Welcome to the LIFE Webinar Series.
We will be starting soon.
The Low-Income Forum on Energy Presents:

**Climate Change Solutions in Action**

**Solar One’s Community Programs**

July 17, 2019
1:30 p.m. – 2:30 p.m. ET
LIFE, the Low-Income Forum on Energy, is a unique statewide dialogue that brings together organizations and individuals committed to addressing the challenges and opportunities facing low-income New Yorkers as they seek safe, affordable and reliable energy.

Supported by the New York State Public Service Commission and the New York State Energy Research and Development Authority (NYSERDA), the LIFE dialogue encourages an interactive exchange of information and collaboration among the programs and resources that assist low-income energy consumers.

Working to help low-income New Yorkers address energy issues.
→ Monthly webinars
   Wednesday, August 21, 2019, 1:30 - 2:30 p.m. ET
   Building Resilience Against Climate Effects (BRACE) Framework
   Thursday, September 19, 2019, 1:30 - 2:30 p.m. ET
   Connecting People to Services – Using myBenefits.ny.gov as a Resource
   Wednesday, October 16, 2019, 1:00 - 3:00 p.m. ET
   HEAP Updates for the 2019-2020 Heating Season

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Email: LIFE@nyserda.ny.gov
Asking Questions During Today’s Webinar

Click on the small arrow to the left of “Q&A” to open the text field. Type your question into the text field and click “send.”
Technical Difficulties or Contacting the Host

1. Click on the “Chat” icon on the bottom menu to activate the chat function.
2. The chat function will appear in the middle right portion of your screen.
Climate Change Solutions in Action - Solar One’s Community Programs

Juan Parra & Anika Wistar-Jones, Solar One
July 17, 2019
• Solar One Programs
  • Green Workforce Program
  • Green Design Lab
  • Stuyvesant Cove Park
  • Here Comes Solar

• Affordable Solar
  • Strategies and case studies for multifamily affordable solar

• Community Solar
  • Strategies and case studies for community based community solar
Solar One is an environmental education non-profit established in 2004 with the belief that all New Yorkers can help overcome our environmental challenges.
Green Workforce Program

• Goal: to empower underserved populations with job opportunities in a rapidly growing field, while advancing New York City’s ambitious sustainability goals.
  • Students often come to our programs will little or no experience in the industry
  • Over 70% of students who take our training are placed in jobs

• We provide transferable skills for a wide range of jobs in sustainability and energy efficiency.
  • Building maintenance
  • Carpentry
  • Electrical work
  • Solar installation
Solar Workforce Integration

We are building a bridge between our job trainees and our growing solar project pipeline
Solar One Green Design Lab Program

Supporting teachers and schools to incorporate place-based environmental and STEM education
GREEN DESIGN LAB APPROACH

- Teacher training on how to incorporate climate change into K-12 curriculum
- Hands-on environmental STEM programs for NYC public school students
- Field trips to Solar One’s Stuyvesant Cove Park
- Solar installation training for high school students in Career and Technical Education (CTE) Programs
- Green career focused summer youth employment programs for high school students
Stuyvesant Cove Park

**Stuyvesant Cove Park** serves our local community and beyond as a unique and beautiful place, that has evolved from landscaped public gardens into a productive managed wildlife habitat that serves as a successful example of an engineered wilderness grown on a former industrial site.
Stuyvesant Cove Park: Programs

- **Wild Foods**: Stuy Cove is organically managed as an all-native plant food forest, and is the only NYC park that encourages foraging of wild foods.

- **Resiliency**: Incubating the biological diversity cultivated over the past 15 years by banking our wealth of locally adapted plants in large portable containers (Modular Edible Ecosystems).

- **Urban Land Stewardship**: Working together with students and volunteers on sustainable service learning projects, while facilitators teach the park as it is today.

- **Children’s Play Garden**: Our youngest visitors enjoy this clean and safe space where they can enjoy child-led imaginative play in nature.
Our goal is to facilitate solar projects in underserved areas by providing comprehensive technical assistance to multifamily buildings, community groups, and renters.
Technical Assistance Model

1. Solar feasibility assessment
2. Knowledge building
3. Financing and incentive consultation
4. Bulk procurement and solar installer selection
5. Consumer advocacy during installation
How Does Solar Work?

1. Solar panels convert sunlight to DC current
2. Inverter converts DC electricity to AC
3. Take electricity your home requires
4. Extra electricity credited on grid
Solar for Multifamily Buildings
Multifamily Affordable Housing: Barriers & Strategies

- High Cost of Installation: Bulk Purchasing
- Low Value of Solar for Large Accounts: Community Shared Solar
- Access to Tax Incentives: Third Party Ownership
- Access to Capital: Creative Financing
Barrier: High Cost of Installation in Cities

**Barrier**

- Solar can be expensive in urban areas because of high costs for installers:
  - Lengthy permitting process
  - Logistical difficulty of installation
  - Customized designs on flat roofs

**Strategy: Bulk Purchasing Groups**

- Bundling multiple buildings into a purchasing group reduces cost for installers and allows more competitive pricing for the group
- Organizations that own portfolios of buildings can achieve the same savings by bidding out a group of solar-viable buildings together
Solar Uptown Now / Co-ops Go Solar

• **Solar Uptown Now**: America’s first successful multifamily affordable solarize campaign in 2017
  
  • Neighborhood-based group purchasing campaign in Harlem, NYC
    • Partnered with WE ACT for Environmental Justice, UHAB, and Sustainable CUNY

• 30% lower pricing than average

• Job training and hiring commitment from installers

• In 2018, campaign expanded to the Bronx and Lower East Side as **Co-ops Go Solar**

• Initially 11 buildings, now 23 co-ops committed
Value of Solar for Large Accounts

Barrier

- For Demand-Metered customers, the value of solar is much lower, and savings are reduced
  - The value of solar for these buildings is about half of the value of solar for residences
    - For example, in Con Edison territory ~ $0.10 instead of ~ $0.20 per kWh

Strategy: Community Shared Solar

- Using Community Shared Solar to allocate solar credits to residential accounts can double the value of solar and substantially increase savings
  - Distribute solar credits among residents of a single building
  - Or:
    - Distribute credits generated on one site to other buildings in a portfolio
Case Study: Onsite Community Solar

- Co-op in Harlem with 47 units

- Onsite Community Solar:
  - Worth ~$0.20/kWh
  - 4 year payback period
  - $219,000 lifetime savings
  - Benefits shareholders

- Without Community Solar:
  - Worth ~$0.13/kWh
  - 6 year payback period
  - $162,000 lifetime savings

- Increased savings allow them to use part of the roof for a roof deck for residents
Lack of Capital & Limited Incentive Eligibility

Barrier

• Many affordable housing providers don’t have access to enough funds to buy solar outright

• Similarly, many affordable housing providers and income-restricted buildings can’t benefit from solar tax incentives
Strategy: Financing Options & 3\textsuperscript{rd} Party Ownership

With solar loans, community solar, and Power Purchase Agreements (PPA’s), multifamily buildings can go solar regardless of available reserves.

How can I pay for solar?

- Cash Purchase (Own System)
  - Reserves
  - Loan
- Buy Energy (Third-Party Owned)
  - Power Purchase Agreement (PPA)
  - Prepaid PPA
  - Community Solar
Case Study: Prepaid PPA

Joint Ownership Entity: Portfolio of nonprofit affordable housing providers with no tax liability

- Purchase the energy produced by the system at ~20% discount (combined with a loan)

- Tax equity investor owns and maintains the system for 20 years

Annual Savings vs Loan Payment

Total Net Savings: $2,426,706
Community Solar
What is community solar?

A way for households to join a single, shared solar energy system and receive solar energy credits directly on their individual utility bills.
Community Solar: A Solution

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Solution</th>
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</thead>
<tbody>
<tr>
<td>Upfront Cost</td>
<td>No sign up fees</td>
</tr>
<tr>
<td>Inadequate roof space</td>
<td>Project located remotely</td>
</tr>
<tr>
<td>Difficult for renters</td>
<td>Any household in utility area can join</td>
</tr>
</tbody>
</table>
Benefits of Community Solar

COMMUNITY-BASED PARTNERSHIPS

MISSIONED-ALIGNED DEVELOPMENT

• Ownership and control of project
• Local decision-making power
• Targeted subscription base

COMMUNITY SOLAR BENEFITS

• Inclusion of underserved communities
• Workforce development opportunities

• Increase access to solar energy
• Energy cost savings
• Local, renewable energy development
Community-Based Community Solar

- 672 kW on underutilized city-owned building
- Maximize benefits for Sunset Park community
- Cooperative ownership structure
- Job training component

- 1.2 MW spread across three NYCHA campuses
- 350 participating low-income households
- Utility providing support
- Paid apprenticeships for up to 30 NYCHA residents
Community-Based Community Solar Barriers

- Cost, particularly access to tax incentives
- Site Control and favorable lease offers
- Access to capital, particularly mission-aligned
- Perceived risk of LMI subscribers
- Interconnection and other unknowns
Community-Based Community Solar Strategies

- Cost, particularly access to tax incentives
- Site Control and favorable lease offers
- Access to capital, particularly mission-aligned
- Perceived risk of LMI subscribers
- Interconnection and other unknowns
- Tax Equity Flip Model
- Public Buildings Aligned building owners
- Financing partnerships Strong team
- Mission-aligned financing More projects!
- Utility Consultation Alternative financing
# Case Study: Sunset Park Solar

| Cost, particularly access to tax incentives | • Utilizing tax equity flip model  
• Equity or buyout after Year 10 |
| Site Control and favorable lease offers | • EDC providing preferential lease terms |
| Access to capital, particularly mission-aligned | • New Economy Project, Working World  
• Partners with expertise |
| Perceived risk of LMI subscribers | • Financers on board  
• At least 15% discount, Co-Op membership |
| Interconnection and other unknowns | • Searching for grant funding to reduce risk of project cost overruns |
Thank you!

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www.herecomessolar.nyc  
Link to Solar One 2018 Program Report
Case Study: Onsite Community Solar

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Case Study: Offsite Community Solar

- Aggregated portfolio of 10 affordable housing providers
- Large buildings will use Community Solar to distribute energy credits to non-viable buildings in the portfolio
- With Community Solar:
  - $101,580 year 1 savings
  - $885,420 lifetime net savings
- Without Community Solar:
  - $53,100 year 1 savings
  - $384,120 lifetime net savings
- Increased benefits are shared among nearly 100 buildings
Case Study: Solar Loan

Affordable cooperative in the Bronx with 40 units

- Loan from Habitat for Humanity NYC

- 15 year term and 5% interest with a prepayment of the City Property Tax Abatement in the first 4 years

- Loan also covers necessary roof repairs

- Annual solar savings will always be higher than solar portion of loan payment, so total savings are immediate

![Annual Savings vs Loan Payments](chart)

Total Net Savings: $270,850
Case Study: Power Purchase Agreement (PPA)

Church and Community Center in Staten Island

- Solar is installed for free and owned by the solar financing company
- The community center pays for the electricity generated at a lower rate than Con Edison
- PPA rate is dependent on project cost, so this low-cost project receives significant savings with no upfront cost
  (Not always possible with high-cost systems)

Annual Savings vs PPA Payments

Total Net Savings: $491,500
Case Study: Prepaid PPA

Joint Ownership Entity: Portfolio of nonprofit affordable housing providers with no tax liability

• Purchase the energy produced by the system at ~20% discount (combined with a loan)

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Annual Savings vs Loan Payment

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- Utilizing tax equity flip model
- Equity or buyout after Year 10

- EDC providing preferential lease terms

- New Economy Project, Working World
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