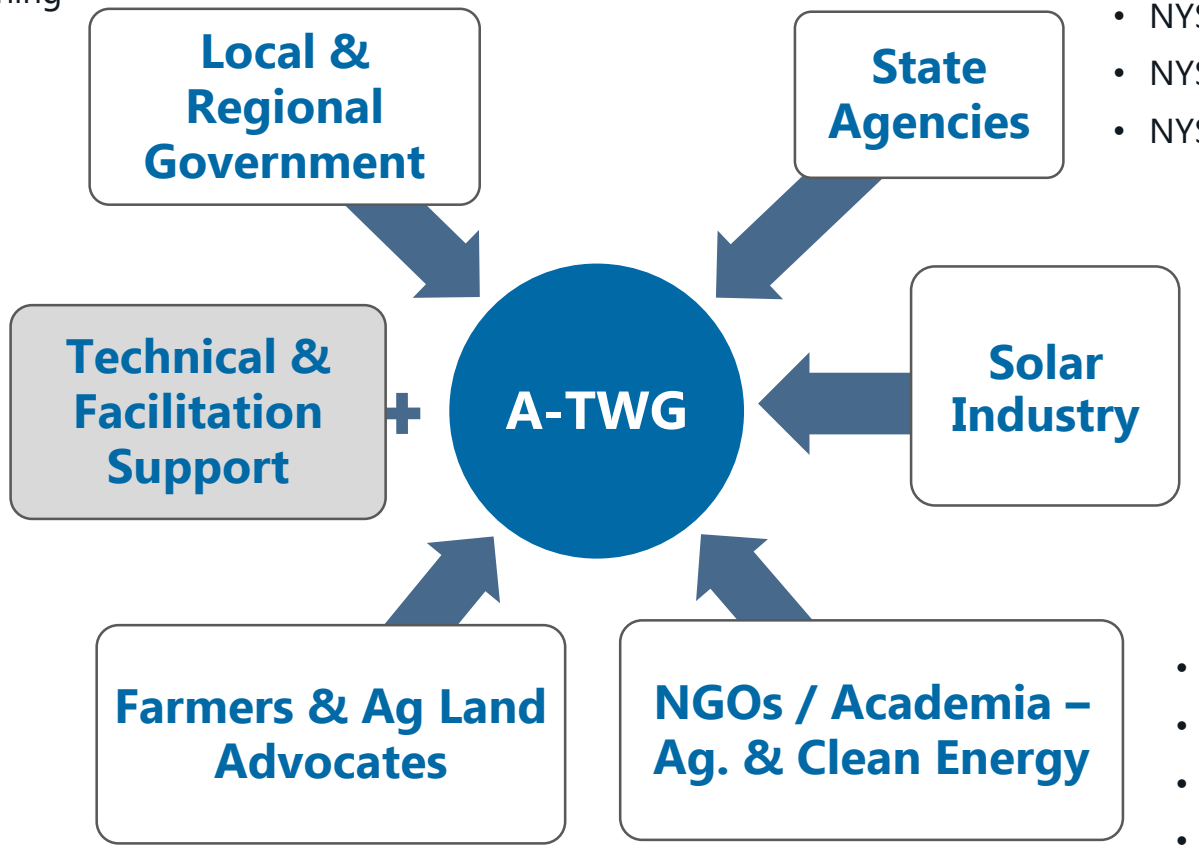
# Promoting Co-Location: Agrivoltaics

Key benefits of dual-use solar approaches may include:

- Collaboration between solar developers, local farms, and agricultural organizations that benefits all parties
- Improvements in soil health and water retention
- Farmland preservation, viability, and intergenerational transfer
- Investments in farm infrastructure and equipment
- Land use optimization and integrated farm management
- Opportunities for research on land management and agronomic practices

# Introduction to the A-TWG

- Genesee/Finger Lakes Regional Planning Council
- Suffolk County Dept. of Economic Development & Planning
- Tug Hill Commission




- NYSERDA
- NYSAGM
- NYSDEC

- Consensus Building Institute
- WSP
- Pace Law

- ACE NY
- EDF Renewables
- Nexamp
- NYSEIA

- American Farmland Trust
- NY Farm Bureau
- NYS Assoc. of Conservation Districts
- Northeast Ag & Feed Alliance
- Northeast Dairy Producers Assoc.

- Scenic Hudson
- The Nature Conservancy
- New Yorkers for Clean Power
- Cornell College of Ag & Life Sciences

**www.nyatwg.com**

# Active A-TWG Specialist Committees

## Agrivoltaics

- Exploring the applicability, feasibility, and reasonability of agrivoltaics in New York
- Recent Outputs Growing Agrivoltaics in New York

## RAISE

- RAISE = Regional Agronomic Impact From Solar Energy
- To advise and inform development of a study (or suite of studies) that can be undertaken to assess the relative benefits and impacts of solar energy development on regional farmland economies.
- Convened March 2024

## Scorecard

- Provides input on approaches to reduce impacts and encourage community collaboration, and how to value these approaches in a scorecard format
- Recent Output: RESRFP23-1 Smart Solar Siting Scorecard

# NYSERDA's Large-Scale Renewables Smart Solar Siting Scorecard Evolution

**RFPs Before 2021**

> Incremental evolution of RFP requirements such as project viability, site character considerations and Permitting Plan Requirements and guidelines, and due diligence conducted to date

**2021 Version**

> Excluded from Evaluation Criteria
> Broad avoidance categories of certain Environmental and
> Agricultural areas
> All strategies were optional

**2022 Version**

> Included in Evaluation Criteria
> Focused avoidance of certain Forest and Agricultural lands
> Strategies are now a mix of mandatory and optional
> Expanded Categories and Strategies

**2023 Version**

> Streamlined the Strategy Lists; adjusted points
> Introduced Table 2 to prorate co-use points based on acres of co-use
> Created list of resources to support strategy implementation
> Strengthened Forest Protection section

# NYSERDA Incentives for Smart Siting

- Ag Mitigation Payments (30+ acres MSG 1-4)
- Beneficial Siting Adders
  - Existing: Landfills and Brownfields ($0 .15/W)
  - Proposed: Floating Photovoltaic “FPV” ($0.15/W)
  - Soon? Agrivoltaics ($/W??)
    - Agrivoltaics Demonstration RFI
- Funding and Research:
  - 2023 RGGI Operating Plan Amendment: $5 Million

# Smart Solar Siting Scorecard

| Scorecard Section | Number of Points Available | | Total |
|---|---|---|---|
| | **Avoidance** | **Minimization** | |
| **Agricultural Protection** | 50 | 45 | **95** |
| **Forested Lands Protection** | 35 | 10 | **35*** |
| **Community Benefits & Collaboration** | 25 | | **25** |
| **Extra Credit: Innovation** | 5 | | **5** |
| **TOTAL POINTS AVAILABLE** | | | **160** |

*Maximum of 35 points available

# Resources and Q&A

# Resources

## Comprehensive Planning:

NYSERDA: Comprehensive Plan Guide

NYSDOS Division of Local Government Services:

- Zoning and the Comprehensive Plan
- Guide to Planning and Zoning Laws of New York State
- Legal Memo: "Defining a Community Through the Plan"

Syracuse University: NYS Comprehensive Plan Development

## Clean Energy:

NYSERDA: Solar Guidebook, Energy Storage Guidebook, Wind Energy Guidebook

American Planning Association:

- Sustaining Places: Best Practices for Comprehensive Plans
- Solar Energy, Knowledgebase Collection

NYS Climate Smart Communities: Comprehensive Plan with Sustainability Elements

# Resources

- **Agrivoltaics Assistance/ Tools:**
  - > AgriSolar Clearinghouse
  - > NYSERDA: Solar Installations on Ag Lands
  - > Smart Solar Siting for New England: Policy Strategies for Farmland Protection American Farmland Trust (2020)
  - > Solar Energy Industries Association (SEIA) Solar and Agricultural Land Use (2019)
  - > Scenic Hudson (2020) Solar Ready, Climate Resilient: Best Practices and Recommendations for Solar Zoning in the Hudson Valley
  - > Solar Energy Technologies Office, DOE Office of Energy Efficiency & Renewable Energy, Farmer's Guide to Going Solar
  - > U.S. Department of Agriculture (2020) Farmland Solar Policy Design Toolkit
  - > InSPIRE Low-Impact Solar Development Strategies Guidebook

# Resources

- **Funding and Technical Assistance:**
  - > Local, County, and Regional Planning Agencies
    - Clean Energy Community Coordinators
  - > NYS Resources/Programs:
    - NYS Consolidated Funding Application
    - Climate Smart Communities Grant Program
    - NYS Dept. of Ag and Markets:
      - Farmland Protection Planning Grants Program
    - NYS Dept. of State:
      - Office of Planning and Development: Smart Growth Comprehensive Planning Grant Program
      - Division of Local Government Services: Local Government Efficiency Program

# Questions?

To access resources, ask questions, or request technical assistance, please reach out to cleanenergyhelp@nyserda.ny.gov

# Can Solar Development and Agriculture Work Together?


Onondaga County Planning Federation
35th Annual Planning Symposium
March 13, 2024

American Farmland Trust

# Who Has Heard of American Farmland Trust?



Saving the Land that Sustains Us

American Farmland Trust


- Nonprofit Organization founded in 1980
  Committed to Saving America's Farmland
  — Protecting Farmland From Development
  — Promoting Sound Farming Practices
  — Keeping Farmers on the Land
- Work From Kitchen Table to Congress

# NY agriculture is a major economic driver.
## It also faces increasing pressures from many directions

**New York is a leading agricultural state, worth $5.75 billion in revenue 2017.**

According to the USDA 2022 Ag Census, there are:

- 30,650 farms in New York State and 6,502,286 acres in production.
- New York farms employ 55,363 people. Dairy and milk production accounts for nearly 26,000 jobs in NYS
- Grain and oilseed farming employs nearly 15,500.
- Veggie and melon farming is responsible for 7,750 jobs.
- All sectors of agriculture, including processing, are responsible for nearly 200,000 jobs in NYS.

New York Agriculture :: New York Farm Bureau (nyfb.org)

American Farmland Trust

# Challenges to farm viability (development)


## Development Threatens New York's Agricultural Land [does not include solar projections]

**From 2001-2016, 253,500 acres of New York's agricultural land was developed or compromised.**

**Projected from 2016-2040, an additional 452,000 acres paved over, fragmented, or converted**

**121,000 acres of New York's best land** were converted to development

**28,300 acres of New York's Nationally Significant** land were converted.

American Farmland Trust

# Challenges to farm viability (markets, farm transitions)




The NY farmer population is aging, with 1/3 of farmers aged 65 or older, and 90 percent of them without a known successor

American Farmland Trust

# Challenges to farm viability (weather)


https://wyrk.com/apple-orchards-crop-losses-ny/

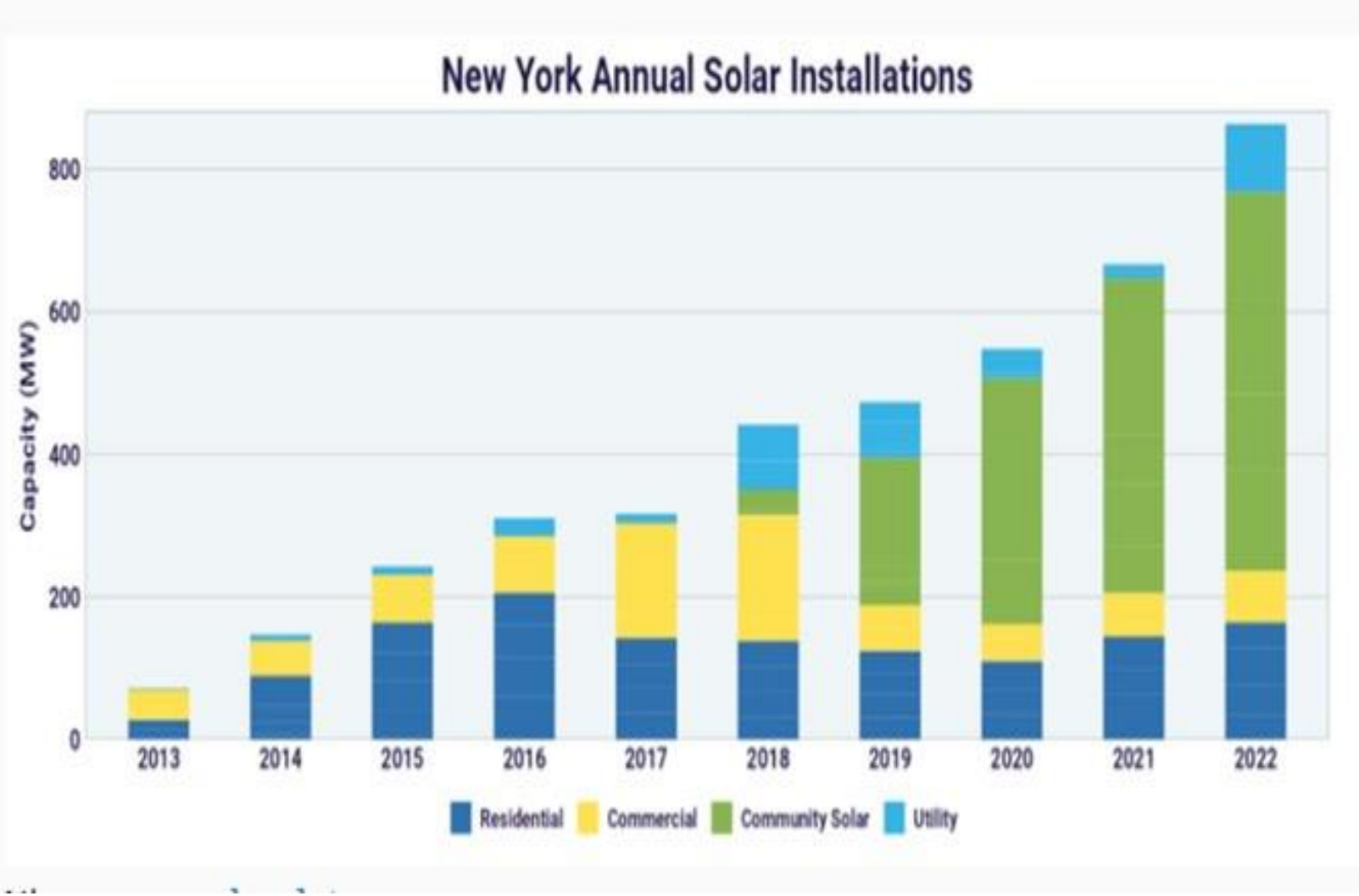
**New York's dairy farmers are also battling the impact of climate change**

Assemblywoman Carrie Woerner says one of the biggest issues is that farming is getting more expensive, but the revenue isn’t rising to match the cost.

https://spectrumlocalnews.com/nys/central-ny/in-focus/2022/08/06/in-focus--dairy-farmers

American Farmland Trust

# Challenges to farm viability (solar)

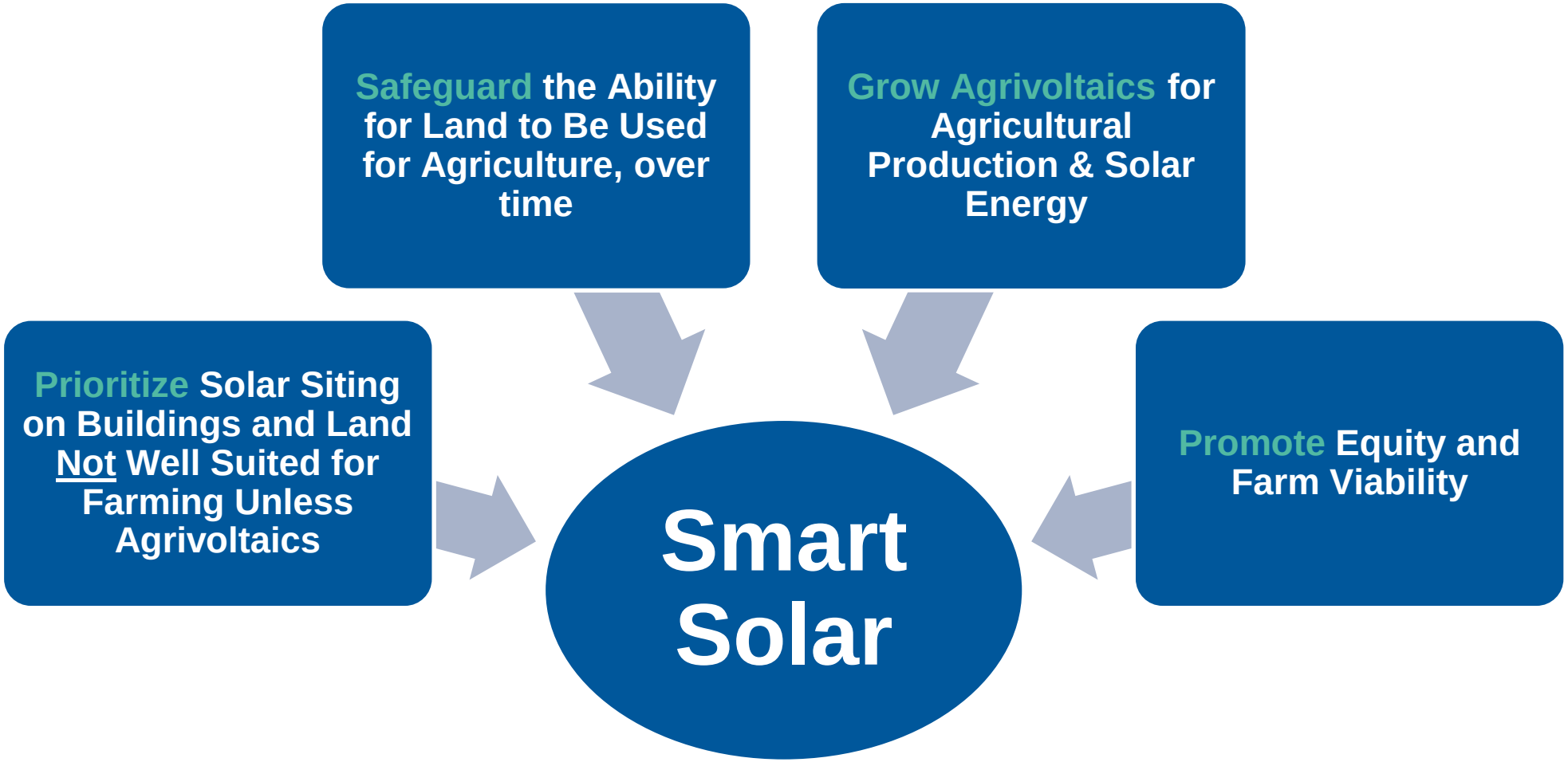



**New York Climate Leadership & Community Protection Act - 60 GW of Utility Solar**

**2023: 4.7 GW**
**5 Year Projection: +8.8 GW**

**2050 estimate:**
**300,000-600,000 acres**

# AFT Smart Solar Principles

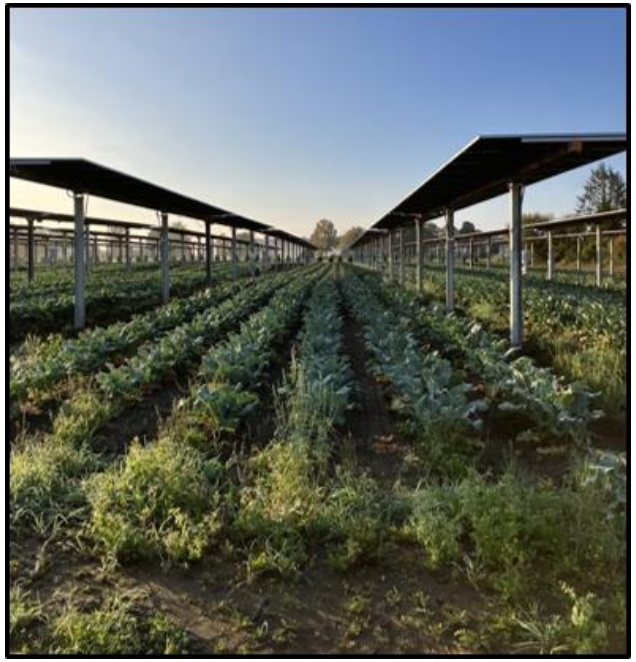



American Farmland Trust

# What is Agrivoltaics?

NYSERDA/NYSDAM: The simultaneous use of land for solar photovoltaic power generation and agricultural production of "crops, livestock and livestock products," as defined by NYS Agriculture and Markets Law (AML) Sec 310(2).

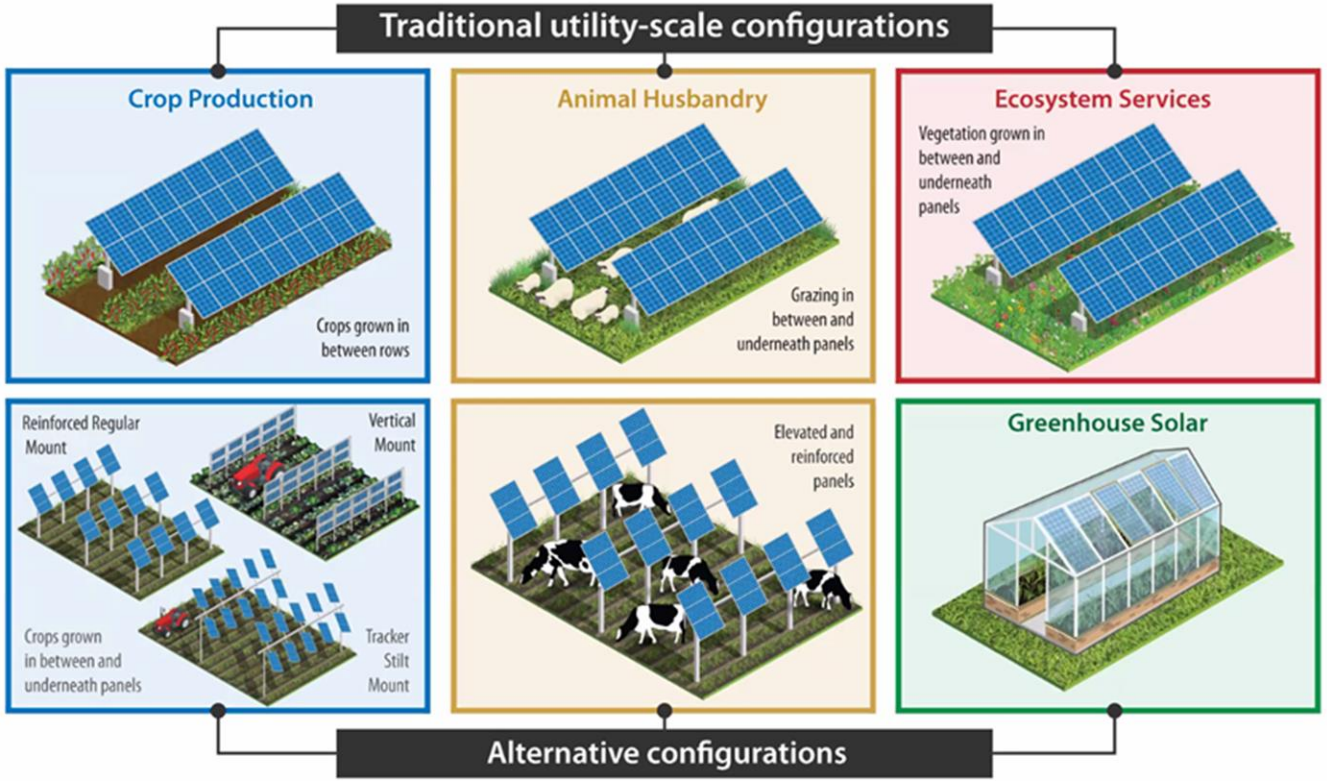
*Pollinator habitat by itself is not "agrivoltaics" per NYS Ag and Markets Law*



American Farmland Trust

# Farmer First

Agrivoltaics projects sustain agricultural production underneath solar panels and/or between rows of solar panels throughout the life of the project.




American Farmland Trust

# Farmer-First Solar

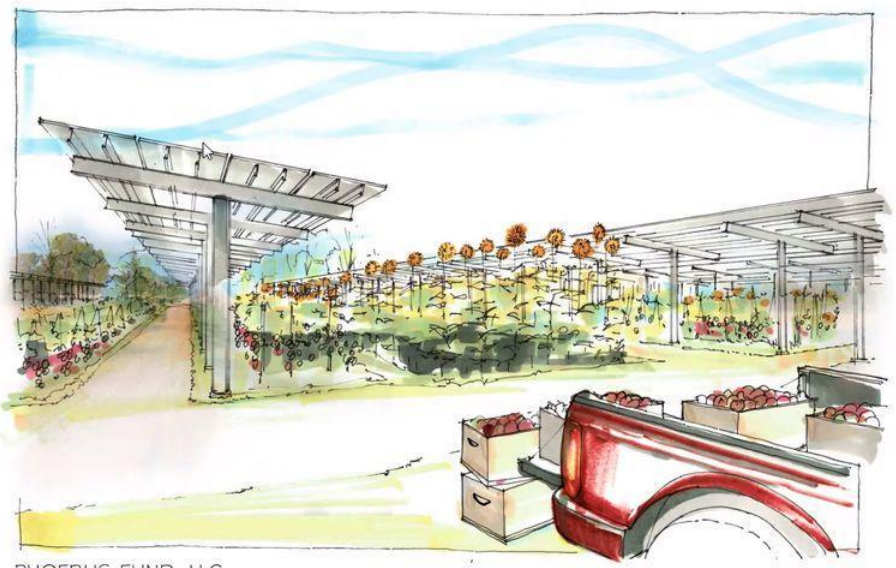
Intentionally Designed for:

- Farm viability, flexibility over time
- Improve soil health, water management
- Crop and production diversity
- Balancing production of power with farm products

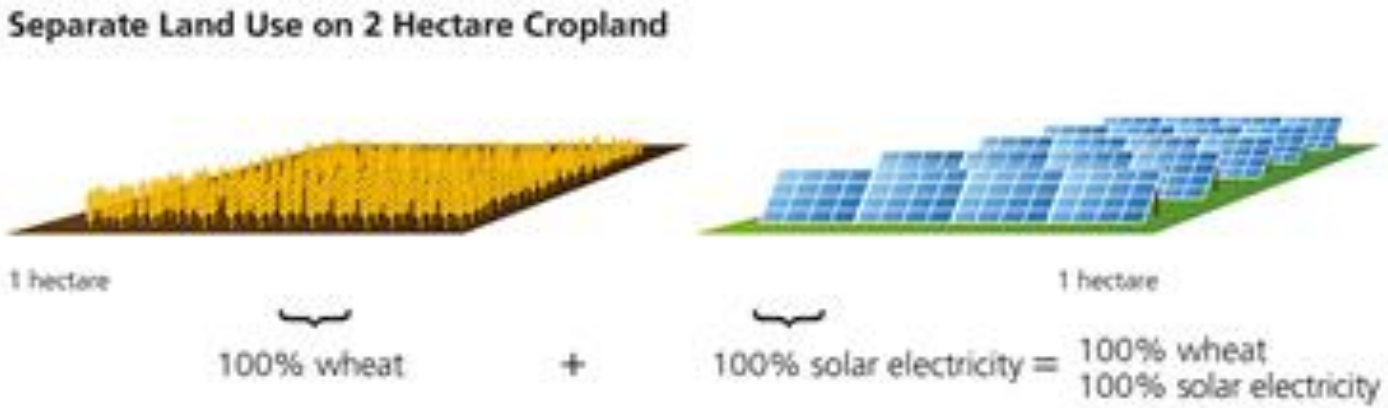
Could allow for different ownership models, lease payments

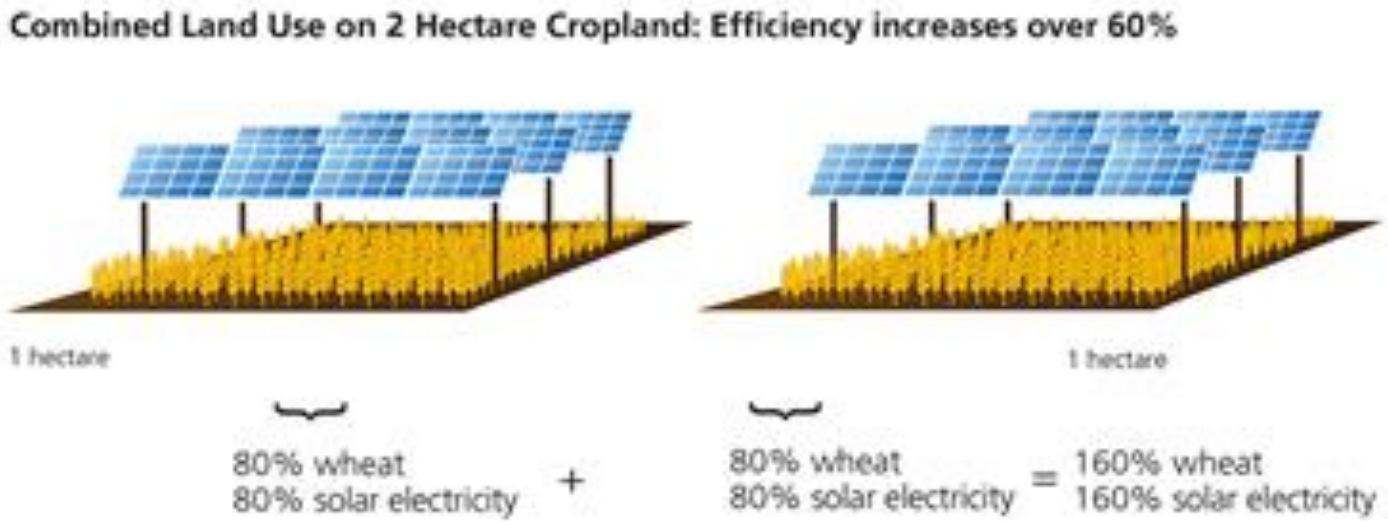
Can be installed at different scales (generally smaller scale at this point but that could change with NYSERDA incentives)

Farmers and communities can help take the lead and seek solar that works for farmers and farmland.




# Solar Designs Matter




Fraunhofer Institute

**Concept:**
Research is showing that agrivoltaics can allow for land to generate more revenue with a combined crop of plants and energy.

Somewhat less energy produced.
Somewhat less crop produced.

Total “crop” greater than either of the two crops (solar or food).

American Farmland Trust

# Communities Can Plan for Solar and Agriculture

- The concept needs to be socialized – change our way of thinking so at the minimum it is an option on the table.
- Not either solar or agriculture, but solar and agriculture
- Incorporate agrivoltaics into solar laws – ORES looks at local laws and is not seeing agrivoltaics
- Incentivizing at a state and local level – NY considering a pilot agrivoltaics research project to determine how much additional funds per megawatt (adder) would work to incentivize developers

NYSERDA Model Solar Law

# Some Unintended Consequences of Local Laws

Hyperion, LLC

- Height requirements may prevent agrivoltaics
- Buffers/setbacks may reduce amount of Solar, make project impossible
- Raised panels may not need fencing
- By requiring it stays off good farmland may reduce farm viability
- Making laws too restrictive – considered unreasonable and are discounted

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# What are Other States Doing?

**Carrots - Dual Use / Agrivoltaics Incentives**

**Agrivoltaic Research and Demonstration:**
Colorado, New Jersey, Washington

**Incentives/Adders:**
Massachusetts, New Jersey

**Agrivoltaics to Reduce Mitigation Requirements:**
New York, Maine

**Farmland Assessment or Property Tax Benefit for Agrivoltaics:**
Massachusetts, New Jersey, Michigan

**States considering policy:**
California, Virginia, Connecticut, New York

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# NY Resources

**Smart Solar Siting on Farmland: Achieving Climate Goals While Strengthening the Future for Farming in New York**


Samantha Levy, Climate Policy Manager

Mikaela Ruiz-Ramón, New York Policy Coordinator

Ethan Winter, Northeast Solar Specialist



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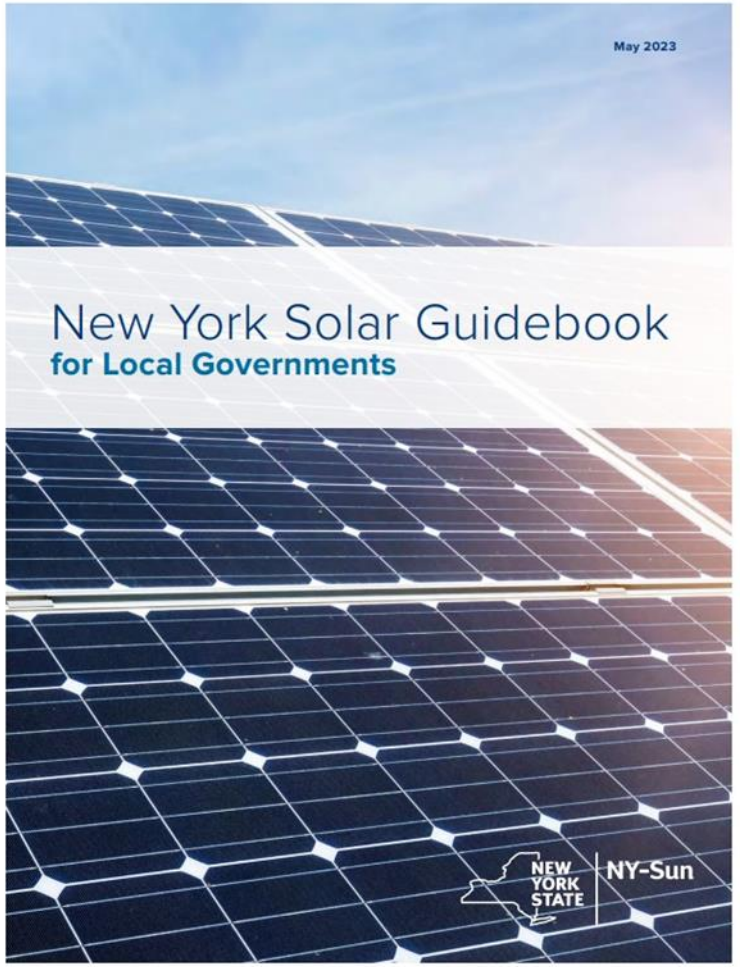
The Tug Hill Commission Technical and Issue Paper Series are designed to help local officials and citizens in the Tug Hill region and other rural parts of New York State. The Technical Paper Series provides guidance on procedures based on questions frequently received by the Commission. The Issue Paper Series provides background on key issues facing the region without taking advocacy positions. Other papers in each series are available from the Tug Hill Commission. Please call us or visit our website for more information.

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# Other Resources

- AgriSolar Clearinghouse
- Agrivoltaics | Solar Market Research and Analysis | NREL (National Research Energy Lab)
- Everything You Need to Know About Agrivoltaics | Disruptive Investing News (youtube.com)

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# Questions?

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