

DUAL-USE PILOT PROGRAM FREQUENTLY ASKED QUESTIONS (FAQs) FOR FARMERS

Below are anticipated or frequently asked questions regarding the New Jersey Board of Public Utilities' (Board's or BPU's) pilot program for agrivoltaics, or dual-use solar energy facilities, in the State (Pilot Program). If you have any questions that are not addressed in the following list, please contact NJREinfo@NJCleanEnergy.com.

Please note that there will be a separate set of FAQs issued for the general public that speak to the Pilot Program in general. In the meantime, refer to the [Board Order](#) dated October 23, 2024.

GENERAL INFORMATION ABOUT AGRIVOLTAICS

1a. How much will it cost per acre to finance an agrivoltaics solar array project?

A: The cost range is likely to be \$500K-\$900K. This is dependent on many factors, including the type of solar array, size of the project, and distance from the electrical grid where the project can connect.

As part of the Pilot Program, cost data will be collected and evaluated to develop better estimates on project costs. In the meantime, you can refer to a presentation developed by the Rutgers Agrivoltaics Program (RAP) discussing [economics on agrivoltaics](#).

1b. What are the costs related to the research and monitoring component of the Pilot Program?

Costs pertaining to the monitoring and research components of the Pilot Program can be estimated based on the requirements outlined in Appendix B of the Board's Order dated October 23, 2024 establishing the Dual-Use Solar Energy Pilot Program (Dual-Use Pilot Order). The Pilot Program is allowed to be in place for three (3) years with a possible extension to four (4) or five (5) years. The cost of the research equipment shall be the responsibility of the applicant, including the equipment needed for collecting data pertaining to environmental conditions. Management and collection of the data listed under (A) through (M) in the Order for the first three (3) years of a Selected Project by the Board or its designee will be at no cost to the participant. Participants may choose to contract with a non-Board appointed entity to collect the data at their own cost.

The following information is being provided as a courtesy to applicants for the purposes of providing estimated project costs over a three-year period and does not reflect final Board approval. The costs reflected herein are estimates and are subject to change.

The Board's designee in this case is the Rutgers Agrivoltaics Program (RAP) at Rutgers University. When working with the RAP team as a potential project research partner, costs related to the research and monitoring requirements for the Pilot Program involve costs for

laboratory analysis and testing for soil health, which may include nutrients, pH, total carbon, soil respiration (for example, Solvita test), particle-size analysis, cation exchange capacity (CEC) and exchangeable cations. Additional costs for soil health may include assessing erosion with the Mesh-marker method. Two environmental monitoring kits may be necessary to measure the minimum environmental factors required for the Pilot Program.

For a three-year duration of the Pilot Program, total costs for soil assessment and environmental conditions are estimated to be \$3,000 to \$4,000 USD (according to the current Rutgers Soil Testing Laboratory fees) and between \$6,000 to \$8,000 USD for the two environmental monitoring kits (one-time cost), with an additional \$150 to \$300 USD yearly cellular service for data collection (according to current cost of a KestrelMet 6000 AG weather station plus sensors). Thus, the total three-year cost estimate for research and monitoring requirements specific to soil health and environmental factors may be around \$9,450 to \$12,900 USD.

The underlying assumptions for these cost estimates, particularly around the number of samples, sampling schedule/frequency, and parameters that are not specifically outlined in the Dual-Use Pilot Order are subject to Board review and approval.

If you are working with a different research partner, the costs described here might be different and will be negotiated between the Project Team and the Research Partner.

2. How many acres would be needed for a 1-megawatt (MW) agrivoltaics project on average?

A: 5-8 acres. This is dependent on many factors, including the type of solar array, size of the project, row spacing, and the requirement in the Pilot Program for a research control area.

3. Which crops can I grow on my agrivoltaics site?

A: More research is needed to identify the positive and negative impacts of solar facilities on crops commonly grown in our region, but in general, most conventional crops can be grown around and underneath an agrivoltaics system. The type of crop can be dependent on the type of solar panel array installed. For instance, if the solar panel's lowest edge is 4 feet off the ground, then it's not recommended to grow a crop that reaches a height of over 4 feet since the crop would shade the panels. Another consideration is that certain crops may perform better or worse due to the variable microclimate around and underneath the panels.

4. Do I need to have a fence around the arrays?

A: An agrivoltaics project needs to meet the National Electrical Code (NEC)/2020. Consult your local electrical code and the [Division of Codes and Standards](#) at the New Jersey Department of Community Affairs) for the code requirements. For participation in the Pilot Program, all selected projects are required to be fenced with deer fencing at least eight feet tall. A deer fence may be useful to protect the crops from animal damage while also meeting the requirements for fencing around a solar field. A licensed professional should be consulted to assist with the design and needs of an agrivoltaics project.

The New Jersey Department of Agriculture (NJDA) has a funding program available to assist with the costs of installing wildlife fencing on unreserved farms. For more information, refer to NJDA's webpage [here](#).

5. Why not place the solar array on one piece of land and farm on another?

A: The whole idea of agrivoltaics is to enable retaining land in agricultural production while also using it for solar energy generation, so that the same piece of land is used simultaneously for both. If a piece of land is dedicated solely to solar energy generation, it will most likely be unusable for conventional agriculture save for grazing small animals and/or for the creation of pollinator habitat. In addition to maintaining more acres in agricultural production, agrivoltaics may be more profitable due to the increased land use efficiency.

6. Are there any funding mechanisms or incentive programs available to support agrivoltaics?

A: Incentives can come from federal, state, and local governments. Examples include:

- (1) Business Energy Investment Tax Credit (ITC) - Eligible projects that begin construction after 2021 and before 2025 can receive the full tax credit of 30%.
- (2) Rural Energy for America Program Renewable Energy Systems - Grants from 25 up to 50 percent of project costs. Loans up to 75 percent of total eligible project costs.
- (3) Solar Renewable Energy Credits (SREC-IIs) - Each 1,000 kilowatt-hour (kWh) of solar generation earns one SREC-II.
- (4) Modified Accelerated Cost-Recovery System - 5-year depreciation schedule

In addition, other resources for renewable energy incentives include the [New Jersey Economic Development Authority](#), the [Office of Energy Efficiency & Renewable Energy](#) under the United States Department of Energy, and a website provided by the NC Clean Energy Technology Center: [DSIRE](#). See question #7 for incentives available through the BPU's programs.

7. What are the available financial incentives for solar projects in New Jersey? What are SRECs, SREC-IIs, CSI, and ADI?

A: For detailed information about incentives from New Jersey's Clean Energy Program (NJCEP), refer to [njcleanenergy.com](#). Short summaries are provided below for convenience.

1. **SREC** – In general, "SREC" stands for Solar Renewable Energy Certificate and is a type of clean energy credit in the form of a tradable certificate useful to New Jersey's load-serving entities (a company or government agency that is obligated by law or via a long-term contract to provide electrical power to [end-users](#)) for demonstrating

compliance with New Jersey's Renewable Portfolio Standard (RPS). New Jersey's RPS rules provide that an SREC is issued once a properly registered solar facility has generated 1,000 kWh (1 MWh) through actual metered production. The SREC represents the environmental benefits of electricity generated from a solar electric system. SRECs can be sold or traded separately from the energy produced by the solar generation system, thus providing solar system owners a source of revenue to help offset the cost of installation.

2. **[SREC-IIs](#)** – New Jersey has a long history of supporting solar through incentives and remains committed to supporting solar energy. The Successor Solar Incentive (SuSI) Program is the current solar program which allows new solar projects to register to earn New Jersey Solar Renewable Energy Credits II (SREC-II). Older projects may be registered in one of New Jersey's former solar programs, the SREC Registration Program (SRP) or the Transition Incentive (TI) Program, through which they continue to receive SRECs or TRECs. SRECs, TRECs, and SREC-IIs all represent the environmental attributes of electricity generated from a solar energy project.
3. **[SuSI](#)** – The BPU established a Successor Solar Incentive Program, known as the "SuSI" Program, which is the long-term program for providing incentives to new solar generation facilities connected to the transmission or distribution systems of New Jersey electric public utilities or local government units.

The SuSI Program consists of two sub-programs:

- Administratively Determined Incentive (ADI) Program
 - Competitive Solar Incentive (CSI) Program
4. **[ADI Program](#)** – The ADI Program provides administratively set incentives for net metered residential projects and for net metered non-residential and community solar projects of 5 MW (dc) or less. ADI Program Forms, Checklists, and additional program information can be found on the ADI Program [page](#). Solar customer FAQs may be found [here](#).
 5. **[CSI Program](#)** – The CSI Program provides incentives for grid supply projects and net metered non-residential projects greater than 5 MW (dc). The amount of these incentives is determined through a competitive solicitation. The Board has held two solicitations since opening the program. A separate website hosts the solicitations, which may be found [here](#) and includes helpful information such as [Q&A](#).
 6. **[Dual-Use Pilot Program](#)** – the Board's Pilot Program is designed to provide incentives to agrivoltaic solar facilities as an adder, or additional financial incentive, to incentives already available to those facilities under the SuSI Program. On May 1, 2023, the Board approved and executed a three (3)-year grant agreement with RAP to facilitate the development and implementation of the Pilot Program. The Pilot

Program was designed in consultation with the NJDA, State Agricultural Development Committee (SADC), and the New Jersey Department of Environmental Protection (NJDEP, and collectively with the NJDA and SADC, the State Agencies), as well as the input of public stakeholders. A general overview of the Pilot Program and RAP may be found in a presentation available online [here](#).

8. How can I irrigate my crops in an agrivoltaics site?

A: The irrigation method you select will depend on your solar array type, the distancing between solar panels, and crop choice. You might be able to use a similar irrigation method to what you would otherwise use or you might need to be more creative, as the situation demands. Minimizing splashing on panels and electrical equipment must be an important part of any irrigation system.

9. What questions should I ask as a farmer when collaborating with a solar developer?

A: At a minimum, you should ask the following: Do you have experience with agrivoltaics? If so, can you provide references? What type of arrays have you installed? What is the proposed design for my site? Are you working on other agrivoltaics projects? What methods will you use to protect the soil during installation? Do you bury electric lines and at what depth? Are you planning to grade the site? Who will own the project? If the developer owns the project after installation, is the plan to sell the project to a third party? What are the insurance requirements for me to work in the agrivoltaics field? If leasing the land from me, what are the lease terms?

Keep in mind your needs as a farmer during this discussion. It's important that the developer designs the solar array in a way that facilitates farming activities. Know the turning or "headlands" distance needed for your farm equipment and make sure the developer is aware of these concerns. Do you need a well near the array for irrigation? It's OK to negotiate with the developer to provide these types of utilities. Hiring a land-use attorney to look out for your interests is encouraged. You will have additional questions as you continue your discussion with solar developer(s).

10. What questions should I ask as a farmer when contacting my local utility company about grid connection?

A: Does my local grid have sufficient capacity to accept the electricity my system generates? What kind of metering system will be needed for my system? What are the connection fees and how long will it take for the utility company to approve my proposed system and be connected to the grid?

11. How do I mitigate pesticide, herbicide, and dust accumulation on the solar panels?

A: Keep track of accumulations and daily energy output. If energy output is lower than expected, check your panels for damage or particle accumulation. When experiencing typical rainfall conditions, it is unlikely that panels will need to be washed. If necessary, panels can be washed to remove any accumulation.

12. How might an agrivoltaics system change my agricultural practices?

A: When designing an agrivoltaics system, consider farming equipment dimensions and turn radii (at the headlands). Consider how close the equipment can get to the rows of panels without hitting them. Areas directly under the panels may be inaccessible for large farm equipment and you should develop a plan to manage these areas (weed control). Account for driving machinery near the panels at slower speeds than may be typical. The overall crop yield may be less than the yield from a comparable piece of land without solar panels. Be prepared to factor an estimated yield loss on the one hand and the estimated extra income provided by solar energy generation on the other when deciding if agrivoltaics is right for your farm.

13. If using a single axis tracking array (defined below), can I manually move panels away from their most energy efficient orientation to accommodate machinery or for other reasons that benefit agricultural production?

A: This depends on the type of racking system used and the controls available to the farmer. When designing an agrivoltaics system, discuss this with the solar developer, as this feature should be included whenever possible.

14. Are there disadvantages to an agrivoltaics systems regarding disease pressure and pests?

A: Solar panels can alter the microclimate under and around the panels. The altered environmental conditions may be more or less favorable for certain diseases and pests. Careful monitoring is recommended so that preventative measures can be applied in a timely fashion. More testing needs to be done on this topic.

15. How will the panels affect soil temperature and moisture, will this affect my crops?

A: The shading caused by the panels can reduce the soil temperature and the natural precipitation directly underneath the panels. Conversely, shading from solar panels can inhibit water evaporation on hot sunny days and help maintain a more steady temperature when compared to fluctuations in areas not impacted by solar panel arrays. The degree of change in temperature and moisture levels under and around a solar panel array are dependent on the type of array installed and will vary by geographic region and climate. More testing needs to be done on this topic.

DESIGN | CONSTRUCTION | MAINTENANCE

1. What type of solar array installation is best for my land and crops?

A: Based on preliminary research data, single-axis tracking systems appear to be the best choice for agrivoltaics systems in New Jersey. Single-axis tracking refers to a solar array type or set of panels that rotate throughout the day to follow the sunlight. The types of crops and machinery used on the farm should be considered when deciding on installation panel height and row spacing. For additional details on design considerations for projects located in New Jersey, you may refer to a presentation available online provided by RAP [here](#).

2. Is there a minimum and/or maximum size for an agrivoltaics installation?

A: Yes - Minimum: 500 KW_{DC}, Maximum: 10 MW_{DC}. A system must fall within these parameters in order to participate in the Board's incentive program for agrivoltaics for the first round of applications. These numbers may change in subsequent application rounds based on the number of applications in the prior round.

3. How long will it take to get my agrivoltaics system built and operating?

A: How quickly a project can be completed depends on several factors that are not always easy to predict (e.g., supply chain delays, permitting, weather, contractor schedule). Absent delays caused by such external factors, a well-planned and executed 1-acre project should be able to be installed in eight months.

4. Can I grow crops while the agrivoltaics installation is being designed and constructed?

A: Since the contractor that installs the agrivoltaics system needs full access to the property, it is not recommended to grow crops during construction. After construction, planting a cover crop can help restore any damage the construction may have caused to the soil.

5. What row spacing will I need to have between rows?

A: The row spacing will largely depend on the equipment you plan to use for your agricultural/horticultural activities. Wider rows spacings will reduce the solar energy generation potential. Balancing income from solar power generation and agricultural production will largely be project specific.

6. Will my municipality need to approve my agrivoltaics installation plan? How much does permitting cost?

A: Yes, you need local approval for an agrivoltaics system. For permitting costs, please consult your local zoning/permitting office.

7. Will my farm still be taxed as farmland?

A: Yes, if you continue to comply with the farm assessment requirements.

8. Will my township regulate agrivoltaics projects differently than “normal” solar installation projects?

A: Please consult your local zoning regulations and discuss your plans with a code official.

9. Do I need to follow my municipality’s siting rules?

A: Yes. They may have separate rules for agrivoltaics that are different from the rules for solar farms.

10. What is the life expectancy of an agrivoltaics system?

A: Solar panels are typically warranted for 25 years and will continue to perform after that. Components of the racking system and some of the electrical components may have to be replaced more frequently. Sensors will have to be calibrated (and possibly replaced) more frequently.

11. What are my costs concerning agrivoltaics system maintenance and repairs?

A: The cost of an annual maintenance contract is often determined as a percentage of the system cost (e.g., 3%); check the proposed contract for this information. Some minor repairs may be included in the maintenance contract. Larger repairs are more difficult to predict, but it is recommended to budget for repairs.

12. Do I need extra insurance policies if using an agrivoltaics system? Liability on the array?

A: Please consult with your insurance company. Insurance may be a requirement to qualify for financing. Whether you want separate insurance will depend on how much additional risk you are willing to take on; it is also possible that the developer leasing your land may have a liability coverage requirement for your activities.

13. How much does it cost to decommission and remove the agrivoltaics arrays?

A: This will depend on the size of the system and the entity performing the decommissioning. It is likely that a disposal fee will have to be paid for the disposal of the solar panels. There may be some salvage value associated with some of the system components (e.g., metal posts, copper wiring). You should explore the possibility of making the decommissioning costs the responsibility of the developer.

14. Are there additional resources to assist me with designing an agrivoltaic system specifically in New Jersey?

A: Yes – you may find additional information on designing a system from presentations developed by RAP available online:

- [Agrivoltaics 101](#)
- [Engineering & Design Considerations](#)

INTERCONNECTION AND ENERGY USE

Utility contact information and utility specific website pages with forms are available on the NJCEP website [here](#) for each of the BPU regulated electric utilities.

1. How does my solar project connect to the electric grid? How much electricity am I allowed to sell back to the grid?

- A. New Jersey's grid carries electricity produced in two distinct interconnection types.
1. Net metered electric generation systems interconnect with their Electric Distribution Company (EDC) and receive retail credit for electricity. Net metering measures the difference between the electricity supplied to the customer by the EDC and the excess electricity generated by the renewable energy system that is sent back to the grid. The size of a net metering project on a site is determined by the amount of electricity used, or the load, of the site. A net metered installation can be designed to produce up to 100% of your annual average electrical use. In the ADI Program, net metered projects are limited to 5 MW; the CSI Program accepts only net metered projects greater than 5 MW.
 2. Grid supply electric generators are those that sell electricity on the wholesale market, and do not use electricity onsite. These projects receive approval from PJM Interconnection or their EDC for the amount of electricity that will be exported. A grid supply project can be any size, although they tend to be larger projects, i.e., "utility scale." Grid supply projects of any size are eligible to participate in the CSI Program; the CSI Program also offers incentives for energy storage paired with grid supply generation.

For general information on interconnection and metering in New Jersey, refer to the NJCEP webpage [here](#).

2. I want to power my farm 24/7, what are options for batteries?

A: Energy storage systems like batteries can deliver stored electricity when the agrivoltaics system is not able to deliver the total demand, but only up to the storage capacity of the battery/batteries. Large batteries are still relatively expensive and are therefore not very

common. New Jersey has ambitious storage targets with a statutory mandate to achieve 2,000 MW of installed energy storage by 2030. Toward this goal, the Board's CSI Program offers incentives for energy storage paired with grid supply solar generation. On November 7, 2024, Board Staff released an updated "New Jersey Energy Storage Incentive Program (NJ SIP) Straw Proposal" and draft rules. More information may be found in the [public notice](#) and the NJCEP storage [webpage](#), including how to participate in these proceedings.

3. How much electricity am I allowed to sell back to the grid?

A: That depends on the metering arrangement you have with your local electric utility. A net-metered installation can be designed to produce up to 100% of your annual average electrical use. If there is any excess power at the end of the 12-month period you selected when setting up your net metered account, you are paid the avoided cost of the excess electricity at that time. If your project is a grid-connected, you must get approval from PJM or your utility for the amount of electricity you want to export. A "grid supply" project can be any size system, although they tend to be larger projects, i.e., "utility scale."

Please note that there are specific terms and associated definitions relating to interconnecting a renewable energy resource, specifically a solar energy system. Refer to question #7 under *General Information about Agrivoltaics*.

4. What is the capacity of the electrical grid in my area? Can my project be connected to the electric grid?

A: Consult with your local electric utility about the interconnection capacity at your location. Yes, projects can be connected to the electric grid, but approvals for grid supply (typically larger) projects will likely take more time than net-metered projects. Interconnection requirements for grid supply projects fall under the Board's CSI Program. A net-metered project sized at 5 MW or less must follow the interconnection rules under the Board's ADI Program. A net-metered project sized greater than 5 MW must follow the interconnection rules under the Board's CSI Program.

5. Will any electricity that I sell receive a different price if produced at a different time of day?

A: This is likely the case for grid supply (larger) systems that sell on wholesale markets. For net-metered systems, the electricity price does not matter because you are using it at your facility for whatever the delivered price would have been.

6. What will I receive for excess electricity production that I send to the grid?

A: That depends on the arrangement you have with your local electric utility.

There is also a payment for the SREC value to the person or entity entitled to the SRECs from a solar generation system (see question 7 under *General Information about Agrivoltaics*). The value of the SREC will depend on the BPU program for which you are qualified, if your project is selected to participate in the Dual-Use Pilot Program, it may receive an additional payment or “adder” based on any additional costs specific to a Dual-Use project.

OTHER

1. How can I stay informed about the Pilot Program?

A: The best way to stay informed is to sign up for listservs provided by the Board and the NJCEP, specifically the Renewable Energy listserv, by visiting www.nj.gov/bpu/about/contact/subscribe and www.njcleanenergy.com/stakeholdergroups, respectively.

Updates on the Pilot Program will also be available on the NJCEP’s [website](#), in addition to the Board’s [website](#).

2. Who should I contact if I have a question?

A: If your question has not been answered on this FAQ page, please email NJREinfo@NJCleanEnergy.com. Staff may post additional questions and answers to this page as well as to other pages for the Pilot Program.