



Case Studies from New Jersey's Community Solar Energy Pilot Program Year 1



Image: U.S. Department of Energy. NREL. 2012. *A Guide to Community Shared Solar: Utility, Private, and Nonprofit Project Development*. (p.41)

Panelists

Tracey Woods

Project and Research Specialist, Sustainable Jersey

Ariane Benrey

Program Administrator, New Jersey Board of Public Utilities

Joseph Veni

Supervising Engineer, Manchester

Dan Jennings

Director of Policy, Planning, and Development, East Orange



Webinar Topics

What is Community Solar?

Making the most of a Community Solar Project

- Maximizing Low and Moderate Income (LMI) resident's participation in project
- Municipal Roles
- Selecting Project Partners

New Jersey's Community Solar Pilot

Pilot-Year 1 Case Studies

**Identify
Community
Goals for
Project**

**Consider
Possible
Municipal
Roles**

**Explore
Your
Options**



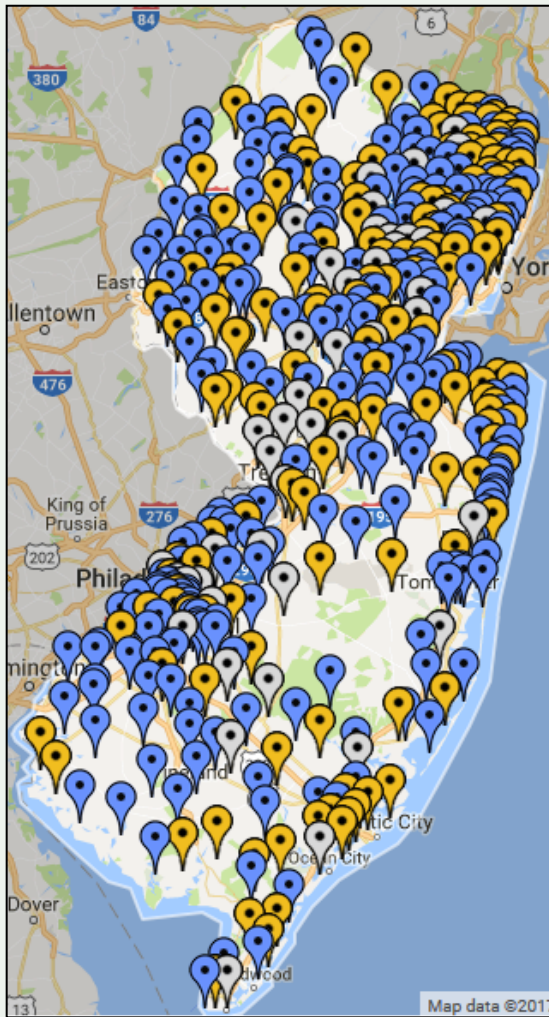
What is Sustainable Jersey?

Certification program for municipalities and schools

- **Tools, resources, and guidance** to help municipalities and schools become more sustainable
- **Grants and funding** for municipalities and schools
- **Regional Hubs**



Program Participants



Municipal Program



Schools Program

Municipal Program

455 (81%) participating
204 Certified

- 151 Bronze
- 53 Silver

Schools Program

350 Districts (>50%)
948 Schools
241 Schools Certified

- 223 Bronze
- 18 Silver

Actions: Prosperity, Planet, People

GREEN DESIGN

Green Building Policy/Resolution

Green Building Training

Create Green Develop

Green Building Educat

Site Plan Green Design

New Construction

Upgrade/Retrofit-Light

Upgrade/Retrofit-Water

ENERGY

Points

Energy Efficiency for Municipal Facilities*

5-50

Energy Tracking & Management*

10-20

Buy Electricity from a Renewable Source

10

Municipal On-Site Solar System

10-40

Municipal Geothermal Energy System

10

Municipal Wind Energy System

10

Renewable Government Energy Aggregation

5-50

Commercial Energy Efficiency Outreach

10-20

Residential Energy Efficiency Outreach

10-20

Make Your Town Solar Friendly

15-30

Community-Led Solar Initiatives

10-15

Wind Ordinance

10

Fleet Inventory*

10

Meet Target for Green Fleets

30

Purchase Alternative Fuel Vehicles

10

Public Electric Vehicle Charging Infrastructure

15

Make Your Town Electric Vehicle Friendly

15

- Municipalities choose from menu of actions to accumulate points
- Actions created by issue-based Task Forces:
 - subject matter experts
 - local leaders
 - state / federal agencies
 - Stakeholders

What is Community Solar?

- Expands access to solar
- Energy savings for subscribers
- Local generation of clean energy
- Local job creation/workforce development
- Reduction of municipal emissions
- Community pride

Who can subscribe?

Any metered customer in an electric service territory

Renters

Businesses

Municipalities

Homeowners

Institutions

Non-profits

Schools

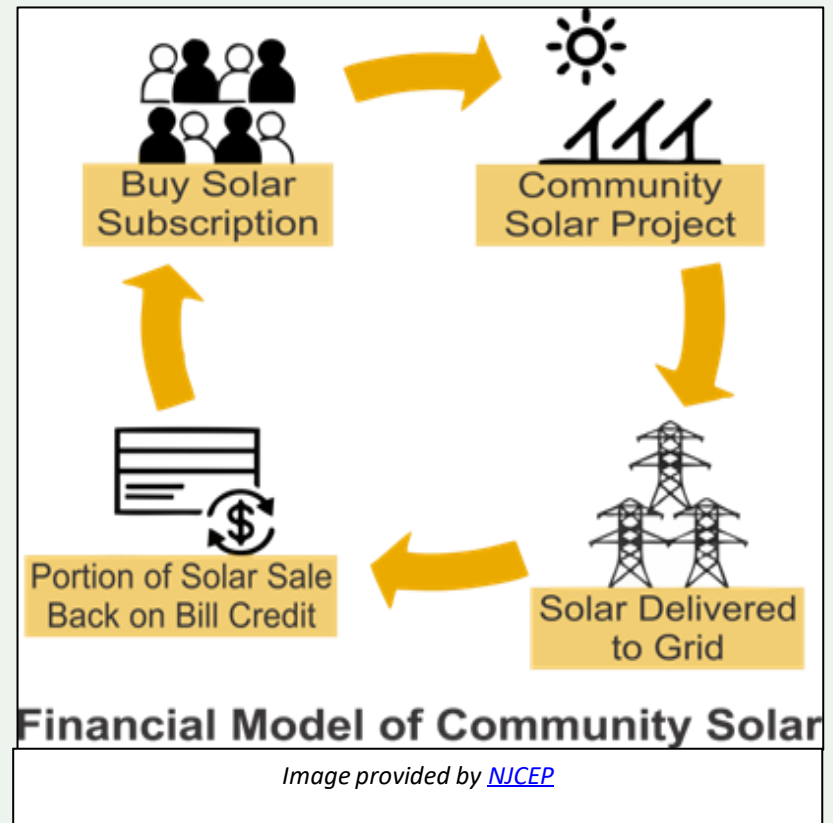


Images from energy.gov/eere/solar/community-and-shared-solar



Community Solar From the Resident's Point of View

- Resident's electricity bill will have credit from solar generation
- Separate bill for the cost of the subscription



Maximize Benefit to Low and Moderate Income (LMI) Residents

- Reserve a percentage of total site generation for LMI subscribers
- Offer enhanced subscription pricing for LMI residents
- Provide supportive LMI contract terms



betterbuildingssolutioncenter.energy.gov/sites/default/files/attachments/On_Site_Solar_Decision_Guide.pdf

Supporting LMI with Anchor Subscribers

Anchor Subscriber

- Early substantial subscriber with long contract term
- Supports LMI inclusion
 - Early support from stable subscriber provides financial stability to project
 - Long contract term reduces risk to the developer

Projects without anchor subscribers had panel lease prices that were 55% higher than those with anchor subscribers.

Source: 2018 NREL study, *Modeling the Cost of LMI Community Solar Participation*

Municipal Roles in Community Solar



betterbuildingsolutioncenter.energy.gov/sites/default/files/attachments/On_Site_Solar_Decision_Guide.pdf

- Site Host
- Anchor Subscriber
- Project Ambassador
- Outreach Partner
- Multi-Municipality Project Coordinator
- Zoning and Permitting
- Developer and Project Owner

Community Goals for Community Solar

- Expanding access to solar for low and moderate income residents
- Municipal income from site lease
- Local workforce development
- Creating positive development on difficult sites, such as brownfields and landfills



Image: The Solar Foundation. 2018. *Strategies for Solar Workforce Development, A Toolkit for the Solar Industry*. (p. 23)

Site Host

Types of Solar

Roof Mount Solar Panels

- Roof condition important
- Least cost per kilowatt hour

Ground Mount Solar Panels

- Brownfields, landfill sites
- Moderate cost per kilowatt hour

Canopy Mount Solar Panels

- Panels suspended over parking lots or other uses of the ground space
- Highest cost per kilowatt hour



NYC Five Borough Administrative Building
nycgovparks.org

Projects that include landscaping, land enhancement, pollination support, stormwater management, and/or soil conservation receive bonus points in the NJCEP selection process.

Solar Siting Analysis Tools



New Jersey Community Solar PV Siting
Tool

nj.gov/dep/aqes/solar-siting.html



NJDEP Solar Siting Analysis

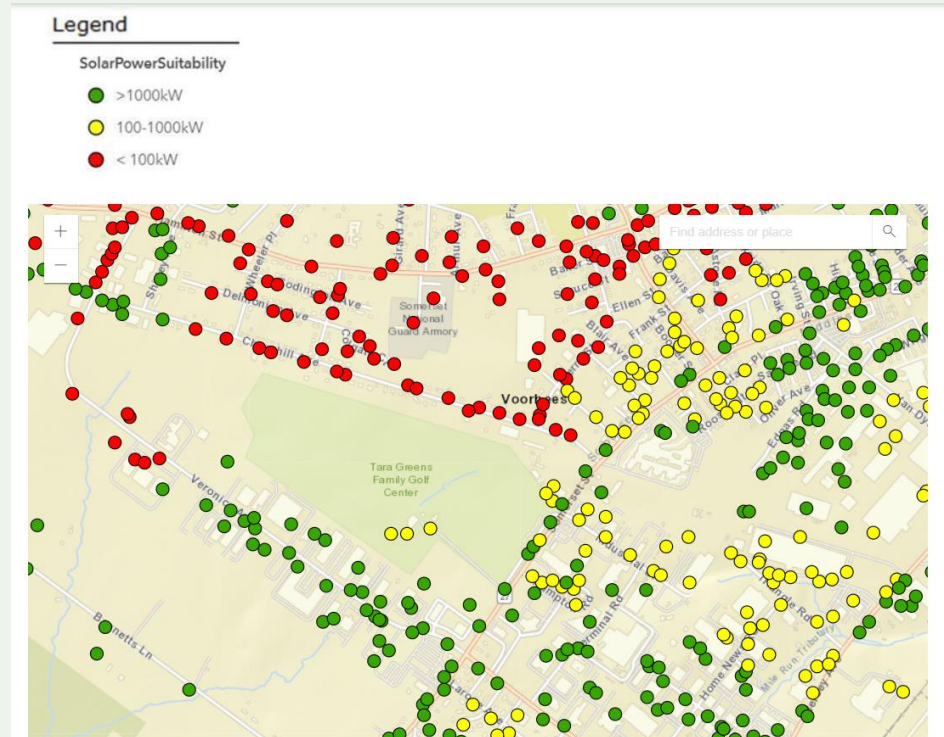


Interconnection Capacity

Interconnection - physical point of exchange of electricity between distribution company and customer

Maximum amount of electricity that can pass through is the **capacity**

Utility Interconnection Capacity Maps are available at NJCleanEnergy.com/renewable-energy/programs/net-metering-and-interconnection/interconnection-forms



Sample from PSEG Capacity Map

Capacity map shows how much solar generation the electrical infrastructure at a site can manage.

Anchor Subscriber

- Up to 40% of total site generation can be subscribed to a meter
- Billing credit on municipal electric bill



Island Community Solar
Whidby Island, WA

Image from NREL. 2012.
A Guide to Community Shared Solar

Project Ambassador/Outreach Partner

Project Ambassador - Help developer make local connections

Subscribers - Affordable housing authorities, anchor subscribers

Site Hosts - Local property owner with suitable site, i.e. a manufacturing facility or a privately-owned landfill

Outreach Partner - Use municipal resources (mailing list, website, etc.) to educate community about project

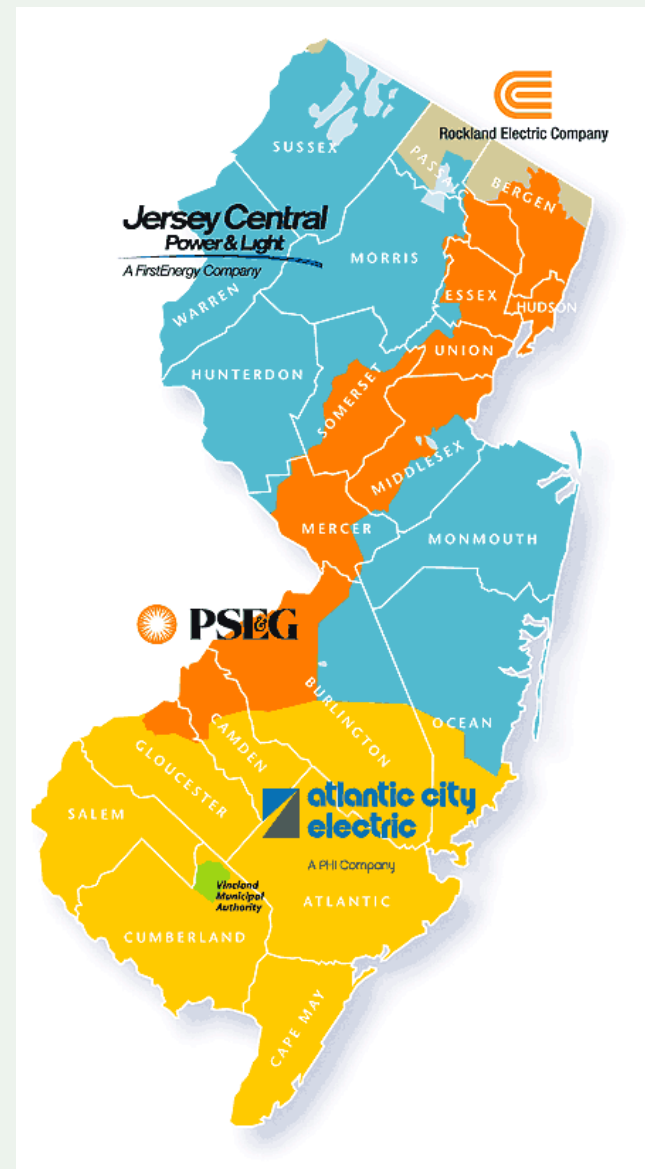


Rhode Island Community Solar Ribbon Cutting
<http://www.energy.ri.gov/>

Multi-Municipality Project Coordinator

Municipality partners with neighboring municipalities to:

- Reduce resource commitment
- Encourage advantageous pricing/terms for LMI subscribers as larger projects are more attractive to developers



Zoning and Permitting

Zoning

Municipality reduces zoning barriers by:

- Describing requirements for large scale ground mount solar
- Describing requirements for commercial rooftop solar

Permitting

- Clarify permitting requirements
- Permitting fee structure to incentivize community solar

Sustainable Jersey
Version 1.0

Guidance for Creating A Solar Friendly Zoning Ordinance
April 2017

GUIDANCE FOR CREATING A SOLAR FRIENDLY ORDINANCE

The purpose of this Sustainable Jersey Guidance document is to assist municipalities in crafting a solar ordinance that meets the objectives outlined in the Make Your Town EV Friendly Action and that is best suited to each community's character and land use objectives.

Discussion and sample language regarding the following areas is included in this guidance:

Intent/Background/Purpose

→ Address goals and benefits of solar/renewable energy

Definitions

→ Define solar technologies and terms

General Regulations

→ Address issues such as height, size, setbacks, and lot coverage

Permitting Fees

→ Establish permitting fees for residential rooftop solar PV installations

INTENT/BACKGROUND/PURPOSE

- The purpose will generally highlight the benefits of solar for the community: environmental, energy security, economic, etc.
- If the ordinance is a "stand-alone" ordinance, the municipality may wish to tie the regulations back to New Jersey's Municipal Land Use Law by referencing applicable language that may apply to solar (e.g., health, safety, welfare).

This section should:

- Clarify a municipality's rationale for establishing a solar energy ordinance in language that is compatible with existing local land use plans and zoning code.
- Clarify the types of solar systems the municipality is protecting through the ordinance (small-scale, utility scale, etc.).

Sample Language for Intent/Background/Purpose:

The purpose of this Ordinance is to provide a clear-cut regulatory system for solar energy, a renewable and non-polluting energy resource that reduces fossil fuel emissions, including greenhouse gases that contribute to global climate change. The specific goals of the [Master Plan/Climate Plan] of [Municipality] support renewable energy and the use of solar energy is encouraged by New Jersey legislation.

OR

The purpose of the Ordinance is to facilitate the construction, installation and operation of Solar Energy Facilities in [Municipality] in a manner that protects public health, safety and welfare and avoids significant impacts to protected resources such as important agricultural lands, endangered

Selecting Project Partners

Steps to Selecting a Community Solar Project for Municipal Support

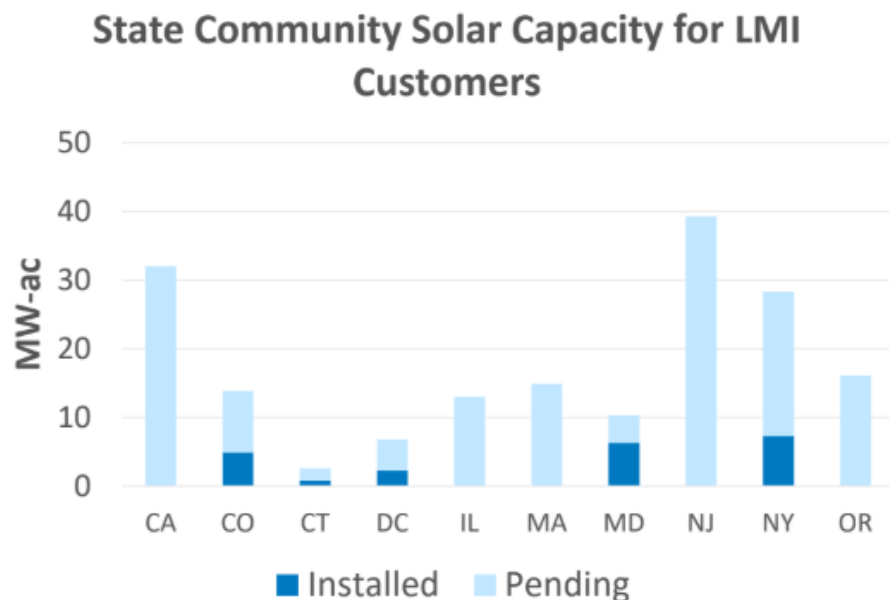
- Solicit Proposals from Developers
 - Request for Proposals (RFP) for projects where municipality has financial stake
- Select project(s) for municipal support

A developer has contacted the municipality with a community solar proposal, what next?

Make the most of your project by compiling proposals for all potential projects and selecting the one(s) that best benefit your community.

NJ Community Solar Energy Pilot

Summary of LMI Projects and Subscribers (2)



Based on the most recently available data, 21.6 MW of community solar serving LMI customers are in operation, and 155.6 MW are planned. This LMI capacity will benefit over 40,000 LMI households, once in operation.



New Jersey's Community Solar Energy Pilot Program



May 20, 2020



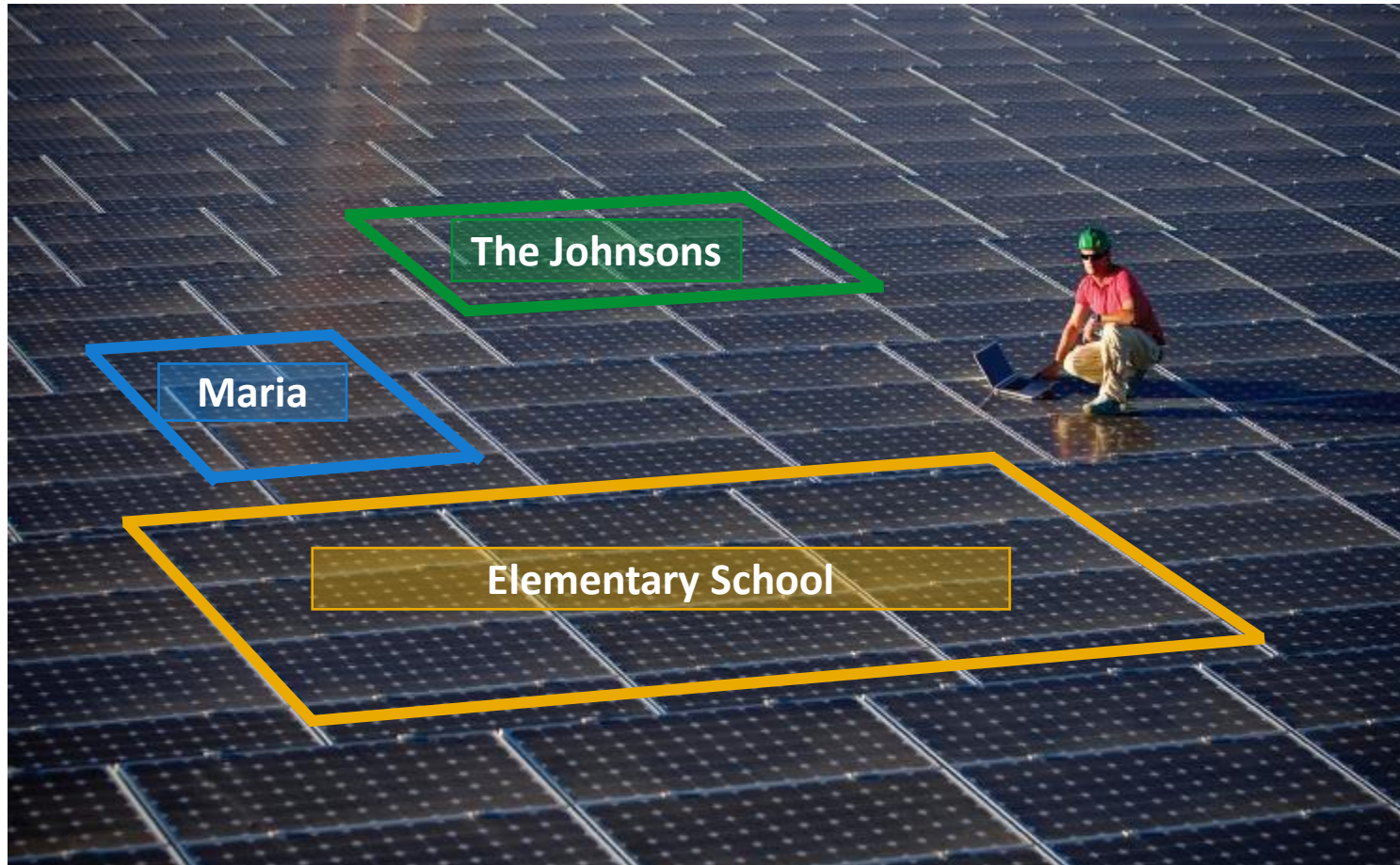
Community Solar: What is it?

NJCleanEnergy.com/COMMUNITYSOLAR

- A large solar array or facility that is virtually divided among multiple participants (“subscribers”) by means of a credit on their utility bill, and is remotely located as opposed to being located on the subscriber’s own roof.
- Enables access to solar energy to renters as well as households, institutions, or businesses where the roof isn’t appropriate for solar installation

Community Solar: What is it?

NJCleanEnergy.com/COMMUNITYSOLAR



Community Solar: Is it for you?

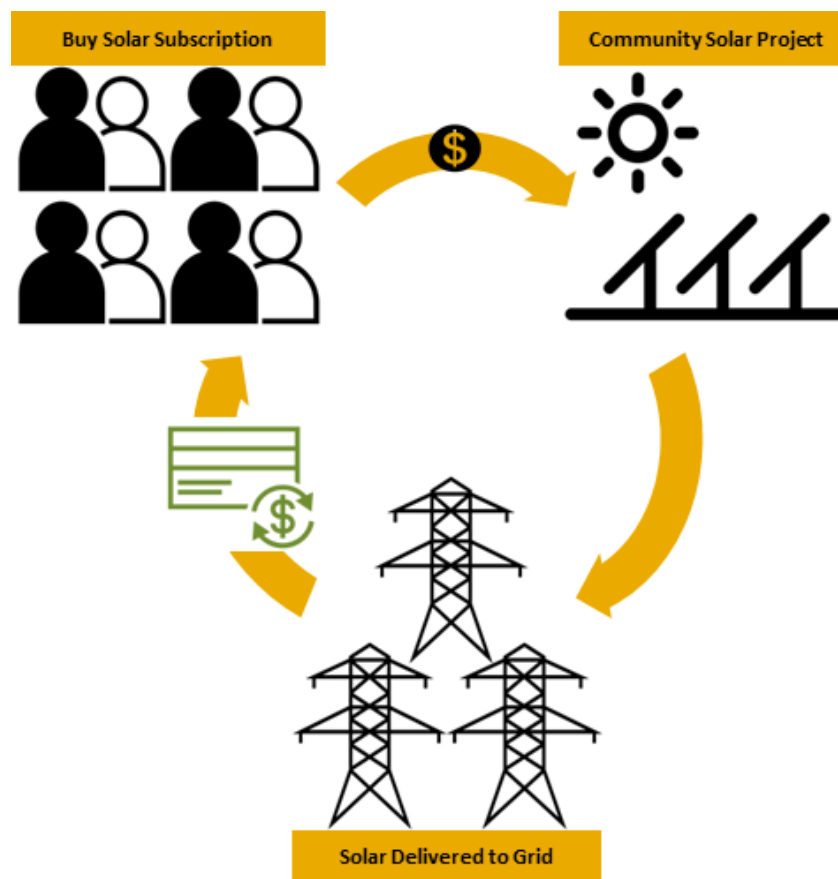
NJCleanEnergy.com/COMMUNITYSOLAR

Do you....

- Want solar but don't have a place for panels?
- Want solar but can't put panels on your home or business?
- Have room for more panels, even if you wouldn't use the additional energy yourself?

Community Solar

NJCleanEnergy.com/COMMUNITYSOLAR



Community Solar: Find your fit

NJCleanEnergy.com/COMMUNITYSOLAR



Subscribers: individual entities who get solar power



Developer: primary group organizing the solar project



Host Site: location where solar project is installed



Utility: electricity provider where solar project is installed



Installer: expert that installs the solar project

Community Solar: Subscribers

NJCleanEnergy.com/COMMUNITYSOLAR

Subscriptions to a community solar project can be in the form of:

- **Ownership:** Buying a share or portion of the community solar project or panels
- **Subscription:** Buying a portion or share of the electric output produced by the community solar project

Community Solar: Year 1 Applications

NJCleanEnergy.com/COMMUNITYSOLAR

Program Year 1 Application Period:

April 9, 2019 – September 9, 2019

Capacity Assigned:

75 MW, of which at least 30 MW (40% of the program capacity) must be allocated to projects with at least 51% of project capacity allocated to low- to moderate-income (LMI) subscribers

Community Solar: Year 1 Applications

NJCleanEnergy.com/COMMUNITYSOLAR

252 total applications received (approx. 652 MWdc)

- 232 applications for LMI projects (approx. 600 MWdc)
- 112 applications for projects sited on rooftops
- 54 applications for projects sited on brownfields, landfills, parking canopies
- 75 applications for projects sited in part or in whole on farmland

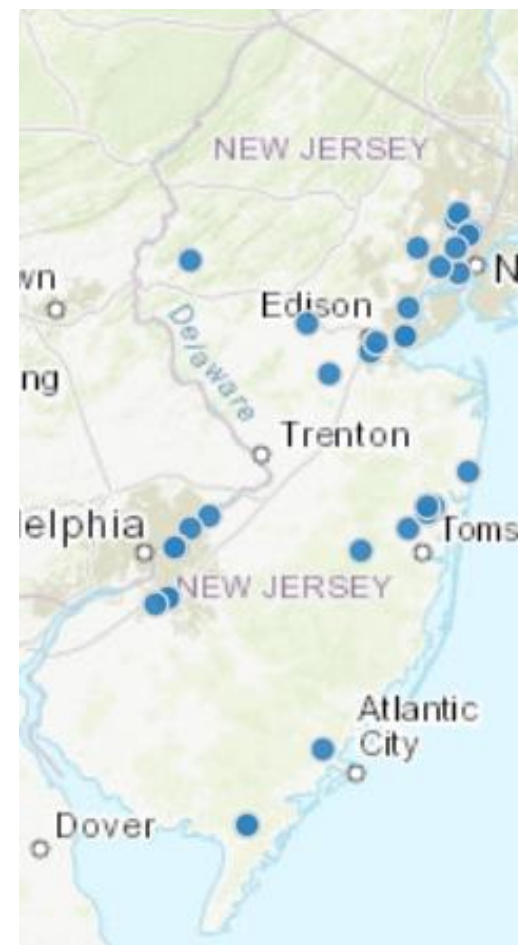
Evaluation Criteria	Max. Points
Low- and Moderate-Income and Environmental Justice Inclusion Higher preference: LMI project	30
Siting Higher preference: landfills, brownfields, areas of historic fill, rooftops, parking lots, parking decks Medium preference: canopies over impervious surfaces (e.g. walkway), areas designated in need of redevelopment No Points: preserved lands, wetlands, forested areas, farmland Bonus points for: landscaping, land enhancement, pollination support, stormwater management, soil conservation	20 Max. possible bonus points: 5
Product Offering Higher preference: guaranteed savings >10%, flexible terms* Medium preference: guaranteed savings >5% No Points: no guaranteed savings, no flexible terms* *Flexible terms may include: no cancellation fee, short-term contract	15
Community and Environmental Justice Engagement Higher preference: partnership with municipality, partnership with local community organization(s), partnership with affordable housing provider Medium preference: letter of support from municipality, project owner is a government and/or public and/or quasi-public entity, project owner is an affordable housing developer	10
Subscribers Higher preference: more than 51% project capacity is allocated to residential subscribers	10
Other Benefits Higher preference: Provides local jobs/job training, demonstrates co-benefits (e.g. paired with storage, micro-grid project, energy audit, EE measures)	10
Geographic Limit within EDC service territory Higher preference: municipality/adjacent municipality Medium preference: county/adjacent county No Points: any geographic location within the EDC service territory.	5

Community Solar: Year 1 Awards

NJCleanEnergy.com/COMMUNITYSOLAR

45 applications selected (approx. 78 MWdc)

- All 45 applications are LMI projects
 - At minimum, approx. 39.8 MWdc will be carved out for LMI subscribers
- 30 projects located on rooftops
- 15 projects located on landfills, parking canopies, a brownfield, and a former sand and gravel pit



Map Credit: NJDEP

Upcoming...

NJCleanEnergy.com/COMMUNITYSOLAR

Summer 2020: Request for Stakeholder Feedback

Public Notice, stakeholder meeting and open public comment period

Fall 2020: Program Year 2 Application Window Opens

- Sign up for the Community Solar listserv to receive program updates

More Information

EMAIL

communitysolar@njcleanenergy.com

VISIT

<https://www.njcleanenergy.com/renewable-energy/programs/community-solar>

NEWSLETTER

www.NJCleanEnergy.com/NEWSLETTER

SUBSCRIBE

www.NJCleanEnergy.com/LISTSERVS

@NJCleanEnergy

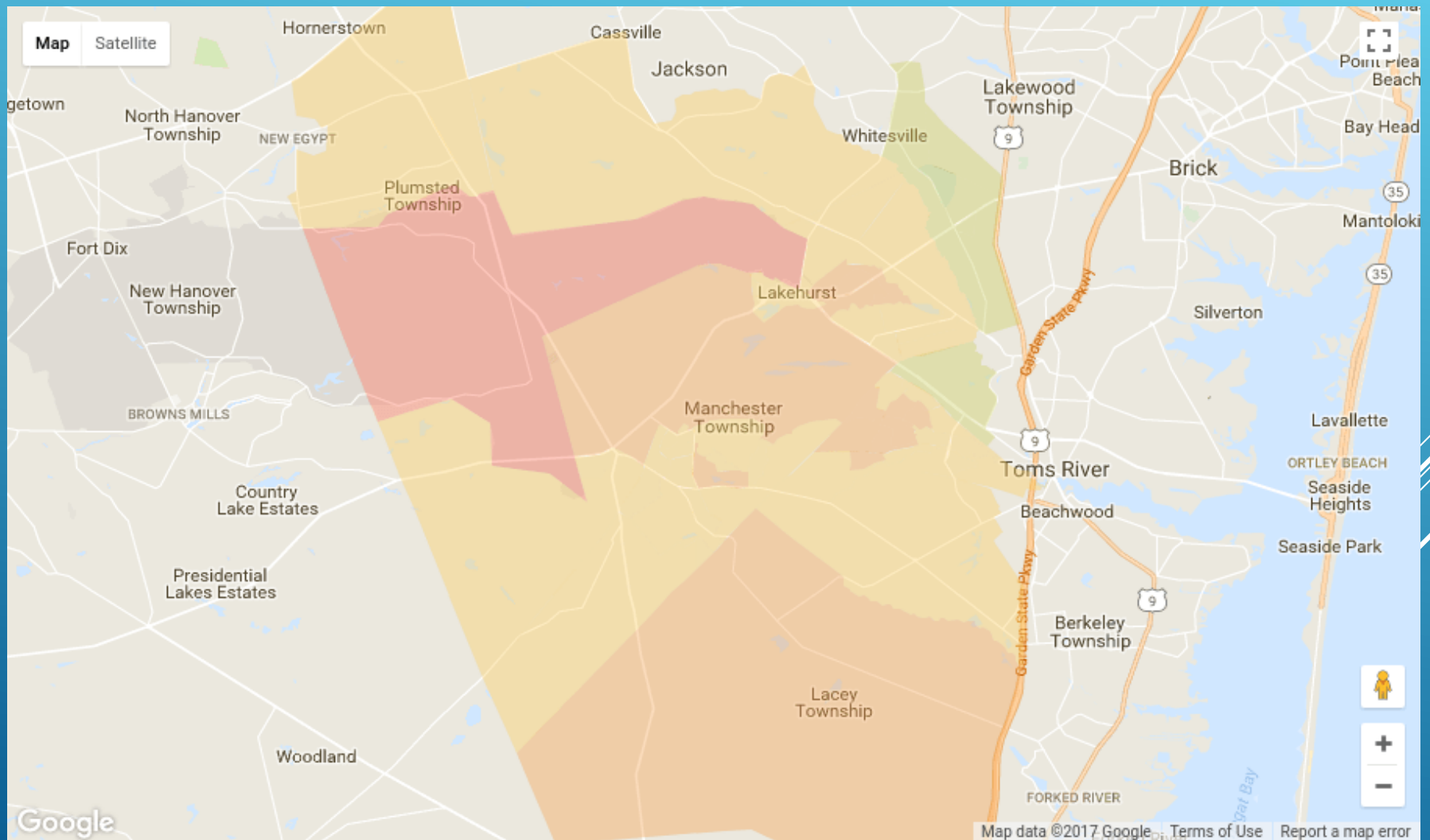


Joseph Veni, CPWM, LEED AP
Supervising Engineer
Public Works & Utilities

Gary Sylvester, CPWM
Director of Building Department
Inspection Land Use & Planning


Manchester Township

Ocean County



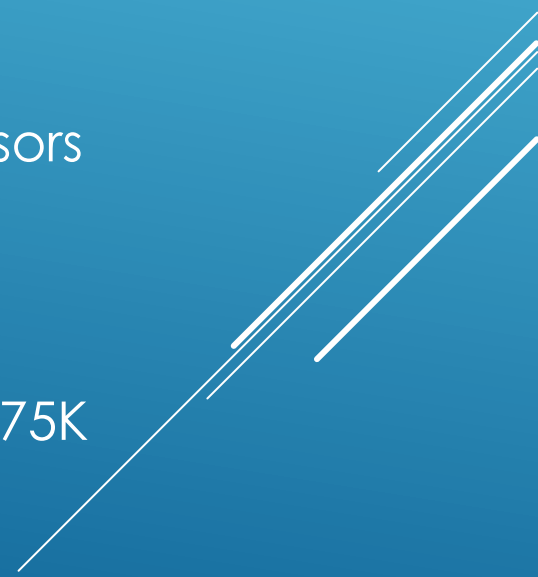
WRONG PLACE AT THE WRONG TIME

Original Solar Project – 2007

- Virtual Net Metering – Not an option
 - Loss of valuable recreation fields
 - Tree Clearing (Positive with a Negative)
 - Inefficient Buildings
 - Technology
- 
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FIRST PRIORITY – ENERGY REDUCTION

Various Municipal Buildings

- Conversion T12 to T8
 - Energy Audit #1
 - Replacement Boilers – Direct Install
 - Daylighting Systems w/ photo and occ. sensors
 - Solar Thermal
 - Energy Audit #2 (W&S facilities)
 - NJCEP Rebate Incentive Totals - approx. \$175K
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NEXT STEP...SOLAR

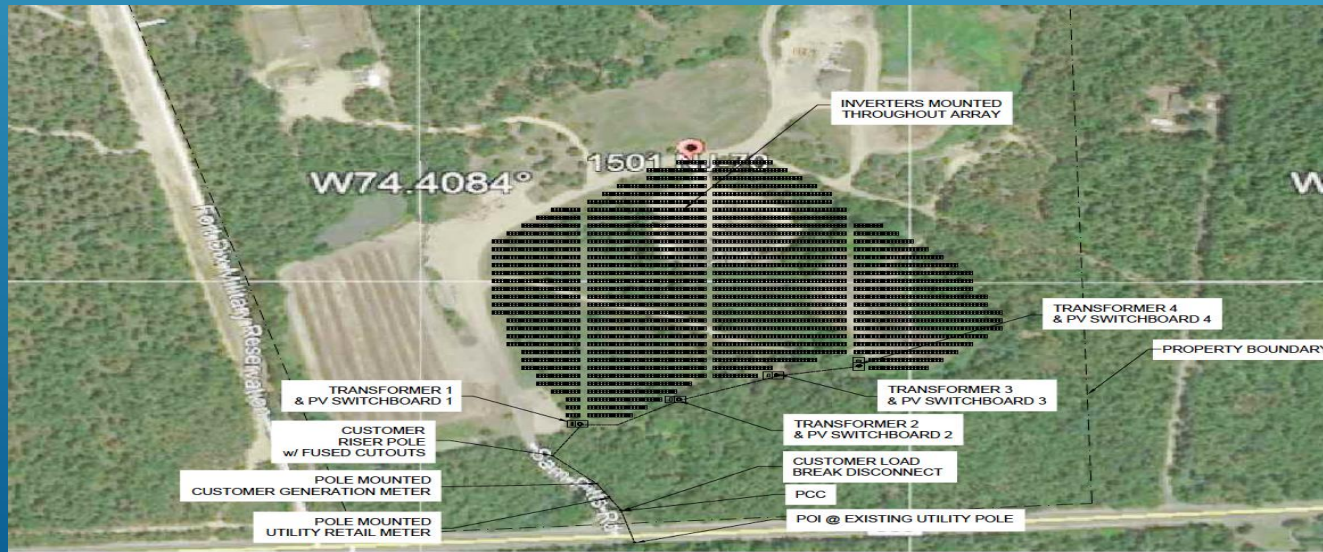
Hurdles

- \$\$ to cap landfill 2009
 - Location – Rooftops/Tree Clearing
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PROBLEM SOLVED

Team up with Nextgrid – Community Solar Program

- Nextgrid to pay to cap landfill per NJDEP Requirements
- Nextgrid to furnish and install 4.62 MW solar farm
- Nextgrid pays Township to lease land
- Landfill located in redevelopment zone which simplifies the procurement process for the developer

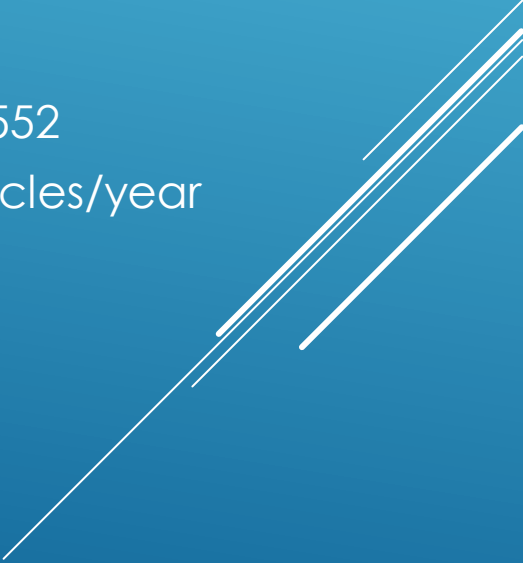


BENEFITS OF COMMUNITY SOLAR PROGRAM

LMI Residents


- Year 1 Output – 6,249,940 KWh
- Estimated 663 homes at 9,500 kWh/home
- Estimated Savings - \$.03/kWh
- Yearly LMI Savings - \$187,498 (\$281/household/yr)
- Savings Over Life of System \$4,687,455

Municipality

- Yearly Rent to Manchester \$352,600
 - Total Compensation Over Life of System \$9,958,552
 - Greenhouse Gas Emissions – 955 Passenger Vehicles/year
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COMMUNITY OUTREACH

Developing a Plan

- Educate residents about the community solar program in general
 - Recruit LMI customers
 - Possible Outreach Resources – Municipal Website, Mailing List, Local Newspaper, Green Fair, etc.
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QUESTIONS
THANK YOU.





ONECITY
ONECOMMUNITY
ONEGOAL

Progress

Project Site



Project Overview

PHASE I

Program Summary

- 820 rental apartments of which 80 are affordable housing.
- 12,000 SF of coworking space.
- 10,000 SF Urban Food Hall targeting local entrepreneurial startups.
- 170,000 SF of community retail anchored by 60,000 SF fresh food supermarket operated by Shop Rite.
- 1,600 parking spaces including designated commuter parking.

Rehabilitation of Train Station and other Public Transit Facilities

Substantial investment into improving and rehabilitating the historic Brick Church Station as well as upgrades to the adjacent commuter bus stops, road infrastructure and sewer/water infrastructure.

Local & Community Benefit

Located in a NMTC severely distressed census tract, the project will improve quality of life for local residents through: the increase of mass-transit usage; elimination of blight; creation of jobs and economic opportunity; and creation of an equitable 24/7 community. The project sponsor will work closely with the City of East Orange to ensure that local priority is given with the selection of vendors/contractors and that residents get priority access to permanent jobs created by the project.

Significant Investment in Public Infrastructure

Significant private capital will be invested in public infrastructure and other community benefits. This will include a commuter parking facility, streetscape beautification plans for Main Street, pedestrian plazas and walkways. The commuter parking facility will provide improved wayfinding, traffic safety and direct access to Brick Church Station.

PHASE II

Program Summary

- 250 Rental Apartments
- 250 space Parking Garage
- 25,000 SF of commercial space
- Additional Infrastructure Investment



The Crossings at Brick Church Station

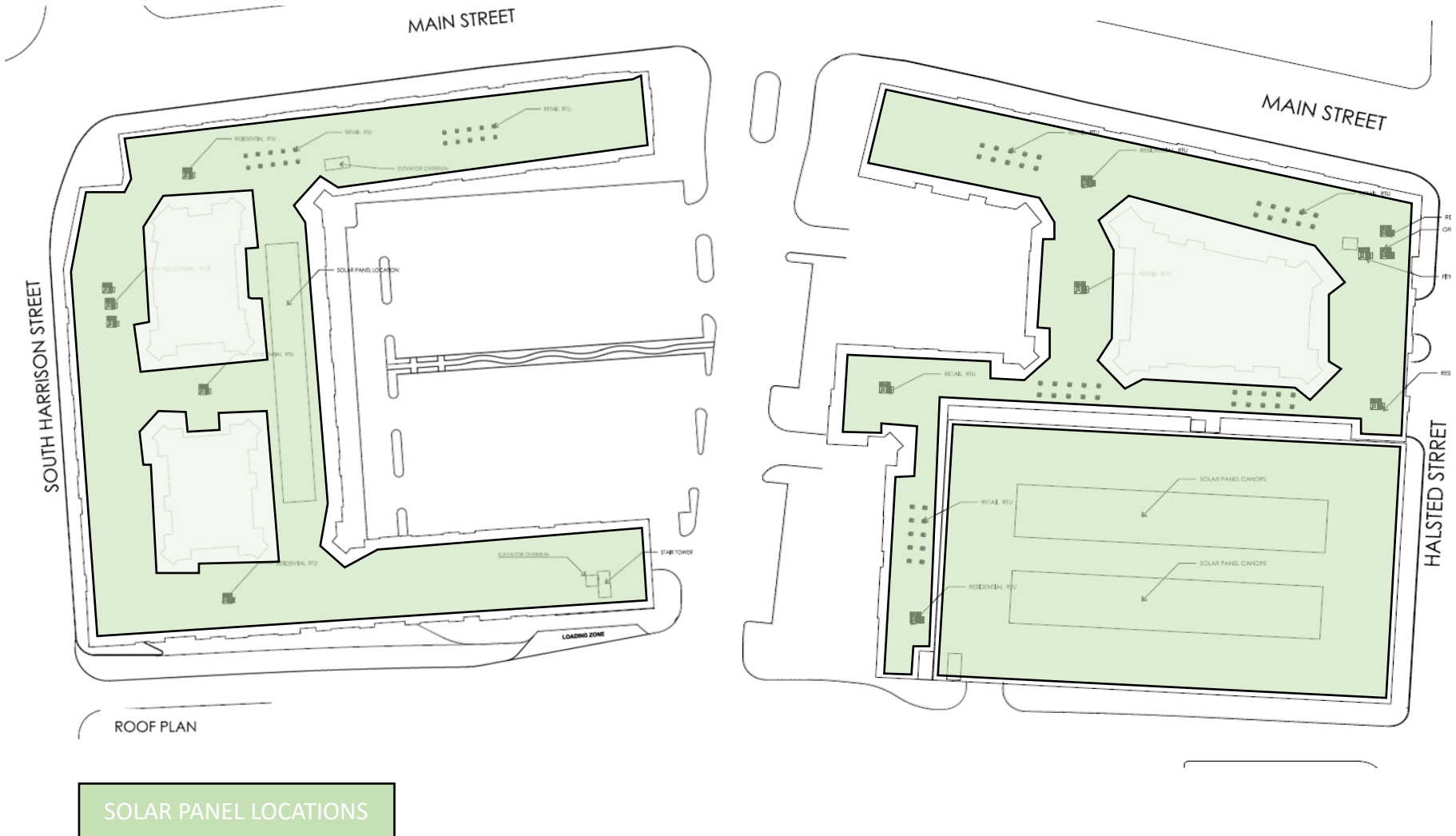


VIEW SOUTHWEST TOWARDS TRAIN STATION

MINNO  WASKO
ARCHITECTS AND PLANNERS

THE
CROSSINGS
AT BRICK CHURCH STATION

Site Plan



Sustainable Jersey Community Solar Guidebook Case Study for East Orange:

0.5054 MW LMI project sited on a parking deck, Brick Church Redevelopment Project

Municipal Roles in Community Solar Project

- Ambassador to project partners: municipal government is aiding in outreach to affordable housing authorities
- Outreach partner: town will promote project to eligible residents via website, etc. reducing customer acquisition costs of developer

Benefit to Municipality/Community from Community Solar Project

- Discounted energy costs for LMI residents (10-15% discount)

Economic and Community Benefits

Public Improvements

Brick Church Train Station: Cosmetic Improvements, Safety Enhancements, Digital Signage	\$ 492,500.00
New Bus Station on Main Street	\$ 40,000.00
Public Parking Deck	\$ 5,820,898
Public Utility Infrastructure	\$ 975,000
New Roads & Streets, Signals, ADA	\$ 2,015,000
Pedestrian Promenade	\$ 475,000
Brownfield Remediation of Contaminated Ground Water	\$ 1,750,000

Job Creation & First Source Employment

Developer shall make good faith efforts to employ residents of the City of East Orange in both construction and permanent jobs associated with the retail development. Additionally, recruit City residents for all employment opportunities in connection with the project, including participation in the City job fairs and utilization of its central registry. Meetings will be held with appropriate City officials to determine the status of recruitment and training efforts, and to plan future employment training and recruitment activities.

Commuter Parking

A 1,200+ space parking garage and additional surface parking to be shared between shoppers, residents & commuters.

Off-Tract Improvements

Redeveloper to perform off-site improvements to be discussed and agreed upon among the parties.

Green Infrastructure

Over the course of build out of the entire Project, Redeveloper shall incorporate green infrastructure elements into the Project.

Economic and Community Benefits

Police Substation On-Site

Developer shall finance and construct, and the City shall appropriately staff, a police substation to be located within the project boundary.

Ancillary Benefits of Project

- A. Corridor & Streetscape Improvements
- B. Mural Arts Program - to deterred graffiti vandalism and encouraged local artists to get involved in the community in a positive way.
- B. Food Hall Incubator - Phase 1B will include a 10,000 SF food hall incubator space which will be designed and operated to help support the growth of small local businesses. The food hall will provide a diverse mix of local food concepts for the residents of East Orange to enjoy. The Project team will look for chefs who have a tie to the East Orange area. The concept will support local culinary entrepreneurs by removing barriers to starting a business.
- C. Co-Working Space - Phase 1B will include an approximately 12,000 SF coworking facility meant for local entrepreneurs, creatives and independent professionals. Coworking facilities in cities across the US from Newark to New Orleans have recently played a significant role in catalyzing the growth of small local businesses which leads to job creation. The coworking space at The Crossings at Brick Church Station will provide low-cost space, business services, training and networking opportunities in a collaborative environment that will transform the lives and businesses of area entrepreneurs. This will drive economic development and community-building and lead to significant job creation.

- ❖ City Hall Social Media
- ❖ Community Meetings
- ❖ Direct Outreach to Property Managers



Off-Site Case Study

2.22 MW LMI project

Sited on a rooftop in **North Bergen**, supported by **Secaucus**

- Secaucus acted as Project Ambassador
Mayor's office introduced developer to affordable housing managers
- Discounted energy costs LMI residents (15% discount)

Community Solar Pilot Year 1

Municipality	County
Egg Harbor Township	Atlantic
Carlstadt/Wood-Ridge Twp	Bergen
Teterboro Borough	Bergen
Cinnaminson Township	Burlington
Delanco Township	Burlington
Glendora (Gloucester Twp)	Camden
Pennsauken Township	Camden
Woodbine Borough	Cape May
East Orange City	Essex
Newark City	Essex
Deptford Township	Gloucester

Municipality	County
Jersey City	Hudson
North Bergen Township	Hudson
Secaucus Township	Hudson
Edison Township	Middlesex
Perth Amboy City	Middlesex
South Brunswick Township	Middlesex
Wall Township	Monmouth
Lakewood Township	Ocean
Manchester Township	Ocean
Bridgewater Township	Somerset
Linden City	Union
Franklin Township	Warren

Community Solar Guidebook

New Sustainable Jersey Community Guidebook coming soon!

- Maximize benefit to low and moderate income residents
- Choose municipal project roles
- Select site or sites for projects
- Select a solar developer or other partners
 - Procurement Guidance/RFP Templates
 - Resource Guide



Images: www.nrel.gov/docs/fy11osti/49930.pdf

Sustainable Jersey Supporters & Sponsors

Program Underwriters



Grants Program



Corporate Sponsors

PLATINUM



GOLD



SILVER



BRONZE



Resources

Free Municipal Tech Coaching – Lauren, skowronl@tcnj.edu

Sustainable Communities Grant Program – Atlantic City Electric (ACE)

Six (6) \$5,000 grants

Ten (10) \$2,000 grants

www.sustainablejersey.com/grants



Upcoming Energy Events

Million\$ Available Now to Fund the EV Revolution in Your NJ Community

Tuesday, May 26, 3PM- 4PM

Adding EVs to Your Municipal Fleet and Community Webinar

Wednesday, June 24, 1-2:30PM

Sustainable Energy Communities Webinar

Wednesday June 10, 1-2:30 PM

Registration available at www.sustainablejersey.com/nc/events.



Sustainable Jersey Energy Efficiency Outreach Toolkit Trainings

Bringing Energy Efficiency to Your Town — Everything We Know About Having Successful Outreach Campaigns

Residential Energy Efficiency Outreach Trainings

- June 2, 2:00 – 3:30 PM, New Jersey Natural Gas Territory
- June 3, 6:30 – 8:00 PM, for all New Jersey municipalities
- June 4, 2:00 – 3:30 PM, South Jersey Gas Territory

Commercial Energy Efficiency Outreach Training

- June 11, 1:00 – 2:30 PM, for all New Jersey municipalities



*Toolkits include
'Plug and play' outreach
collateral and best practices
for successful outreach
campaigns.*



Contact Information

Ariane Benrey

Program Administrator, New Jersey Board of Public Utilities

ariane.benrey@bpu.nj.gov

Dan Jennings

Director of Policy, Planning, and Development, East Orange

dan.jennings@eastorange-nj.gov

Joseph Veni

Supervising Engineer, Manchester

jveni@manchestertwp.com

Tracey Woods, Sustainable Jersey

Project and Research Specialist

woodst@tcnj.edu

