SUNY The State University of New York

Office for Capital Facilities

Guidance Document

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Photovoltaic Solar Projects

A resource containing information related to the acquisition of photovoltaic solar panels by state-operated campuses.

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Introduction

Installing solar photovoltaic (PV) systems on or near the campus has the potential to significantly decrease the Source Energy Use Intensity of the campus. Source Energy Use Intensity is a leading industry indicator for measuring all energy use on a square foot basis. This measurement takes into account both the energy use at the campus and the energy required to generate, transmit and distribute that energy from where it is produced to where it is used. This metric will be used to assess SUNY's collective energy performance and progress against the Build Smart NY - Executive Order 88 (EO88) goal of decreasing energy Source Energy Use Intensity by 20% by 2020.

When considering a PV system, the campus must consider several factors, including, but not limited to, the location of the system, the support of the local utility provider and the interaction the system will have with the utility grid. Campuses are encouraged to contact SUNY's Energy Procurement and Utility Regulatory Affairs Office when considering the installation of a PV system.

Location

Does the campus have land that could be used for this purpose? Campuses can consider installing a PV system on campus property, on property owned by an affiliated organization, or on property owned by a private entity.

When a ground mounted system is installed on campus property, the campus undertakes a long-term commitment for the use of the land. Whether the land is leased to a developer or the campus owns the system, the land will be committed either for the lease term or for the life of the equipment, generally a period of 20 to 35 years. For many campuses land is valuable and additional land is not easily acquired. The campus should consider its long-term goals and anticipate what changes may occur over the 20-35 year period.

When considering a roof mounted system, the roof warranty, maintenance and building accessibility must be considered. Keep in mind that in many cases the installation of solar panels on a roof may void the existing roof warranty. When considering affiliate property or private property, other considerations include proper leasing agreements as well as the relationship of the property to the campus and the grid, as further described in the meters section below.

Utility Provider Support

Before developing and releasing a formal Request for Proposal for a PV system, the utility provider must be contacted to verify that the geographic area being considered for a PV system is able to support an electricity generating system. Several factors contribute to the determination of whether the utility provider and associated infrastructure can support the installation of an electricity generating system. It is also important to determine whether or not the geographic market can accept remote net metered

applications due to limitations on the amount of energy that can be put back on to the grid in a given geographic area, which is restricted to 3 to 6%. Once a utility has met its obligation towards renewable installations they are not required to approve any further applications.

Campuses that purchase their electricity through the Energy Buying Group or through NYPA must ensure that any electricity generating system installed does not generate more revenue or energy credits than the campus has in electricity or transmission costs since the transmission and delivery charges will be offset by the credits from the solar generation. If the credits exceed the charges, the campus will build a credit surplus beyond their continuing expenditures. There is no mechanism to simply receive the credit back as cash.

The Meter

The PV system's relationship to the campus main meter must be determined. Depending on the nature of the project it might be set up as a behind the meter, net metered or remote net metered project.

- **Behind the Meter:** an electricity generating system that is not interconnected with the utility grid. A "behind the meter" system is usually for a single building or facility, with the purpose of reducing the amount of electricity purchased for the building, potentially taking the facility "off the grid" for some portion of its electricity demand.
- **Net Metered:** an electricity generating system that is connected to the utility grid and permits the campus to sell to the utility any electricity generated that is in excess of what the campus uses. A net meter effectively "spins backwards," allowing a measured, reverse flow of electricity to the utility grid. This usually requires specialized meters and interconnection equipment that is an additional expense to the campus. A net metered system requires prior approval by the utility and an operating agreement called a Standardized Interconnection Requirement (SIR).
- **Remote Net Metered:** an electricity generating system that is not physically located or connected to the entity's main utility meters. The account allows excess generation to be sold to the utility with the credits, either in monetary form or commodity units, to be used against expenses incurred on other utility accounts. A remote net metered project cannot exceed 2 MW.

  The site of the remote net metered systems meter is called a "host" which accumulates credit for all excess generation from that solar system. If there are more credits earned than that site will use, the campus can designate up to 10 other campus electricity accounts to share in the credits generated. These accounts are called the "satellite" accounts.

  To set up a remote net metered system, there must be some actual campus use on that site but a single lighting system would suffice. This system must also be in the same geographic zone as the utility service territory, and the same New York State Independent System Operator (NYISO) zone as any other accounts that will be used to receive credits earned by the host account. All of the accounts must be in the same name and use the same corporate identification number. Each utility is allowed to set up additional rules as to the timing and method of transferring the credit. The credits may be transferred in commodity form, kilowatt hour generated to kilowatt hour delivered to the satellite meter, or in monetary form based on the credit price of the host account generation set by each utility. Similar to the mention above, if the credits outpace the expenditures on the account, the campus could find itself with a large credit surplus that grows each month, and no way to use it or receive it as cash. This must be considered and negotiated during the creation of an agreement.

Procurement Methods

When considering the acquisition of a PV System, a campus can approach the procurement in one of two main ways: (1) as the installation of state-owned equipment on state land; or (2) as a Power Purchase Agreement (PPA) accompanied by a land lease. When considering the acquisition of a PV system, it is important to engage campus counsel early on in the process, particularly when a land lease or a PPA may be used.

1. The installation of state-owned equipment involves the campus purchase, ownership and operation of the PV System. Depending on the nature of the installation, the contract may be handled as a construction contract or an equipment contract. Solar PV systems are most often installed on campuses as ground penetrating systems, roof mounted systems or parking lot canopies.

2. The Power Purchase Agreement (PPA) enables a campus to obtain the benefits of a solar array without an upfront capital investment or responsibility for the operation and maintenance of the system. A PPA can govern power purchases from PV systems installed on state-owned property and on property owned by an affiliated organization or private entity. Under a PPA, a third-party developer/contractor develops, installs, owns and operates the PV System. The campus then purchases the power generated by the PV System from the third-party under a Power Purchase Agreement. There are two ways that a PPA may be used:

   (a) The developer/contractor develops, installs, owns and operates the system on state-owned property and the campus buys the generated power under a PPA. **The campus must lease the state-owned land to a developer as permitted by Energy Law**[1], which allows a campus to enter into energy performance contracts for up to 35 years, provided that the term of the contract does not exceed the useful life of equipment.

   (b) The developer/contractor develops and installs the PV system on privately held land. The land may be miles away from the campus, so long as it is within the territory of the utility that serves the campus. The developer owns and operates the system and the campus buys the generated power under a PPA. This is a "remote net metered" project. The campus must lease a portion of the privately held land, and have a utility account associated with that land held in the campus' name in order to implement remote net metering.

   Third-party developers may have access to financial incentives such as tax incentives, or grant funding that is not available directly to the campus. For example, NYSERDA provides financial incentives for the installation of solar PV systems under the NY-Sun Incentive Program.

Procurement Process – Power Purchase Agreement

1) Feasibility Study

It is highly recommended that a feasibility study be conducted prior to entertaining a solar PV system acquisition. A feasibility study would generally contain a:

- Solar site analysis, including shading analysis, orientation, and tilt of the potential solar array.

[1] Section 9-103(5) of NYS Energy Law enables the campus to lease state land necessary for the construction of facilities or the operation of equipment provided for in an energy performance contract without obtaining ground lease legislation.

- Electrical system analysis, including an overview of the electrical systems' ability to integrate the electrical output of the PV system and the space available for related equipment. (An electrical system analysis is not needed for remote net metered projects.)
- For rooftop installations, a structural analysis, including identification of limitations that may prohibit the structure from supporting the weight of the PV system.
- Evaluate the financial viability of a Power Purchase Agreement vs. Ownership.
- Evaluate the financial impact of a "behind the meter" project, where the electricity generated is used directly by the campus and is not connected to the utility grid vs. remote net metered or net metered projects that require interconnection with the utility grid. Solar PV systems on state-owned property can be established as "behind the meter", "net metered" or "remote net metered" projects. A solar PV project on land owned by an affiliated organization or private entity will always be a "remote net metered" project.

2) *Develop a Request for Proposal*

The campus must develop a Request for Proposal (RFP), advertise the procurement, and evaluate responsive proposals from responsible vendors under New York law. The scope of RFP must cover design, installation, maintenance and ownership of the System. Awards will most often be determined on the basis of "Best Value". A sample Request for Proposal document for a solar PV installation using NYSERDA funding is provided as Attachment 2. These requirements are a starting point for developing a RFP for on-site projects only. This is not a standard template and is not a template for a remote net metered project. Please consult campus counsel when developing a RFP for solar PV installation. Also note that any developer that assists in writing the technical requirements for the RFP is excluded by law from bidding on the project.

3) *Notify the SUNY System Administration Energy Management and Planning Office* (*if the campus is a member)*

The Energy Management and Planning Office provides oversight and purchases utilities for SUNY. If your campus is a member of the Energy Buying Group it is important that you notify Kathleen Slusher (518-320-1658) of any upcoming solar PV installations. The installation of a solar PV system may impact the amount of utilities needed by the campus. The Energy Management and Planning Office will need to account for those changes when purchasing utilities on behalf of the Energy Buying Group.

4) *Advertise*

An advertisement in the New York State Contract Reporter is required in accordance with NYS Economic Development Law §142. A sample advertisement for a project using NY-Sun Initiative funding through NYSERDA is provided in Attachment 1.

5) *Form a Selection Committee*

The RFP must define how the proposals will be evaluated and scored. The sample RFP provided as Attachment 2 contains a sample evaluation criteria. However, a campus might modify and adapt those evaluation criteria to better fit a particular project. If a campus anticipates a large number of responses, it may be helpful to define a process for creating a short list of contractors. This process should be defined in writing and placed in the procurement record; it does not need to be defined in the RFP.

Before issuing the RFP, the campus should identify the selection committee members and the selection committee chair. The committee should consist of a minimum of three members who are able to participate in the full selection process. Although not required, it is recommended that

selection committees consist of four or more members. Each committee member must adhere to the procedures set forth in Procurement Lobbying Procedure Item #7552, and have no unauthorized contact with consultants during the selection period.

6) ***Make a Selection***
Based on the selection criteria defined in the RFP the selection committee evaluates and selects a developer/contractor. If interviews are held, each must be attended by all selection committee members. Any member that fails to participate in all interviews will not be permitted to submit ratings for purposes of determining the selected firm. Such member may, however, participate in Selection Committee meetings and discussions.

7) ***Assist the developer/contractor in completing the NYSERDA application (if applicable)***
To access the financial incentives under the NY-Sun Incentive Program, a participating developer/contractor submits an application to NYSERDA, which identifies the campus as the customer. With the campus' assistance, the developer/contractor completes and submits the application to NYSERDA. The application will likely include the Project application form, a site map/plan, photos, a one or three-line drawing, a system output and system loss analysis, utility bills, copies of permits, and an environmental assessment. Incentives are paid directly to developer/contractor, and must be applied in full to the cost of the solar PV system. For information related to the current Program Opportunity Notice please see Attachment 1 of this document, or refer to NYSERDA's website.

8) ***Execute a land lease with the developer/contractor (if the system is on state-owned property)***
If the solar PV system is installed on state-owned property, a land lease is required either as part of the Power Purchase Agreement or as a stand-alone lease agreement. NYS Energy Law allows campuses to lease state land for solar facilities without obtaining ground lease legislation. However, all real estate contracts must be reviewed and approved by both the Attorney General and the Office of the State Comptroller regardless of their value.

9) ***Execute a Power Purchase Agreement with the developer/contractor***
The campus negotiates a Power Purchase Agreement (PPA) with the developer/contractor who is responsible for the design, installation, and maintenance of the PV System. A sample PPA is provided as Attachment 4. This document is an example and a starting point for developing a PPA; it is not a standard template. Please consult campus counsel when developing and negotiating a PPA for solar PV installation. It is highly recommended that campuses engage their campus counsel early on in this process. The PPA must be approved by both the Attorney General and the Office of the State Comptroller because its value will exceed $250,000.

10. ***Performance Guarantee Agreement and Contract Monitoring***
A performance guarantee from the developer/contractor is required. This guarantee may be negotiated as part of the Power Purchase Agreement or it may be established as a separate agreement. If the campus is buying power and not the system itself, a Performance Guarantee Agreement (PGA) will guarantee that the system will generate a certain guaranteed kilowatt-hours (kWh) over the term of the agreement. The developer may insist on excluding or modifying the terms of the agreement; negotiate any modifications to the terms with the assistance of your campus counsel. A sample Performance Guarantee Agreement is provided as Attachment 4. This document is an example, and a starting point for developing a PGA; it is not a standard template. Please consult campus counsel when developing and negotiating a PGA for solar PV installation.

If the cumulative Actual kWh generated by the System is less than the Guaranteed kWh the developer is required to provide the campus with a refund check in accordance with the guarantee agreement.

11) Solar PV Systems on property owned by affiliated organizations or private entities

When the system is constructed off-site on affiliated organization or private land, the Developer enters into a lease with the affiliated organization or private entity, or the Developer may be the landowner. The campus enters into a PPA with the Developer to purchase the power. Under any of these scenarios, the project will be a "remote net metered" project.

Remote net metered projects reduce an agency's source energy use intensity and contribute to the Governor's Executive Order 88 goals in the same way as an on-campus project. They preserve open space on campuses and require no feasibility studies of campus electric systems and no electrical upgrades to capital facilities, because remote net metering is strictly a system of monetary credits. The electricity generated is sold to the utility. The utility measures and prices the electricity at current rates and applies a monetary credit to the campus electric bill.

To satisfy the requirements of the remote net metering statute, the system cannot exceed 2 MW in size and the campus must meet the following requirements:

1. the campus must own or lease the property upon which the generating facilities are sited, and the leased property must be within the same utility service territory as the campus;
2. the campus must establish a "Host" electric account on the site; and
3. the campus must have at least some responsibility for operating the system.

These requirements can be met as follows:

1. the campus may enter into a lease with the affiliated organization or private entity for a very small area, no larger than is needed to erect a utility pole with a light that consumes electricity; and
2. the campus establishes an account with the utility to receive electric service to the utility pole light. This is known as the "Host account."

The Power Purchase Agreement must contain a provision giving the campus co-operational responsibility for some small aspect of the system operation. For example, "Purchaser will, from time to time provide management and technical expertise on the operation of the generation facilities." Alternatively, the campus may add an educational component and take responsibility for that aspect.

Request for Proposal Considerations

For projects to be built on land owned by affiliated organizations, the RFP must name the Lessor, attach a copy of the model ground lease, and require the bidder to include a lease commitment letter from Lessor with its bid.

For projects to be built on private land owned by outside entities, the RFP must require the bidder to document the size and location of the property; provide a copy of the lease between Developer and Property Owner, or alternatively, provide a lease commitment letter from the Property Owner stating that if Developer wins the bid, Property Owner will enter into the lease.

The RFP must state that the campus will have certain co-operational responsibilities. For example:

For educational purposes, the successful bidder will coordinate with the college's Information Systems personnel to provide the equipment and services necessary to monitor, analyze, and display historical and live solar electricity generation data. The data acquisition system shall be designed for turnkey, remote operation. Data shall be transmitted via internet or telephone from the site to a server managed by the college's Information Systems. Bidders should describe in their proposals the equipment, services and regularly collected data that would be made available to the college to meet this requirement.

Any developer that assists in writing the technical requirements for the RFP is excluded by law from bidding on the project.

Power Purchase Agreement Considerations

The campus purchases the electricity generated under a PPA with the developer. The generated electricity is measured at the Host account meter and supplied directly to the utility grid. The utility calculates the monetary value of the electricity it receives from the project at the per kWh rate applicable to the Host Account's service classification. Each month, the monetary credit is first applied to the Host account and the excess is applied to the campus' other electric accounts, known as "satellite accounts." To satisfy the remote net metering statute, the PPA must include a *de minimus* co-operational responsibility as described in the Request for Proposal Considerations section above.

Procurement Process – Installation of State-Owned Equipment

The installation of state owned equipment involves the campus purchase, ownership and operation of the PV System. Depending on the nature of the installation, the contract may be handled as a construction contract or an equipment contract. Solar PV systems are most often installed on campuses as ground penetrating systems, roof mounted systems or parking lot canopies.

Campuses are responsible for ensuring compliance with all applicable NYS laws, rules and regulations. Depending on the nature of the installation construction permitting and prevailing wages may apply.

1) Feasibility Study

It is highly recommended that a feasibility study be conducted prior to entertaining a solar PV system installation. A feasibility study would generally contain a:

- Solar site analysis, including shading analysis, orientation, and tilt of the potential solar array.
- Electrical system analysis, including an overview of the electrical systems' ability to integrate the electrical output of the PV system and the space available for related equipment (an electrical system analysis is not needed for remote net metered projects).
- For rooftop installations, a structural analysis, including identification of limitations that may prohibit the structure from supporting the weight of the PV system.
- Evaluate the financial viability of a Power Purchase Agreement vs. Ownership.
- Evaluate the financial impact of a "behind the meter" project, where the electricity generated is used directly by the campus and is not connected to the utility grid vs. net metered projects that require interconnection with the utility grid. Solar PV systems on state-owned property can be established as "behind the meter", "net metered" or "remote

net metered" projects. A solar PV project on land owned by an affiliated organization or private entity will always be a "remote net metered" project. Definitions are provided in the definitions section of this guidance document.

2) ***Develop a Request for Proposal***
A campus must develop Request for Proposal (RFP), advertise the procurement, and evaluate responsive proposals from responsible vendors under New York State law.

3) ***Notify the SUNY System Administration Energy Management and Planning Office*** (***if campus is a member)***
The Energy Management and Planning Office provides oversight and purchases utilities for SUNY. If your campus is a member of the Energy Buying Group it is important that you notify Kathleen Slusher (518-320-1658) of any upcoming solar PV installations. The installation of a solar PV system may impact the amount of utilities needed by the campus. The Energy Management and Planning Office will need to account for those changes when purchasing utilities on behalf of the Energy Buying Group.

4) ***Advertise***
An advertisement in the New York State Contract Reporter is required in accordance with NYS Economic Development Law §142.

5) ***Form a Selection Committee***
When the procurement is being treated as a purchase and install, the RFP must define how the proposals will be evaluated and scored, most often the procurement will be evaluated on the basis of "Best Value". If a campus anticipates a large number of responses, it may be helpful to define a process for creating a short list of contractors. This process should be defined in writing and placed in the procurement record; it does not need to be defined in the RFP.

Before issuing the RFP, the campus should identify the selection committee members and the selection committee chair. The committee should consist of a minimum of three members who are able to participate in the full selection process. Although not required, it is recommended that selection committees consist of four or more members. Each committee member must adhere to the procedures set forth in Procurement Lobbying Procedure Item 7552, and have no unauthorized contact with consultants during the selection period.

6) ***Assist the developer/contractor in completing the NYSERDA application (if applicable)***
To access the financial incentives under the NY-Sun Incentive Program, a participating developer/contractor submits an application to NYSERDA, which identifies the campus as the customer. With the campus' assistance, the developer/contractor completes and submits the application to NYSERDA. The application will likely include the Project application form, a site map/plan, photos, a one or three-line drawing, a system output and system loss analysis, utility bills, copies of permits, and an environmental assessment. Incentives are paid directly to developer/contractor, and must be applied in full to the cost of the solar PV system. For information related to the current Program Opportunity Notice please see Attachment 1 of this document, or refer to NYSERDA's website.

7) ***Make a Selection and Make an Award***
Based on the selection criteria defined in the RFP the selection committee evaluates and selects a developer/contractor. If interviews are held, each must be attended by all selection committee members. Any member that fails to participate in all interviews will not be permitted to submit

ratings for purposes of determining the selected firm. Such member may, however, participate in selection committee meetings and discussions.

8) Managing the Solar PV System

When a Solar PV System is installed as state-owned equipment, the campus is responsible for maintenance of the system. A campus could choose, however, to contract with a third party for the maintenance of the system. The campus is also responsible for establishing an interconnection agreement with the utility company if the system is net-metered.

Definitions:

- **Behind the Meter:** an electricity generating system that is not interconnected with the utility grid. A "behind the meter" system is usually for a single building or facility, with the purpose of reducing the amount of electricity purchased for the building, potentially taking the facility "off the grid" for some portion of its electricity demand.
- **Net Metered:** an electricity generating system that is connected to the utility grid and permits the campus to sell to the utility any electricity generated that is in excess of what the campus uses. A net meter effectively "spins backwards," allowing a measured, reverse flow of electricity to the utility grid. This usually requires specialized meters and interconnection equipment that is an additional expense to the campus. A net metered system requires prior approval by the utility and an operating agreement called a Standardized Interconnection Requirement (SIR).
- **Remote Net Metered:** an electricity generating system that is not physically located or connected to the entity's main utility meters. The account allows excess generation to be sold to the utility with the credits, either in monetary form or commodity units, to be used against expenses incurred on other utility accounts. A remote net metered project cannot exceed 2 MW.
- **Interconnection Agreements or Standardized Interconnection Requirements (SIR):** contracts that govern the connection of the electricity generating system to the electric grid. An interconnection agreement with the local utility company is required when installing a net metered or remote net metered PV system.
- **Satellite Account:** an electric account with the utility that receives excess credits as a result of a remote net metered system.
- **Host Account:** an electric account with the utility that resides at the site of the generation facility.
    - The "host site" must consume at least some electricity. Typically, a utility pole with a light will suffice. Each month, the electricity generated exceeds the amount of electricity consumed at the host site. The excess energy is converted to the equivalent monetary value at the per kWh rate applicable to the Host Account's service classification. The monetary credit is applied first to the Host Account's electric bill. Remaining monetary credit is allocated to the campus' other electric accounts, called satellite accounts. The Host and Satellite accounts may be miles apart, but must be on property that is owned or leased by the same customer and they must be within the same utility service territory. A remote net metered project cannot exceed 2 MW.