Designing Solar Land Use Laws that Protect Productive Farmland
June 17, 2019

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Samantha Levy is New York Policy Manager for American Farmland Trust. Samantha advises state and local lawmakers, planners, and other leaders on policies and programs that save the land that sustains us by keeping land in farming, keeping farmers on the land, and helping farmers adopt sound farming practices.

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Matilda manages the County’s annual and eight-year reviews for its Agricultural District program, and was the lead on the preparation of the County’s 2016 Agricultural Development Plan. Matilda assists with project reviews for the County Planning Board, and assists local governments with the preparation and revision of local land use regulations including, most recently, with the preparation of solar regulations with a focus on the preservation of prime farmland.

George R. Frantz, AICP, ASLA, Cornell University
George Frantz, has worked as a land use and environmental planner in small town and rural communities in Upstate for 30 years, in both the public and private sector. His primary areas of expertise are in land-use planning and zoning, with particular emphasis on addressing the needs of agriculture and the protection of environmentally sensitive lands. Since 2017 he has been an associate professor of the practice in the Department of City & Regional Planning at Cornell.
What is Smart Solar Siting?
Designing Solar Laws to Protect Farmland and Promote Farm Viability

Samantha Levy, New York Policy Manager, American Farmland Trust
Smart Solar Siting Webinar; June, 2019
Nonprofit Organization founded in 1980 Committed to Saving The Land That Sustains Us

- Protecting Farmland From Development
- Promoting Sound Farming Practices
- Keeping Farmers on the Land

Work From Kitchen Table to Congress
Climate Change and Agriculture

2018 IPCC report: We must cut GHG emissions as much as possible as quickly as possible (by 2040-2045) to stay below the 1.5°C warming limit

Climate Change threatens Farm Viability and Productivity

Farmers are also a Potential Key Part of the Solution

We will need to produce more food in the future to support a growing population
Agriculture in New York State

Farms provide us with food and environmental services, and are anchor businesses in rural communities.

$39 billion industry which supports 160,000 jobs.

Uses 25% of the state’s land.

Since 1980, we’ve lost the equivalent of 5,000 farms to development.
**Productive** – incorporates soil classifications such as prime, statewide important, and unique soils

**Versatile** – ability of land to be used for growing diverse types of foods

**Resilient** – ability of land to be farmed in the face of a changing climate
Renewable Energy in New York State

• 2015: Reforming the Energy Vision, Goal to generate 50% of our energy needs for our electric grid from Renewable Sources by 2030.
  • Now new 2019 goal: 70x30

• 2019: up to 28% of Energy Generated from Renewable Sources

• To reach 50%: One scenario identified by NREL, add 6,800 MW of utility scale solar in New York

• Solar is Land Intensive: at 5-10 acres/MW this scenario would mean between 34,000 and 68,000 acres of land converted to solar energy generation

• 2018: 3,700 MW of utility scale solar in the NYISO interconnection queue
Why Create Proactive Solar Laws that Protect Farmland?

- To Protect PVR Farmland, a Finite Irreplaceable Resource
  - Farmland near transmission is an attractive site for developers
  - Solar Leases Present an Economic Opportunity for Farmer-Owners
- New York is a Home Rule Law State
- Conflict Reduction: Define Community Values and Preferences
- Under 25 MW, Local Permitting Authority
- Over 25 MW, State Siting process takes Local Laws into Account
- Permanent Land Use?
Renewable Energy Buildout in NYS

With planning, we can both produce solar energy and grow food and crops.
Smart Solar Siting and Agricultural Lands

- Maximizes potential for solar
- Minimizes impact on PVR farmland
- Written explicitly in policies and laws
Best Practices, Smart Solar Siting in Local Land Use Laws

1. Include a Statement of Purpose

2. Define Important Local Farmland to Protect

3. Prioritize Siting on Unproductive Land/Previously Disturbed Areas

4. Define Different Approval Processes for Different Scales/Uses:
   Small vs. Large; On-farm use vs. For sale into the grid

5. Require Developers to follow NYSDAM guidelines to Protect Ability to Farm the Land for the Present and Future

6. Encourage Dual Use/Collocation of PV solar with Active Farming
How you would define your most important farmland to protect in your local laws?

**Town of Marbletown:** “Large Scale Solar Energy Systems shall not be permitted to be constructed on areas of the first 4 prime farmland soil types as designated by the US Dept. of Agriculture: Ba-Barbour loam...CnA, CnB-Chenango gravelly silt loam...Te-Teel silt loam...Un-Unadilla silt loam.”

**Town of Danby:** Solar Energy Facilities must not be located in the following areas, unless Otherwise approved by the Planning Board in conjunction with a Site Plan Review process as provided in Article VIII: i. **Ten (10) acres or greater extents of actively-farmed prime agricultural soils** as identified by the United States Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS) or alternative available resource.
Siting Solar on Farmland

**Principles:**
- Guide siting to Marginal/Less Productive Farmland within the parcel or limit impact on PVR Farmland
- Require Developers to follow NYSDAM guidelines to Construct, Operate, Maintain, and Decommission Arrays on Farmland in ways that Preserve Ability to Farm in the Future
- Consider Including Financial Surety for Decommissioning

“Installation on farms shall abide by rules, standards and regulations established by NYSDAM. The construction and installation of any energy system shall be designed to minimize any adverse impacts on the productivity of the soil and the farm operation”- Town of Goshen
Encourage Dual Use: Solar Panels and Active Agriculture

Common:
- Beekeeping, Sheep Grazing, Shade Tolerant Crops (potential)

Consider:
- Soil Type
- Prioritize *active* agricultural use to produce food
- Was a farmer actively included in the development of the plan?

**Town of Red Hook:** “Design of ground-mounted solar energy systems shall favor **concurrent use of the land for livestock grazing or similar sustainable use.**”
Resources

http://www.farmlandinfo.org

http://www.farmland.org
Farms Under Threat Report,
Smart Solar Siting resources

https://www.agriculture.ny.gov/ap/agservices/
Solar_Energy_Guidelines.pdf
NYSDAM Guidelines
Providing Opportunity; Protecting the Agricultural Land Resource

June 17, 2019

George R. Frantz, AICP, ASLA
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Renewable Energy & Agriculture

Potential large economic benefits for farmers;

• Cut energy costs;
• Generate revenues;
• Recycle wastes.
Agricultural zoning should:

- Protect the agricultural land resource;
- Promote the wise stewardship of the soil and water resources;
- Promote the long term economic viability of the agricultural sector.
Definitions

• Make sure each definition is concise, and clear as to what your community means/desires;
• Define any term that has a meaning that is specific to your zoning code, & your municipality;
• Let Webster’s take care of commonly utilized words, with generally accepted meanings.
Examples:

- Solar;
- Wind;
- Commercial solar/wind;
- Non-commercial solar/wind;
- Biogas
Solar Energy System, Non-Commercial

A solar photovoltaic cell, panel, or array, or solar hot air or water collector device, which relies upon solar radiation as an energy source for collection, inversion, storage, and distribution of solar energy for electricity generation or transfer of stored heat, primarily for use on the premises.

Photo courtesy Renovus Energy, Ithaca, NY
Definitions

Non-commercial systems:

• Permitted use in agricultural zoning districts;
• Scaled to fit farm operation;
• Reasonable setbacks, height limitations;
• Avoid high quality soils.
Solar Energy System - Commercial

An area of land or other area used for a solar collection system principally used to capture solar energy and convert it to electrical energy to transfer to the public electric grid in order to sell electricity to or receive a credit from a public utility entity, but also may be for on-site use...
Renewable Energy

Commercial Systems

• Wind generally compatible;
• Relatively small footprint;
• Access road design important;
• Soil/site restoration provisions in zoning;
• Decommissioning provisions.
Renewable Energy

Commercial Systems

- Commercial solar – not so compatible w/ agriculture:
  - Permanence of the systems;
  - Acreage requirements;
- Site plan review appropriate:
  - Size & scale of development;
  - Environmental impact review;
  - Ensure compliance w/ standards.
Zoning & Renewable Energy

Commercial Systems

- Permit in appropriate locations within community;
- Site plan approval (maybe special use permit);
Zoning & Renewable Energy

Minimum Standards:

• Setbacks (property lines, roads, streams, wetlands);
• Height and bulk limits;
• Protect prime soils & farmland of statewide importance;
• Decommissioning/site restoration plan;
• Surety posting.
Zoning & Renewable Energy

Design Standards

• Avoid/reduce visual impacts (including glare);
• Landscape buffers;
• Underground utility/transmission lines;
• Fencing;
• All-weather roadways within site.
Decommissioning

• Time frame for completion of site restoration;
• Site to be restored to a useful condition:
  • Removal of aboveground and below-ground equipment, structures and foundations;
  • Restoration of the surface grade and soil after removal of equipment;
  • Revegetation of restored areas;
Thank You

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Minimizing Solar Impacts on Prime Farmland
Prime & Prime if Drained = 19% of land in SLC
→ Less than 1 in 5 acres available
Soils and High Voltage Transmission Map

Distribution of Prime Farmland and Land Classified as Agricultural in 2016

Legend:
- Town
- Farmland
- Prime Farmland
- All areas prime
- Prime if drained
- High Voltage Transmission Lines:
  - 100-161 kV
  - 220-287 kV
  - 735 kV and higher
  - Not Available

Map Prepared by the St. Lawrence County Planning Office
Tel: (315) 379-2292

SLC’s Ag Industry

- Market Value = $191 million in 2017
- Dairy = $139 million or 73%
- Top 10 in NE Milk Market Order Area
- Ranks 53rd in the US
- 2nd in NYS for hay
Prioritize Farmland

- Active rotational farmland
- Permanent hayland
- Improved pasture
- Unimproved pasture
- Other support lands
- Fallow/inactive farmland
Concentrate on Single Lot
Stockpile Topsoil
Use Ballast Footers Instead
Features to Avoid

- Drain Tile
- Diversions
- Ditches
- Fencing
Access Along Field Edges
Path Construction

- Timbermats
- Geotextile fabric
- 16’ wide
- At grade
Transmission Lines

- Underground
- 2’ – 4’ deep
- Taller utility poles
- Larger spans
- No guy wires
Restoration

- Decompaction
- Rocks
- Debris
- 4' depth
- Regraded
- Seeded
- Revegetated
- Monitoring
Decommissioning

ARCO
5.2 MW, 177 acres
Outside Bakersfield, CA

• Depth to 4’
• Decompaction 18” – 24”
• Access
• Transmission Lines
• Decommissioning funds
Alternatives to Prime Farmland

- Former landfills with baseload of methane
- Former quarries
- Remediated brownfields

Novato Solar Farm 1MW on 11.5 acres
Repurpose Former Uses

2 MW on 11 acres
Dennings Point Landfill, Beacon, NY

6 MW on 22 acres
Former Brownfield (Palmer Airfield, MA)

= 60% of public’s power usage (≈ 1,600 homes)
= $2 million savings through Power Purchase Agreement

Energy ≈ 1,000 homes
$2 million PILOT over 20 years
Community Solar: Town of Enfield, Tompkins County

- Subscriptions for users who don’t have land or buildings ideal for solar panels
- 10% discount in year 1, with 2% increase in costs each year
- Community can lease site
- 20-Year PILOT

2.3 MW array on 13 acres
6,800 solar panels to support
373 households and local church
Upcoming Events

Future Smart Solar Siting Webinars

Farms Under Threat

State-Level Maps Coming Soon

Greener Fields: a forum on Smart Solar Siting and Collocation

November 2019, Long Island
Thank you! Questions?

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