Introduction to Community Solar

NY-Sun PV Trainers Network

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A Cadmus Company
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.
Program Covers Entire State

- Services available across NYS
- Network partners across NYS
About the PV Trainers Network

Lead Organizations

Supporting Organizations
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
Who’s in the room?

A. Land Use Board member
B. Municipal Planning/Building Department staff
C. Elected officials
D. County government
E. State Agency
F. Solar industry
G. Developer
H. Planners, Attorneys or other professional
I. Community member
J. Other
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

Installed Solar Power Generation Capacity (Megawatts)

<table>
<thead>
<tr>
<th>Year</th>
<th>Annual Installations</th>
<th>Cumulative Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
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<td>2012</td>
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<tr>
<td>2013</td>
<td></td>
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<tr>
<td>2014</td>
<td></td>
<td></td>
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<tr>
<td>2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NY State Solar Market

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

Selected locality vs. NY State
US Solar Costs

*2014 costs
Community Solar in New York
What Are the Benefits of Solar?

1. Economic development and job creation
2. Environmental and public health benefits
3. Reduced and stabilized energy costs
4. Energy independence and resilience
5. Value to utility
6. Community pride
Not everyone has the ability to take advantage of solar on their own property:

- Roof structure
- Shading issues and location
- Interconnection issues
- Renters
- Unable to access financing options
What is Community Solar?

- Expands access to solar (and other clean energy) generation to utility customers who cannot site distributed generation directly
- Enables multiple customers to receive net metering credits from a single clean energy project
- Intended to allow residents and businesses to buy shares in larger community solar projects
How does community solar work in New York?

- **Utility**: Information
- **Construct, Own and/or Operate**
- **Membership Information**
- **Payment for Solar Shares**
- **Subscribers**
- **Bill Credits**
- **Excess Generation**
- **Sponsor**

The flow diagram illustrates the integration between utility, sponsors, and subscribers, focusing on the process of community solar generation, distribution, and payment.
Who can be a project sponsor?

- Any type of organization can sponsor a project or partner with a solar developer to sponsor a project.
- Examples include:
  - A solar developer that serves as the project developer and project sponsor
  - A private organization that organizes a Community DG Project on a for-profit basis
  - A municipality or another government organization
  - A community based non-profit
What is a project sponsor’s responsibility?

Over the 20-30 year lifetime of the project:

• Arrange for the development of the project
• Sell shares in order to fully subscribe the project
• Manage customer turnover and attract new customers when necessary
• Interface with the utility to provide customer information and allocate customer credits
• Operate and maintain the power project
Who can be a subscriber?

• Any utility customer including homeowners, renters, condo dwellers, businesses, municipalities, and institutions.
• Same utility jurisdiction as project
• Same NYISO load zone as project

Why be a subscriber?

• Access to clean energy
• Savings on electricity bill
Low-Income Subscribers

- Opportunity to expand access to solar by encouraging low-income participation
- Barriers to participation that sponsors will need to overcome
  - Upfront payment
  - Credit check
Subscribers

How many subscribers?

- At least 10 subscribers

How much power can a subscriber take?

- At least 1,000 kWh per year (roughly 15% of annual electricity consumption of a NY household)
- Can’t exceed historic average annual electricity consumption
- Large electricity users with avg. monthly peak demand of 25 kW or more may not take more than 40% of the project’s output

Role of a subscriber?

- Select project, community-solar “package,” and sign contract with the sponsor
- Provide utility information to the sponsor
- Gain access to clean energy and receive credits on your utility bill
How is the power credited?

Sponsors
- Provide percentage of capacity reserved for each customer
- Utility allocates credits monthly to customer’s utility bill
- Credits not allocated can be distributed at the next distribution period
- Sponsor has 2-years to allocate any unused credits

Subscriber
- Allocated to subscribers on a monthly basis
- Member credits may be rolled over indefinitely
- If a subscriber leaves a project, excess credits on account are forfeited
How large is a community solar project?

- Projects generally in the MW range
  - 1 kW ≈ 100 SqFt
  - 1 MW ≈ 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)
Community Solar Ownership

Direct Ownership

Third-Party Ownership
Direct Ownership

Community Members Own Their Shares

- Partial or full upfront payment for a portion of the systems capacity and equivalent output ($/watt)
- Some companies offer a financing package or can use traditional lending option (e.g. bank loan)
- Real savings deferred until investment is recouped

*Non-profits, public entities and other non-taxable organizations may not select this option because they can’t take advantage of the federal investment tax credit
Third Party Ownership

Community Members Enter into a Lease or Power Purchase Agreement for Their Shares

Excess Generation → Utility → Member → Bill Credits

Construct, Own and/or Operate → Sponsor

Private entity owns project

Membership Information → Membership Payment for Solar Shares
Membership Types

Subscription Plans

• Little to no up-front cash layout
• “Pay-as-you-go” subscription
• Different term options

Purchase Plans

• You own the panels located in the Community Solar project
• Financing options are usually available
• Potentially greater savings over time
• You may also be eligible for tax credits
Ongoing Pricing Structures

Flat rate

Escalating rate

Discount to retail
Understanding Your Membership Terms

- Will the program now or eventually save you money?
- What is the length of an agreement?
- Are there nonrecurring and recurring costs/fees?
- What are the membership fees?
- What happens if you move or sell your house?
- Are there early termination fees?
- Do charges/fees increase over the course of contract?
- What is the operations and maintenance plan?
- What happens if the system under performs?
- What happens if the company goes out of business?

Minnesota Clean Energy Resources Team, http://www.cleanenergyresourceteams.org/solargardens#subscribers
Community Solar and Communities
Community Solar for Municipality

Opportunity for Municipalities to…

- Expand access to solar in the community
- Obtain energy savings for municipality and residents alike
- Provide a service to the community

Municipalities can participate by…

- Sponsoring a community Solar Project
- Hosting a project on municipal land
- Becoming a member of a project
- Facilitating the zoning of a privately-driven project
Community Solar for Private Landowners

Opportunity for landowners to...
- Increase income from leasing land
- Diversify income streams
- Boost local economy
- Lower energy bills

Landowners can participate by...
- Hosting a project on privately owned land

Resource: New York’s Solar Guidebook Available at: nyserda.ny.gov/solarguidebook
Community Solar Development Process

1. Stakeholder Engagement & Goal Setting
2. Data Collection & Site Identification
3. Develop and Publish RFP
4. Review Bids and Select Developer
5. Negotiate Contract
<table>
<thead>
<tr>
<th>Role</th>
<th>Public Entity</th>
<th>Private Entity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Host</strong></td>
<td>Follow existing procedures for leasing public land for private purposes</td>
<td>Not required to competitively procure, but suggested to ensure best offer</td>
</tr>
<tr>
<td><strong>Sponsor</strong></td>
<td>Required to competitively procure contracts through an RFP</td>
<td>Not required to competitively procure, but suggested to ensure best offer</td>
</tr>
<tr>
<td><strong>Member</strong></td>
<td>Required to competitively procure contracts through an RFP</td>
<td>Suggest comparing several offers</td>
</tr>
</tbody>
</table>
1. Qualifications
   - Company experience
   - Five references
   - Team member qualifications

2. Project Details
   - Price proposal
   - Project timeline
   - Equipment to use
   - System size and expected generation

3. Detailed Plans for:
   - Construction
   - Financing
   - Measurement and verification
   - Operations and maintenance
   - Decommissioning
   - Environmental Permitting
## Processes of Concern

<table>
<thead>
<tr>
<th>Process</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stakeholder Engagement</td>
<td>Engage with community members &amp; local government officials early on</td>
</tr>
<tr>
<td>Interconnection</td>
<td>Engage utility early in development process</td>
</tr>
<tr>
<td>Zoning</td>
<td>Review zoning ordinance for solar-related concerns</td>
</tr>
<tr>
<td>Property Tax</td>
<td>Review jurisdiction’s status under RPTL - 487</td>
</tr>
<tr>
<td></td>
<td>Review property’s tax status (e.g. ag assessment)</td>
</tr>
<tr>
<td>Environmental Review</td>
<td>Engage local SEQRA authority</td>
</tr>
</tbody>
</table>
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 15 year period, the value is fully taxable
- All municipalities and school districts are automatically included in PTE unless they opt out through local law or resolution
- More than 92% of all jurisdictions continue to offer this exemption.
Real Property Tax Exemption

- Jurisdictions use Payment In Lieu of Taxes (PILOT) for specific projects rather than opting out of PTE
- Jurisdictions have done PILOTS for projects above a certain size.
- PILOTs have been annual payments related to the system capacity ($/MW).
- PILOT may not exceed the amount which would have been payable without the exemption.
- Jurisdictions remain opted in have collected equal or better PILOTS than those who had opted out.

Decommissioning & Local Government Authority

Main form of protection against an abandoned project is the decommissioning clauses and requirements in the land lease agreement. Should stipulate what duties developers will have when the agreement comes to an end.

Not Authorized

- According to the NYS DOS Counsel’s office, municipalities may not require a removal bond as part of a land use approval.

Authorized

- Require the submission of a decommissioning plan.
- Local permitting authorities can establish decommissioning requirements including establishing decommissioning escrow accounts, post a letter of credit, or bond to pay for decommissioning.
- Include a removal clause for non-operation for a specified time in a local zoning law. Non-removal would then become a zoning enforcement matter.
Incentives for Solar in New York State
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

Average Hourly kWh

- Load Met by Grid
- Load Met by Solar
- Exports to Grid

Household Consumption
Solar Generation
Net Metering Credits: Like Rollover Minutes

- 100% Solar Production
- Typical Electricity Consumption

Billed Usage
Credits
### Example Net Metering Bill with Credit

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>July Reading (Actual)</td>
<td>56351</td>
</tr>
<tr>
<td>June Reading (Actual)</td>
<td>-56,451</td>
</tr>
<tr>
<td>Total Usage KWh 32 Days</td>
<td>-100 Credit</td>
</tr>
<tr>
<td>Net Metering Summary</td>
<td></td>
</tr>
<tr>
<td>Prior Credit</td>
<td>-50</td>
</tr>
<tr>
<td>Actual Metered Kwh</td>
<td>-100</td>
</tr>
<tr>
<td>New Cumulative Credit</td>
<td>-150</td>
</tr>
<tr>
<td>Billed KWH</td>
<td>0</td>
</tr>
<tr>
<td>Anniversary Month</td>
<td>April</td>
</tr>
<tr>
<td>Delivery Charges</td>
<td></td>
</tr>
<tr>
<td>Basic Service Charge</td>
<td>17.00</td>
</tr>
<tr>
<td>First KWH @ 0.XXX</td>
<td>0</td>
</tr>
<tr>
<td>Energy Cost Adj</td>
<td>0</td>
</tr>
<tr>
<td>SBC/RPS Chg</td>
<td>0</td>
</tr>
<tr>
<td>Government surcharges</td>
<td>0.5</td>
</tr>
<tr>
<td>Total Delivery Charges</td>
<td>17.00</td>
</tr>
<tr>
<td>Current Electric Charges</td>
<td>17.50 Amount Due</td>
</tr>
</tbody>
</table>

**Annual Reconciliation Month**

Cannot be offset with solar

Prices vary
The compensation in NYS is changing.

The accurate value of a kWh produced is not reflected in net metering. NYS is replacing net metering with VDER, a monetary crediting system that more fully reflects the locational value, time of day, and environmental impact of the power produced. VDER provides customers with a value for each kWh exported to the grid.

Phase One VDER is being implemented from 2017-2020 to fully replace net metering in New York State.
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)*
**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 to 2 MW*)

Program progress tracked separately by region

**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
Current NY-Sun Incentives

Residential Installations

- **Con Edison Region Residential**
  - Block 7: $0.40/W
  - Block 8: $0.35/W
  - Closed

- **Upstate Region Residential**
  - Block 7

- **Long Island Region Residential**
  - Block 7
  - Block 8
  - Closed
Current NY-Sun Incentives

Small Commercial Installations

Block 5
$0.40-$0.60/W

Block 7
$0.30-$0.40/W

Block 5
$0.23-$0.25/W
Current NY-Sun Incentives

Large Commercial Installations

Block 2
$0.61/W

Block 11
Monetary: $0.01/W
Volumetric: $0.09/W
Key Resources

**Community Solar**
NYSERDA. “Community Distributed Generation Overview for Project Developers.”
Minnesota Clean Energy Resources Team. “Community Solar Gardens.”
http://www.cleanenergyresourceteams.org/solargardens

**Landowner Concerns for Solar Land Leases**
NYSERDA. Factsheet: Landowner Considerations for Solar Land Leases.
http://www.seia.org/research-resources/seia-guide-land-leases-solar
http://www.nyseia.org/webinars
Resources: NY-Sun PV Trainers Network

Visit: https://training.ny-sun.ny.gov/
PVTN can provide **free technical assistance to municipal officials on solar related questions/issues**. Topics include:

- Municipal Solar Procurement
- Solar Zoning Ordinance
- NYS Unified Solar Permit
- Solarize
- community Solar
- Solar Access
- Solar Design Standards
- Real Property Tax Exemption Section 487
- Large-scale Solar Development
NY State Solar Guidebook

- New York State Unified Solar Permit
- Roof Top Access and Ventilation Requirements
- State Environmental Quality Review (SEQR) for Solar
- Understanding the Real Property Tax Law Section § 487
- Payment-in-Lieu-of-Taxes (PILOT) Toolkit
- Land Use Tools for Siting Solar While Protecting Farmland
- Solar Installations in Agricultural Districts
- Landowner Considerations for Solar Land Leases
- Decommissioning of Solar
- Additional Resources

https://www.nyserda.ny.gov/SolarGuidebook
For questions, email the NY-Sun staff at solarhelp@nyserda.ny.gov
Thank You!

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