

SUSTAINABILITY SUMMIT



Suddenly Solar: Making Solar Accessible

May 5, 2023



Speakers

Tracey Woods

Energy Program Manager, Sustainable Jersey

Sawyer Morgan

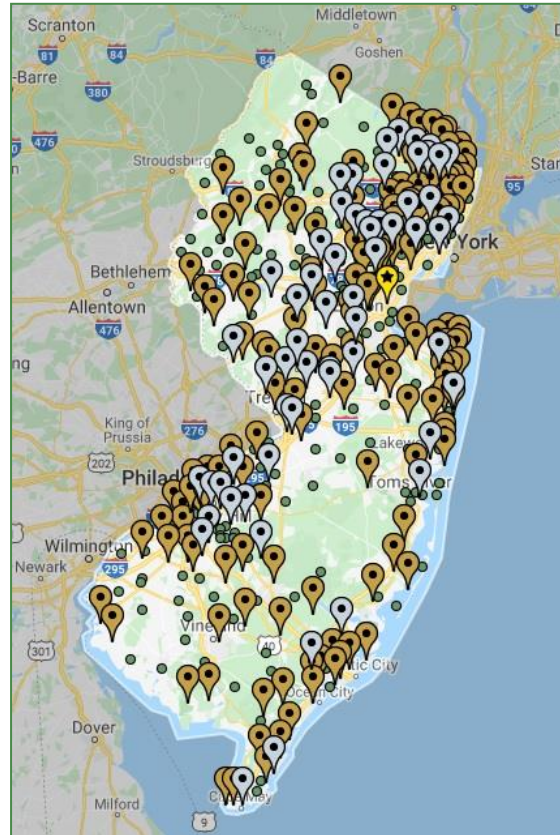
Division of Clean Energy, New Jersey Board of Public Utilities

Introducing Sustainable Jersey

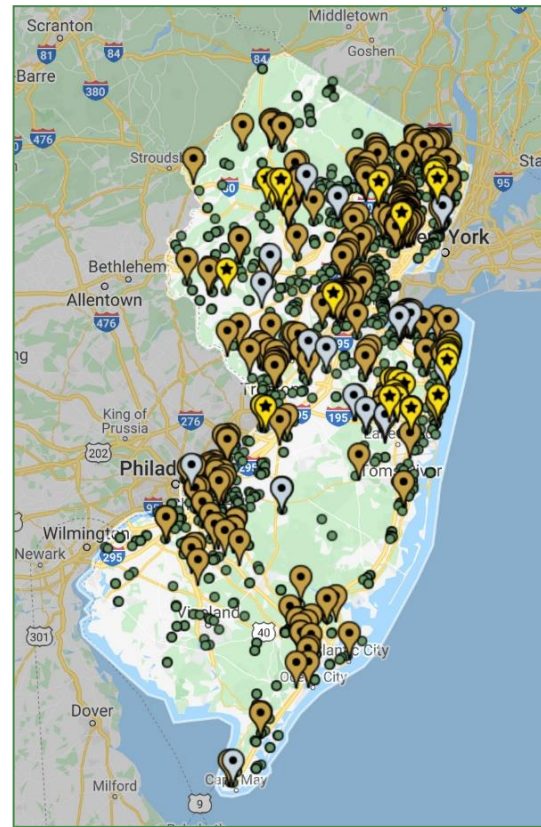
- **Certification program** for municipalities and schools in New Jersey
- **Tools, resources, and guidance** to help municipalities and schools become more sustainable
- **Grants and funding** for municipalities and schools
- **Regional Hubs**



Sustainable Jersey Participants



Municipal Program



Schools Program

Schools Program

- 64% of NJ school districts participating
- 1056 schools participating
- 365 schools certified
 - 317 Bronze
 - 48 Silver

Municipal Program

- 82% municipalities participating
- 465 municipalities participating
- 221 Certified
 - 151 Bronze
 - 69 Silver

Agenda

1. Overview of Sustainable Jersey Solar Actions
2. Community Solar Basics
3. New Jersey's Community Solar Program
Sawyer Morgan, Division of Clean Energy
New Jersey Board of Public Utilities
4. Demonstration of New Jersey
Community Solar Project Finder
5. Overview of Sustainable Jersey
Community Solar resources
6. Q and A



Municipal Energy Actions

| | Energy Efficiency | Renewable Energy | Alternative Fuel Vehicles |
|-----------------------------|---|---|--|
| Municipal Operations | <ul style="list-style-type: none"> • Energy Efficiency for Municipal Facilities • Energy Tracking and Management | <ul style="list-style-type: none"> • On-Site Geothermal • On-Site Solar +10 pt storage/resilience +5 pt solar thermal • On-Site Wind • Buy Renewable Energy | <ul style="list-style-type: none"> • Fleet Inventory • Purchase Alternative Fuel Vehicles • Meet Green Fleet Targets |
| Community Energy Use | <ul style="list-style-type: none"> • Energy Assistance Outreach • Commercial Energy Efficiency Outreach • Residential Energy Efficiency Outreach | <ul style="list-style-type: none"> • Make Your Town Solar Friendly • Municipally Supported Community Solar • Solar Outreach • Renewable Government Energy Aggregation (R-GEA) | <ul style="list-style-type: none"> • Make Your Town Electric Vehicle (EV) Friendly • Public EV Chargers • Electric Vehicle Outreach |

Municipal On-Site Solar

5 points Solar thermal system

10 - 30 points On-site photovoltaic solar system, points vary by percentage of electricity offset

Additional 10 points System includes islanding/grid-interactive infrastructure and energy storage

Additional 5 points for having a solar thermal system AND solar array

Solar Thermal Case Study: Manchester, NJ

- Solar hot water system
- Can reduce water heating costs by 80%
- Hot water for police department:
 - 5 showers
 - 16 sinks



Manchester, NJ solar thermal installation

Solar Outreach

10 points: Solar Purchasing Program

- Solarize program
- Solar Marketplace
- Outreach Partnership with Solar Program

Additional 5 points (15 points total)

- At least one activity to promote solar, such as newsletter or social media
- At least one incentive to promote solar, such as waiver for permitting fee for non-profits

TOP RIGHT: Ribbon cutting event for Paterson's solar outreach campaign.
Image Courtesy of PosiGen Solar & Energy Efficiency

BOTTOM RIGHT: Social media graphic from Maplewood's Solar Challenge



Maplewood Solar Challenge Estimates look like this!

These are real screen shots of a quote comparison page for a standard size house in the Hilton Neighborhood of Maplewood.

The program is managed by EnergySage, an online solar marketplace that was developed with funding and support from the U.S. Department of Energy. All the contractors go through a screening process, and you can see user ratings.

You can easily toggle between the three payment options to see how much you will pay and how much you earn over the course of 20 years with each option.

Look at the savings! Again this is a standard size, south facing roof in the Hilton Neighborhood!

Sign up for free at maplewoodsolar.org

| Quote | Quote 1 | Quote 2 | Quote 3 | Quote 4 | Quote 5 |
|---|-------------------------------------|---------------------|----------------------|---------------------|-----------------------|
| Equipment | ASPECT LLC | SUN SOLAR | SUN SOLAR | TRISA SOLAR ENERGY | GREENPOWER SOLAR INC. |
| FINANCING OPTION | CASH PURCHASE | CASH PURCHASE | CASH PURCHASE | CASH PURCHASE | CASH PURCHASE |
| 20-year total electricity cost (calculated by EnergySage) | \$52,200 | \$12,184 | \$15,420 | \$12,010 | \$12,000 |
| 20-year total electricity cost (calculated by EnergySage) | \$102,291 - \$9,510 | \$102,291 - \$9,090 | \$102,291 - \$10,002 | \$102,291 - \$7,340 | \$102,291 - \$5,955 |
| Estimated benefits from solar | Savings on electric bills: \$21,005 | \$21,958 | \$24,200 | \$19,372 | \$22,827 |
| Production incentives | \$23,548 | \$22,228 | \$21,900 | \$23,071 | \$24,221 |
| Total 20-year benefit | \$44,013 | \$44,186 | \$46,101 | \$42,443 | \$42,048 |
| Payback period | 4.2 Years | 4.0 Years | 3.1 Years | 4.8 Years | 5.4 Years |
| Financial return | 21.4% | 22.2% | 28.5% | 19.2% | 21.2% |



| | | | | |
|---|--------------------|--|--|--|
| HOME | RESIDENTIAL | COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT | | |
| RENEWABLE ENERGY <ul style="list-style-type: none">▼ PROGRAMS<ul style="list-style-type: none">▶ SUCCESSOR SOLAR INCENTIVE PROGRAMTRANSITION INCENTIVE PROGRAM▶ SREC REGISTRATION PROGRAMOFFSHORE WINDPREVIOUS PROGRAMSCOMMUNITY SOLARGRID MODERNIZATION | | | <h2>Considering Solar? Understand Your Options</h2> <h3>Introduction</h3> <p>As with most other durable good or big-ticket purchases, paying cash for a solar electric system is generally the most cost-effective way to obtain the system. However, many homeowners and other types of property owners considering a solar investment cannot, or prefer not to, pay cash. Additionally, the owner of the solar electric system must bear the performance and regulatory risks to investment payback.</p> <p>Below is a brief explanation of the three most popular ways for homeowners and other types of property owners to obtain a solar system. When making any major purchase or investment decision, we recommend that you solicit different options and attempt to compare the advantages and disadvantages of at least three offers. In the description below, we interchange the use of "homeowner", "property owner" and "site host", since many of the considerations apply both to residential and commercial/industrial properties that potentially become host to a solar electric system.</p> <p>Make sure your home or building is as energy efficient as possible before installing solar. Benefits</p> | |

Make Your Town Solar Friendly

15-30 points

Supportive Solar Zoning Ordinance

- Adopt Solar Zoning Ordinance
- Amend Permitting Fee Ordinance



- Note: SolSMART Silver designation qualifies for 15 points for this action

Streamlined Permitting

- Post requirements online

Additional activities:

- Train first responders
- Cross-train codes and permitting staff
- Expedited permitting
- Offer narrow inspection timeframe
- Expedite or eliminate zoning review

SolSmart

- Points-based national certification program
- Solar planning, zoning, permitting, and outreach
- SolSmart Silver counts for Make Your Town Solar Friendly Action

solsmart.org



Image from www.solsmart.org.

Municipally Supported Community Solar Action

15 points

Municipality:

- Establishes community criteria for project
- Municipal outreach campaign

10 additional points (at least TWO):

Project featured in outreach campaign includes:

- Anchor subscriber
- Site host
- Workforce training
- Low- and moderate-income discount
- Energy efficiency services

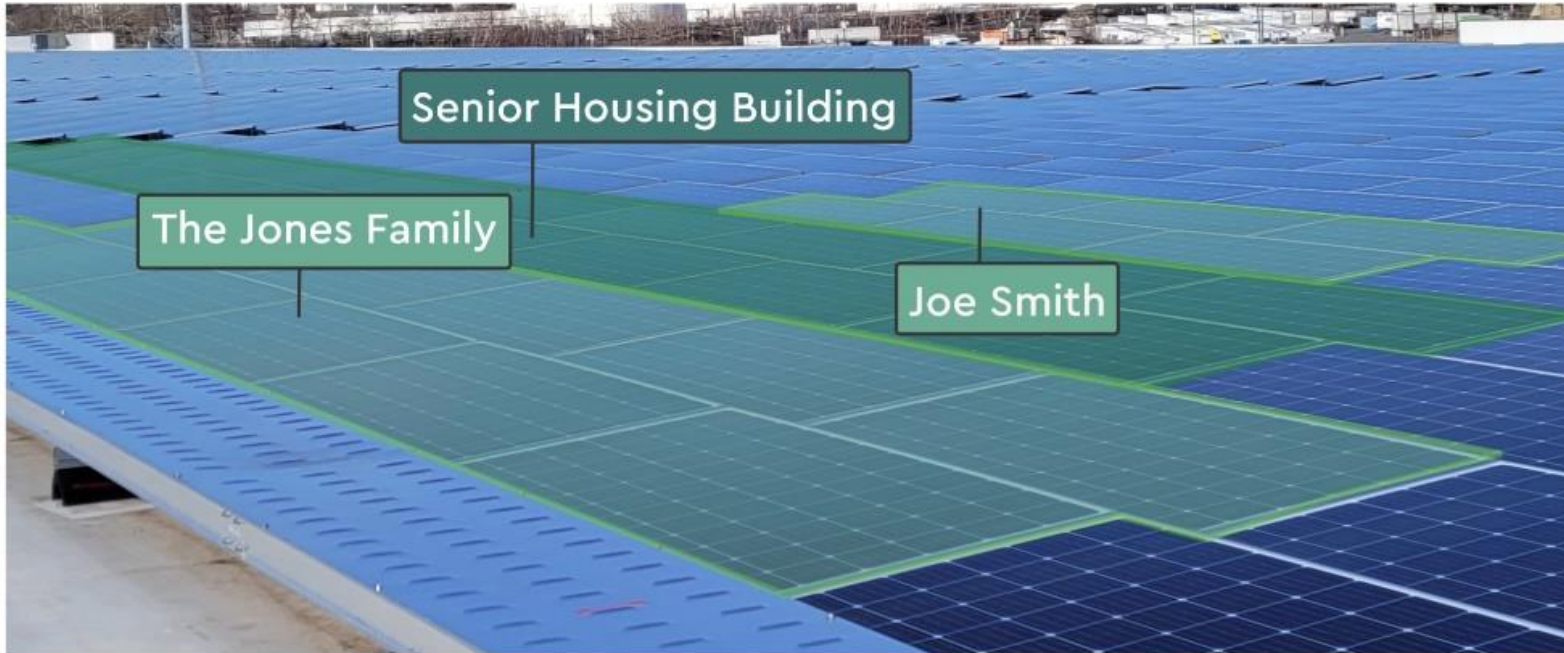


Sustainable Jersey's
[Community Solar Resource Page](#)



Community Solar Basics

What is Community Solar?



The image above demonstrates how solar generation from a large solar array can be shared between multiple electrical accounts.

Original Image: NJBPU. 2021. Perth Amboy Community Solar Project; overlaid with example subscriber types.

Large solar installation with multiple subscribers

- Provides benefits of solar to those who are not able to install solar (renter, shade, cost)
- Each subscriber receives billing credits for section of larger solar array

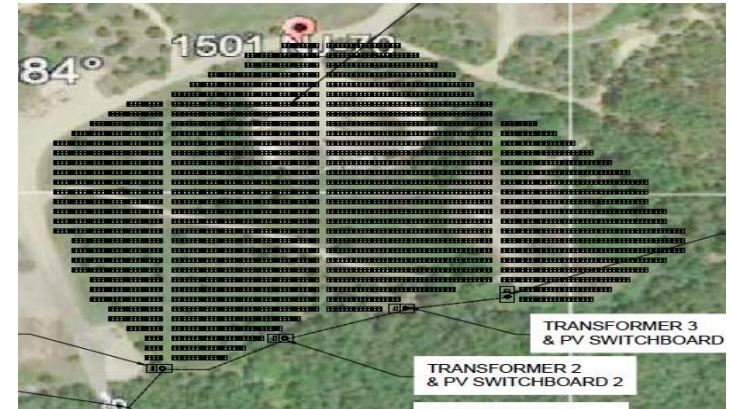
Benefits of Community Solar

- Expands access to solar
- Energy savings for subscribers
- Local generation of clean energy
- Local job creation/workforce development
- Creating positive development on difficult sites, such as brownfields and landfills
- Reduction of municipal emissions

For more about municipal roles in community solar, check out a [recording](#) of Sustainable Jersey's Case Studies from New Jersey's Community Solar Energy Pilot Program Year 1 webinar.



Planning drawing from community solar project on Perth Amboy commercial building



Planning drawing from Manchester Landfill Community Solar Project

Subscribing to a Project

STEP 1

Potential subscriber picks community solar project to subscribe to

STEP 2

Subscriber receives a community solar billing credit on their electric bill

STEP 3

Subscriber receives separate bill for community solar subscription fee

* Percentage of the community solar billing credit retained by customer as a savings

This month's charges and credits

| | |
|---|-----------------|
| Gas charges - PSE&G | \$12.56 |
| <i>Plus</i> Electric charges - PSE&G | \$192.36 |
| <i>Plus</i> WorryFree Protection Plan charge - see page 5 for details | \$19.38 |
| <i>Plus</i> Community Solar Credit - see page 5 for details | -\$115.57 |
| This month's charges and credits | \$138.73 |
| Total amount due by Mar 7, 2018 | \$138.73 |

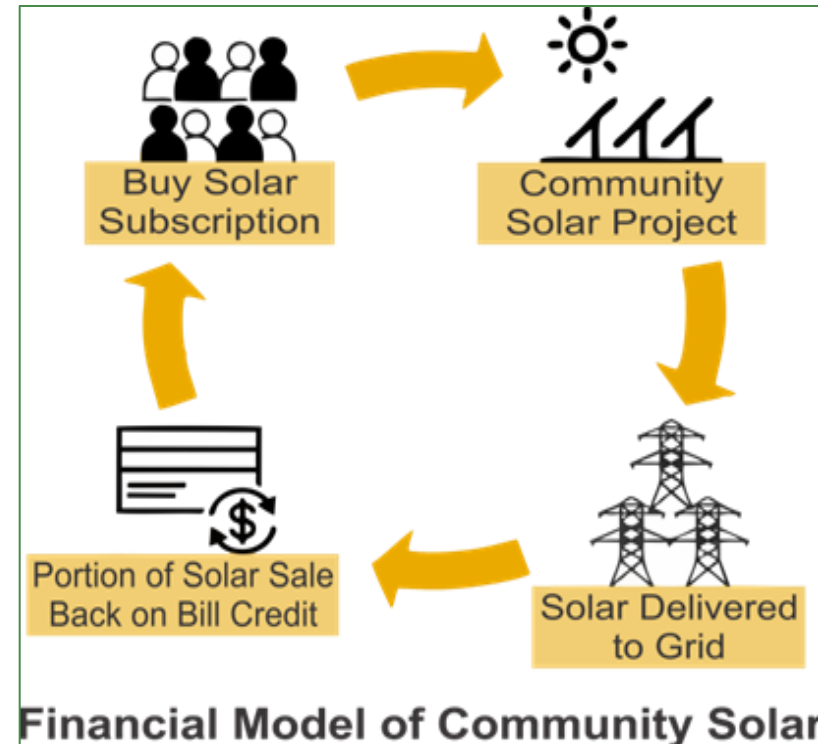
Example above is excerpted from sample [PSE&G residential bill](#) showing community solar billing credit.

EXAMPLE COMMUNITY SOLAR INVOICE

| | |
|---|-------|
| Community Solar billing credit from electric bill | \$100 |
| % of the billing credit retained by the customer, in this example 20%.* | -\$20 |
| Fee for Community Solar Subscription | \$80 |

How Much Can Residents Save?

- Most community solar subscriptions structured to result in 10 - 30% savings
- Many projects offer low- and moderate-income residents higher percentage of savings



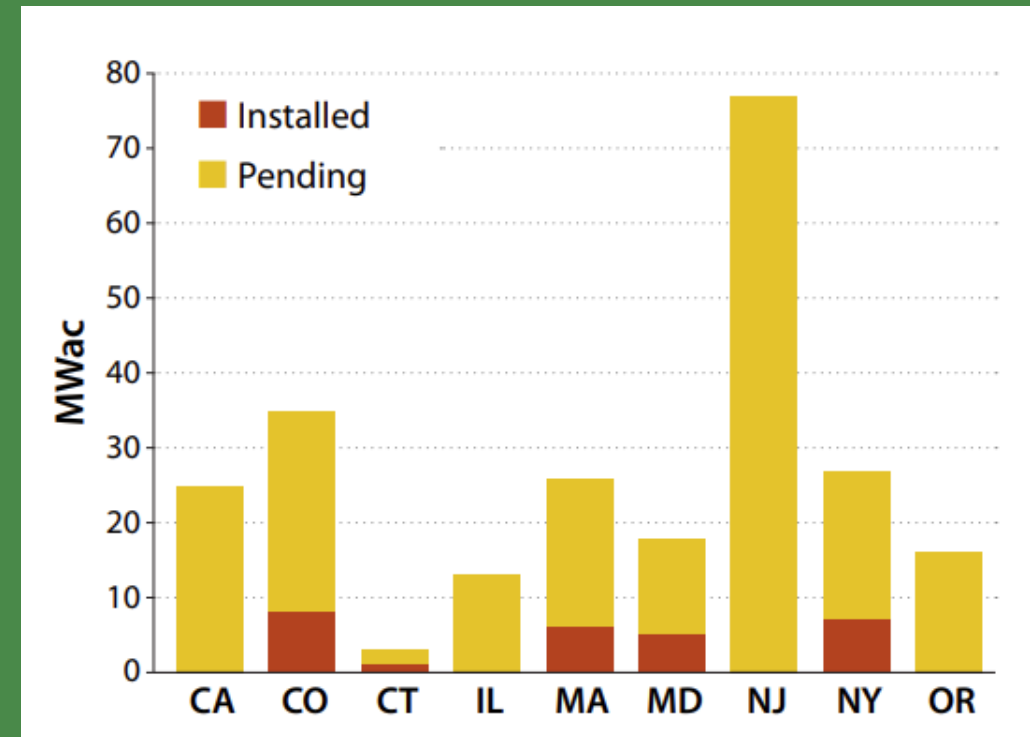
Financial Model of Community Solar

Image provided by [NJCEP](#)

New Jersey's Community Solar Program

Sawyer Morgan, Ph.D.
Research Scientist, Division of Clean Energy
New Jersey Board of Public Utilities

LMI dedicated community solar capacity by state as of 2020



NREL. 2021. *Equitable Access to Community Solar: Program Design and Subscription Considerations*.
<https://www.nrel.gov/docs/fy21osti/79548.pdf>

Overview of community solar

NJCleanEnergy.com/COMMUNITYSOLAR



Caven Point, Jersey City – Hartz Mountain/PowerMarket



Community Solar: What is it?

NJCleanEnergy.com/COMMUNITYSOLAR

- A large solar array that is virtually divided among multiple participants (subscribers) by means of a credit on their utility bill.
- Is generally remotely located, as opposed to being located on the subscriber's own roof.
- Enables access to solar energy for those who have not been able to go solar in the past, including renters and households, institutions, or businesses where the roof isn't appropriate for solar installation, or solar is cost-prohibitive.

Community Solar Pilot Program

NJCleanEnergy.com/COMMUNITYSOLAR

- Program Year 1
 - The Board awarded 45 projects with 76 MW on December 20, 2019.
 - 20 projects with 44 MW have come online.



Mount Laurel – Photo courtesy Solar Landscape



Community Solar Pilot Program

NJCleanEnergy.com/COMMUNITYSOLAR

- Program Year 2
 - The Board awarded 105 projects with 165 MW on October 28, 2021.
 - 8 projects with 5.9 MW have come online.
 - Remaining projects have a completion deadline of November 4, 2023.
- The Board elected to forego PY3 and develop the permanent Community Solar Energy Program.



Photo courtesy Solar Landscape

Pilot Program awards

NJCleanEnergy.com/COMMUNITYSOLAR

150 applications selected (243 MW)

- All 150 are LMI projects
 - At least 122 MW will be carved out for LMI subscribers
- 126 projects located on rooftops
- 18 projects on landfills
- 2 projects on brownfields
- 3 projects on parking canopies
- 1 project on a former sand and gravel pit



Red: In service
Blue: In development



CSEP eligibility and capacity

NJCleanEnergy.com/COMMUNITYSOLAR



Linden Hawk Rise Solar, Linden – Navisun



CSEP eligibility and capacity

NJCleanEnergy.com/COMMUNITYSOLAR

Overall program capacity

- Energy year 2024: at least 225 MW
- Energy year 2025: at least 225 MW
- Energy year 2026 and beyond: at least 150 MW
- Projects approved to participate in the Pilot that did not reach operation may continue to register and would not count against or be subject to capacity limits.

CSEP eligibility and capacity

NJCleanEnergy.com/COMMUNITYSOLAR

Siting

- Projects may be sited on:
 - Rooftops;
 - Carports and canopies over impervious surfaces;
 - Contaminated sites and landfills; and
 - Man-made bodies of water that have little to no established floral and faunal resources (i.e., floating solar).



Solar Landscape



Sunwealth/Citrine/Pfister



Navisun



New Jersey Resources



New Jersey
clean
energy
program

Project registration process

NJCleanEnergy.com/COMMUNITYSOLAR



Tri-County Landfill Solar Farm, Delanco – Soltage/AC Power



Project registration process

NJCleanEnergy.com/COMMUNITYSOLAR

Maturity requirements

- Similar to ADI Program
- Part 1 interconnection agreement
 - ≥ 1 MW – completed
 - < 1 MW – applied
- All non-ministerial permits
- Subscriber acquisition plan
- Community engagement plan
- For contaminated sites and landfills, NJDEP verification of eligibility with BPU certification, permit readiness checklist, and approved site mitigation plan

Project registration process

NJCleanEnergy.com/COMMUNITYSOLAR

Application and project selection

- Registration in ADI Portal
- First-come, first-served with potential tiebreaker
- Open registration for initial 2-week period
 - EDC tranche is not filled
 - projects accepted and portal remains open until full
 - EDC tranche capacity exceeded
 - tiebreaker on guaranteed minimum bill credit for subscribers

Standards for subscribers

NJCleanEnergy.com/COMMUNITYSOLAR



South Brunswick – Nexamp



LMI participation

NJCleanEnergy.com/COMMUNITYSOLAR

Low- to moderate-income households

- All projects must have 51% of capacity subscribed by LMI subscribers.
- LMI households have income below 80% of area median income.
- LMI status may be verified with participation in assistance programs, residence in certain census block groups, and self-attestation.



LMI participation

NJCleanEnergy.com/COMMUNITYSOLAR

Affordable/master-metered housing

- Master-metered housing units must pass 75% of savings to residents as direct financial benefits.
- Master-metered affordable housing may qualify as LMI by providing an affidavit that they are passing on benefits.

Automatic enrollment

NJCleanEnergy.com/COMMUNITYSOLAR

Automatic enrollment

- Projects owned by a municipality or county, or which have a municipality or county as their subscriber organization would be able to automatically enroll residents.
- The public entity may select residents to enroll, and 80% of the capacity must be LMI.
- Residents must have the opportunity to opt out of subscribing.
- Consolidated billing is a prerequisite to automatic enrollment.

Billing processes

NJCleanEnergy.com/COMMUNITYSOLAR



North Brunswick – Solar Landscape

Billing

NJCleanEnergy.com/COMMUNITYSOLAR

Bill savings

- Subscribers will receive at least the project's guaranteed bill credit savings rate
- Bill credit savings rate must be a minimum of 10%

Billing

NJCleanEnergy.com/COMMUNITYSOLAR

Consolidated billing

- Utility consolidated billing is required to reduce customer confusion and hassle of two bills
- Subscribers are billed with the net crediting method.
 - The bill discount rate is applied to the applicable portion of the bill.

Applied bill credit x guaranteed savings rate = net credit

Customer bill total – net credit = final amount billed



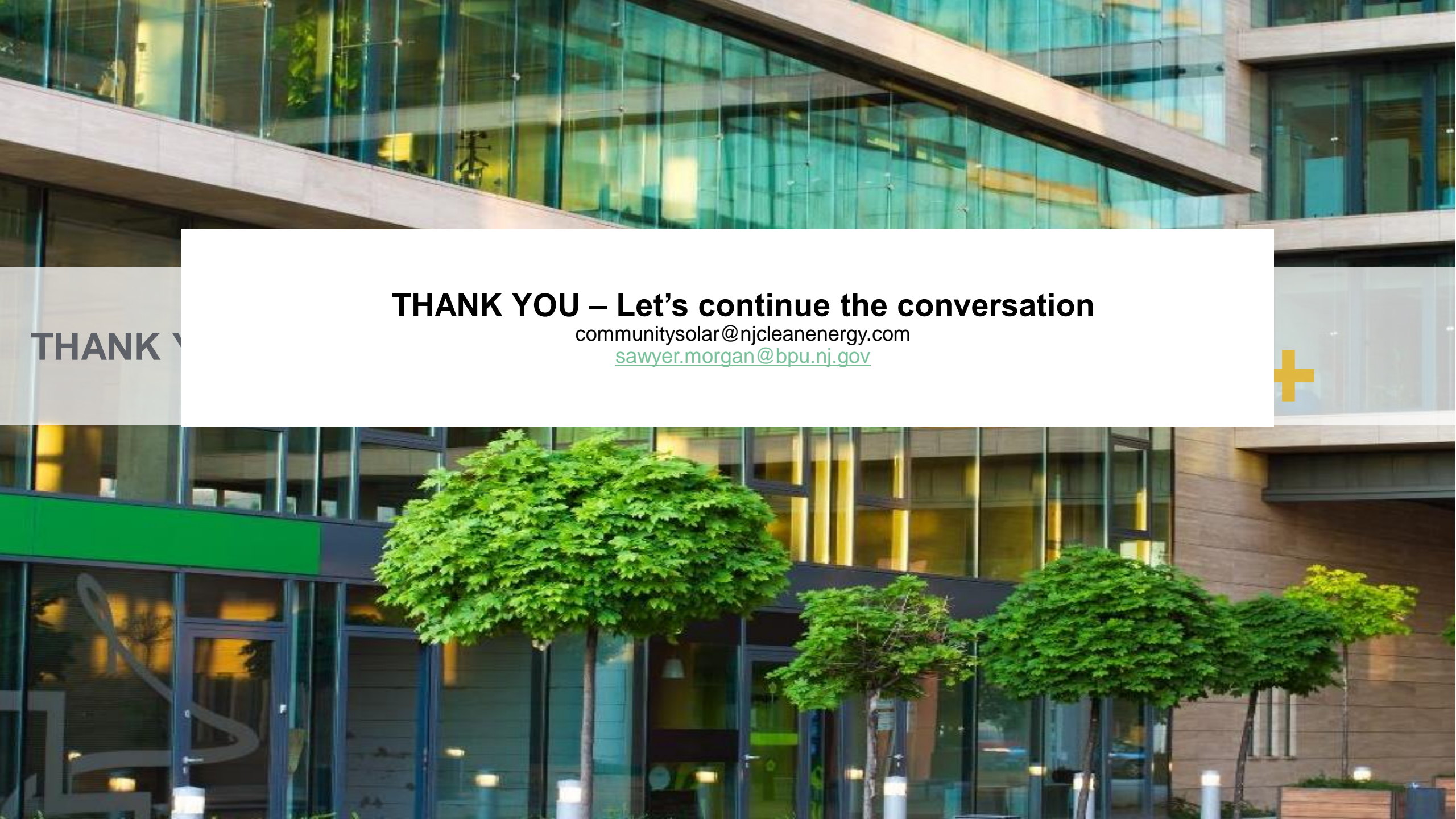
Billing

NJCleanEnergy.com/COMMUNITYSOLAR

Bill credit banking

- For subscribers:
 - Surplus allocated credits may be carried over month-to-month until the end of an annualized period
 - Subscribers may select a new start date of the annualized period





THANK YOU

THANK YOU – Let's continue the conversation

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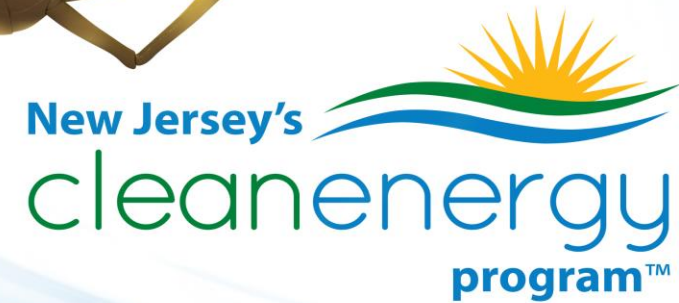




Tour of the New Jersey Community Solar Project Finder

About the CS Project Finder

The New Jersey Board of Public Utilities partnered with Sustainable Jersey to develop the New Jersey Community Solar Project Finder.





Current Projects

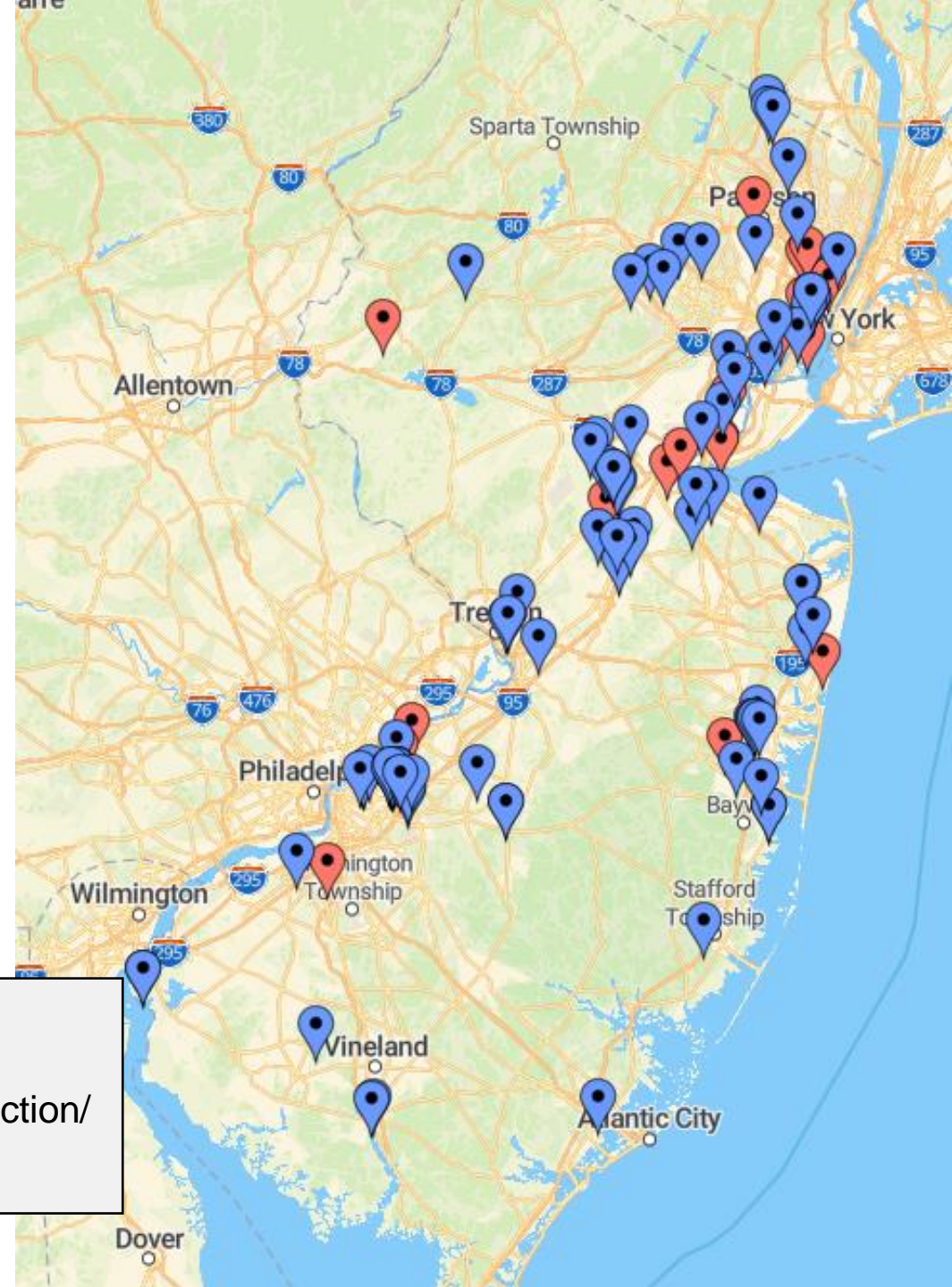
Approved and completed projects in New Jersey's Community Solar Program (locations are approximate)

See the interactive map at SustainableJersey.com/communitysolar

Map of Planned and Built Community Solar Projects in New Jersey

Map data from New Jersey Board of Public Utilities

-  Active
-  Under Construction/ Planning



CS Project Finder Tour

New Jersey Community Solar Project Finder includes:

- Overview of New Jersey Community Solar Program
- Database of project accepting subscribers
- Community solar FAQs

SustainableJersey.com/communitysolar



New Jersey Community Solar Project Finder



Enter your zip code to see projects serving your community:

Enter your zip code to see a list of community solar projects that are available in your municipality.

Some zip codes may not overlap perfectly with municipal boundaries. Community solar project sign-ups are by municipality, please check the chart to verify your eligibility.

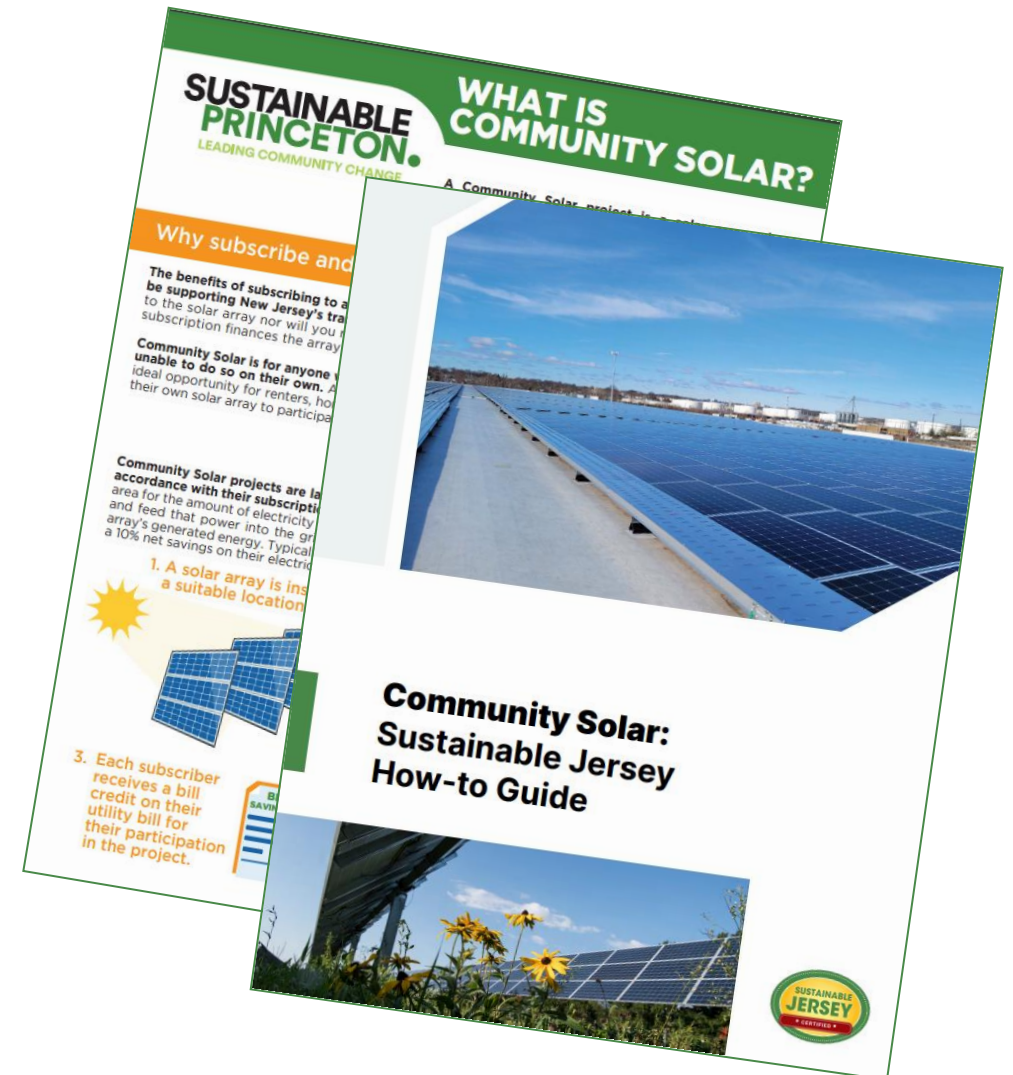
Community solar subscribers can only subscribe to a project located in their electric utility service territory.

Not sure what some of the terms included in the chart below mean? See the [glossary of common community solar terms](#).

| Project Name Subscriber Organization Project Description | Link to Project Website | Date Project Operational | Eligibility Requirements | Estimated Percent Customer Savings* | Subscription Contract Terms | Electric Utility Service Territory | Municipalities Served by Project |
|--|--|--|--|--|---|------------------------------------|----------------------------------|
| Emerald City Solar Subscriber Organization: Subscibex LLC Project Developer: Solar Builder, Inc. Project Description: 3.3 MW Solar array on Sesame Street | Click here for more information and sign up. | projected to be operational 02/25/2023 | Credit check required? NO Automated payment required (credit/debit card)? YES Is project open to residents who live in master-metered buildings? YES | All customers 20% LMI customers 25% | Subscription contract length: 1 year Deposit or subscription fee: None Is there a fee to leave project during contract period? No fee to leave the project with 30-day notice Does percentage of savings change over life of contract? NO | Atlantic City Electric | Emerald City, West Emerald City |
| Good Guys Solar for All Subscriber Organization: Subscibex LLC Project Developer: Solar Builder, Inc. Project Description: 2.3 MW Solar array on Emerald City Brownfield Site | Click here for more information and sign up. | operational since 1/1/2023 | Credit check required? NO Automated payment required (credit/debit card)? YES Is project open to residents who live in master-metered buildings? NO | All customers 15% LMI customers 20% Emerald City Seniors 20% | Subscription contract length: 2 years Deposit or subscription fee: None Is there a fee to leave project during contract period? No fee to leave the project with 30-day notice Does percentage of savings change over life of contract? NO | PSE&G | Emerald City, South Gotham |
| Gotham Solar Project | Click here for more | operational since 7/1/2022 | Credit check required? YES | All customers 10% | Subscription contract length: 2 years | PSE&G | Gotham, South Gotham |

Community Solar Resources

- Sustainable Jersey Community Solar How-To Guide
- Sustainable Jersey Certification Program action- Municipally Supported Community Solar
- Sustainable Princeton
 - Community Solar Factsheet
 - Subscriber Tip Sheet



All resources can be found at sustainablejersey.com/fileadmin/media/Actions_and_Certification/Actions/Energy/Community_Solar_Resources.pdf

Sustainable Jersey Underwriters and Sponsors

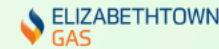
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*Digital Schools Sponsor

Thank You!

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