

NY-Sun

2016 - 2023 Operating Plan

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Contents

SECTION 1: INTRODUCTION	3
1.1. Background	3
Section 2: PROGRAM DESCRIPTIONS	4
2.1. MW Block Program Description	4
2.1.1. MW Block Incentive Structure	6
2.1.2. Revisions to the Block Structure	11
2.1.3. MW Block Program Participation Criteria	12
2.1.4. Quality Assurance/Quality Control (QA/QC).....	15
Section 3: LOW TO MODERATE INCOME CUSTOMER ACCESS	17
3.1. Low-to-Moderate Income(LMI) Customer Access	17
3.1.1. Market Assessment.....	17
3.1.2. Initial Program Strategies	18
3.1.3. LMI Onsite Residential Customer Added Incentive	19
3.1.4. Technical and Predevelopment Assistance	20
Section 4: NY-SUN BUDGET PERFORMANCE AND EXPECTATION.....	21
Section 5: PROGRAM ADMINISTRATION	24
Section 6: EVALUATION	25
6.1.1. Impact Evaluation.....	25
6.1.2. Market and Process Evaluation.....	25
6.1.3. Evaluation Budget	25

SECTION 1: INTRODUCTION

This NY-Sun Operating Plan (Plan) sets forth the program goals and implementation strategies for the NY-Sun Program under the Clean Energy Fund (CEF). This Plan incorporates the NY-Sun Addendum (August 2014 Addendum) submitted by NYSERDA to the New York State Public Service Commission (Commission) on August 7, 2014 and the Compliance Filing Regarding Unencumbered Renewable Portfolio Standard (RPS) Customer Sited Tier (CST) CST Funds and Low to Moderate Income (LMI) Program Update accepted by the Commission on September 29, 2015.

NY-Sun, a comprehensive initiative established by Governor Andrew M. Cuomo in 2012 to develop a sustainable and subsidy-free solar photovoltaic (PV) industry in New York State, consists of numerous components to be implemented by NYSERDA in collaboration with the New York Power Authority (NYPA) and the Long Island Power Authority (LIPA.) Components of NY-Sun include a PV incentive program, consumer education, technical assistance to local governments, Community Solar NY and K-Solar, initiatives to improve access to PV by low to moderate income (LMI) households, training, and reduction of other soft costs of installation. This Operating Plan will describe those components funded through the CEF, with additional information at a less detailed level for initiatives pertinent to NY-Sun, but funded via other sources (e.g. the Regional Greenhouse Gas Initiative (RGGI)). Further information regarding NY-Sun can be found on the web site, <http://ny-sun.ny.gov/>.

1.1. BACKGROUND

In April of 2014 the Commission issued an Order¹ (April 2014 Order) in response to a January 6, 2014 NYSERDA Petition² in which NYSERDA requested approval of the MW Block PV incentive program design criteria, as well as the budget for the MW Block program, Consumer Education initiative, and program implementation and administration. In the April 2014 Order, the Commission authorized NYSERDA to allocate funds to support, implement and administer eligible PV programs under the CST during the term 2016 through 2023; approved initial design criteria for the MW Block program; and authorized NYSERDA to use 1.5% (not to exceed \$13 million) of program funds for projects to help advance participation by LMI customers.

The MW Block program is administered by NYSERDA as a single, coordinated statewide program. The program is offered to customers in all relevant sectors on a standard-offer, first come-first served basis. Funding for customers of the investor-owned utilities who pay surcharge on their utility bill that funds the CEF will be provided through the CEF, while funding for customers that do not pay the surcharge, including customers served by NYPA and municipal utilities and customers of LIPA for up to 200 kW projects will be provided by NYSERDA through RGGI. The statewide Program will be managed by NYSERDA with local administration of the program in the LIPA service territory provided by LIPA through its System Operator, Public Service Electric and Gas (PSEG Long Island).

Ongoing planning and coordination will be executed for: (a) systematic identification and breaking down of barriers, including those related to LMI households; (b) effective planning and communication with markets, including meeting the financing needs of the industry and participants; (c) effective consumer education; (d) continuous installed cost reduction, including reducing customer acquisition costs through community-based approaches (e.g., through the Community Solar NY and K-Solar initiatives); and (e) identification and development of opportunities for effective integration with the grid consistent with the Reforming the Energy Vision (REV) initiative.

¹ Proceeding on Motion of the Commission Regarding a Retail Renewable Portfolio Standard, “Order Authorizing Funding and Implementation of the Solar Photovoltaic MW Block Programs,” issued and effective April 24, 2014. The Order authorized the NY-Sun budget, and through a January 21, 2016 “Order Authorizing the Clean Energy Fund Framework” incorporated the NY-Sun Program into the Clean Energy Fund (CEF). Case 14-M-0094.

² Id. “NY-Sun 2016-2023 Funding Considerations and Other Program Implementation Considerations.”

SECTION 2: PROGRAM DESCRIPTIONS

2.1. MW BLOCK PROGRAM DESCRIPTION

The MW Block approach provides certainty and transparency regarding incentive levels, accounts for regional market differences, provides a clear signal to industry that New York intends to ramp down and eliminate cash incentives in a reasonable timeframe, and allows for the elimination of those incentives sooner in regions where the market conditions can support it, based on market penetration, demand, and cost-effectiveness. The ultimate goal of the MW Block Program, in combination with other components of NY-Sun, is to facilitate a self-sustaining PV industry in New York.

NYSERDA has held stakeholder outreach meetings and webinars in support of program development, and has received and considered comments from stakeholders on incentive and block design. The design criteria initially approved by the Commission in the April 2014 Order, as well as incentive and block designs have evolved in response to those comments, and the design presented in this Operating Plan reflects the stakeholder input process and consultation with New York State Department of Public Service (DPS) Staff. This process will continue as other components of NY-Sun are developed. NYSERDA welcomes input on an ongoing basis and plan to organize approximately two stakeholder meetings per year to provide an additional avenue for market feedback.

The program's goal of a long-term sustained clean energy PV market includes a capacity goal of 3,000 MW. The MW Block approach allocates MW targets to specific regions of the State and sectors within those regions; breaks those targets into blocks to which incentives are assigned; awards incentives to applications based on the block in effect at the time of application submission; and then moves to the next block and incentive level when a MW block is fully subscribed.

Once all of the blocks within a region/sector are fully subscribed, the MW Block incentive is no longer offered in that region/sector. For example, the Long Island residential block structure has been fully subscribed. The regions established for the statewide program are as follows:

- The region served by Consolidated Edison (“Con Ed”);
- The region served by PSEG Long Island as the LIPA System Operator (“Long Island”); and
- The balance of the state (“Upstate”).

Sectors established for the program are as follows:

- Residential systems (up to 25kW in nameplate capacity);
- Small non-residential systems (up to 200kW in nameplate capacity); and
- Large commercial-industrial systems (over 200kW in nameplate capacity).

Incentives for customers that do not pay the surcharge on their utility bill that fund the CEF, including customers of NYPA and municipal power suppliers, will be based on the sector and region in which they are located.

Incentives offered through the MW Block program are capacity-based for residential and small non-residential systems, and performance-based for large commercial industrial systems. Incentive applications are submitted through a central database managed by NYSERDA. Information required in the application includes the address and electric utility service provider, which will enable NYSERDA to ensure the appropriate funding source (RGGI or CEF) is applied to the incentive payment. As required in the April 2014 Order, NYSERDA will provide clear reporting to identify the RGGI funds that are used to support the MW Block Program, and to distinguish those funds from CEF funds being used to support the program.

NYSERDA tracks the subscription status of MW blocks by region on the New York Sun website, and includes the date that each block was initiated, the incentive level for each block, and the date upon which any block closed. The market is able to monitor block status, has improved information regarding the likely timing for incentive changes, and knows what the next incentive level will be in advance of the change. Each region and system size category are tracked separately, and regional demand drives the rate at which each block is subscribed. Applications for residential and small non-residential systems received by NYSERDA after January 1, 2014 but prior to the launch of the MW Block program were counted toward Block 1 of the relevant region and sector. As the number of MW actually installed from each block will differ from the original allocation due to cancelations, project budgetary allocation or project adjustments after the block is closed, NYSERDA will report the number of MW installed in each block in the NY-Sun Annual Report.

To encourage the installation of PV systems that are cost-effective, and to make PV available to a greater number of customers, NYSERDA will offer other means to stimulate the growth of the industry, such as facilitating access to financing. For example, to the extent that funding is available, customers can access financing for PV through Green Jobs-Green New York.¹ PV developers are encouraged to also explore means for improving financing options through the New York Green Bank² in coordination with investors and financial institutions. NYSERDA will also provide consumer education on PV systems and their characteristics, as well as information on the variety of purchase and leasing options in the market. These activities, along with others, are expected to reduce the “soft costs,” which are the non-module costs of PV system installations. The program will also include an electric energy efficiency audit as a component of the program and encourage energy efficiency as part of the means to cost-effectively meet the energy needs of households and businesses, including LMI households. The electric energy efficiency audit will not be required for residential members of Community Distributed Generation projects.

¹ Public Authorities Law, Title 9-A, sections 1890-1899-a, “Green Jobs-Green New York Act of 2009.”

² Case 13-M-0412, “Order Establishing New York Green Bank and Providing Initial Capitalization,” issued and effective December 19, 2013

2.1.1. MW Block Incentive Structure

Initial regional MW targets are provided in Table 2-1.

Table 2-1. Initial MW Targets by Region and Sector ^a

Region	Residential (up to 25kW)	Small Non- Residential (up to 200kW)	Commercial-Industrial (greater than 200kW)	Total
Con Ed	302	303	300	905
Upstate	444	451	1,200	2095
Subtotal	746	754	1,500	3,000
Long Island	122	58	-	180
Total Statewide	868	812	1,500	3,180
No sector targets have been established sector for customers outside the LIPA service territory that do not pay surcharges that fund the CEF. MW acquired for non-CEF customers outside the LIPA service territory will be over and above the targets in this chart and will depend on the demand within each sector.				

Residential Small Non-Residential Incentives

Residential incentives are offered at a fixed amount per DC Watt of nameplate capacity, up to 25kW. Non-residential incentives are offered at a fixed amount per DC Watt nameplate capacity for the first 50kW, and at another fixed amount per DC Watt nameplate capacity for each Watt beyond 50kW, up to a total of 200kW. The blended incentive for non-residential systems varies based on capacity.

Commercial-Industrial Incentives

Incentives provided for systems larger than 200kW per meter are provided in four increments: one at time of commercial operation (upon demonstration of meter-data transfer, Investor Owned Utility (IOU) approval of interconnection and field verification); with the remaining three provided over 3 years on a performance basis (measured annual kWh output). In addition to the commercial operation and performance-based incentives described above, the MW Block platform includes options for single-axis or dual axis trackers that provide a higher capacity factor, additional incentives for project installations in IOU-identified strategic locations, and additional incentives for projects that integrate energy storage or comprehensive energy efficiency. Additional innovative strategies will be investigated to integrate PV with REV. NYSERDA anticipates that it will continue to provide additional incentives for strategic location and integration incentives, on a first-come basis, until the utilities implement the Commission approved REV tariffs that supplant these incentives with price signals embedded in electric rates.

The initial block structure (MW targets and associated incentives) are provided in Tables 2-2 through 2-9.

Table 2-2. Initial Con Ed Residential Block Structure

Block	MW	Incentive/Watt
1	14	\$1.00
2	6	\$0.90
3	9	\$0.80
4	12	\$0.70
5	15	\$0.60
6	18	\$0.50
7	38	\$0.40
8	70	\$0.30
9	120	\$0.20
Total	302	

Table 2-3. Initial Con Ed Small Non-residential Block Structure

Block	MW	Incentive/Watt for first 50kW	Incentive/Watt for each additional Watt up to 200kW total	Average ("Design") Incentive/watt
1	6	\$1.00	\$0.60	\$0.85
2	4	\$0.90	\$0.55	\$0.77
3	6	\$0.80	\$0.50	\$0.69
4	8	\$0.70	\$0.45	\$0.61
5	10	\$0.60	\$0.40	\$0.53
6	15	\$0.50	\$0.35	\$0.44
7	35	\$0.40	\$0.30	\$0.36
8	45	\$0.30	\$0.25	\$0.28
9	73	\$0.20	\$0.20	\$0.20
10	101	\$0.15	\$0.15	\$0.15
Total	303			

Table 2-4. Initial Con Ed Commercial-Industrial Block Structure

Block	MW	Incentive/Watt
1	15	\$0.63
2	20	\$0.61
3	20	\$0.59
4	25	\$0.57
5	25	\$0.55
6	30	\$0.51
7	30	\$0.46
8	35	\$0.39
9	35	\$0.33
10	40	\$0.26
11	45	\$0.20
12	50	\$0.13
13	55	\$0.07
Total	425	
Total after assumed 20% attrition*	340	

*15-30% rate of attrition is typical for large renewable energy projects based on reports from other state programs and Competitive PV and Main Tier RPS program history

Table 2-5. Initial Upstate Residential Block Structure

Block	MW	Incentive/Watt
1	40	\$1.00
2	15	\$0.90
3	19	\$0.80
4	22	\$0.70
5	24	\$0.60
6	31	\$0.50
7	70	\$0.40
8	75	\$0.30
9	148	\$0.20
Total	444	

Table 2-6. Initial Upstate Small Non-Residential Block Structure

Block	MW	Incentive/Watt for first 50kW	Incentive/Watt for each additional Watt up to 200kW total	Average ("Design") Incentive/watt
1	35	\$1.00	\$0.60	\$0.85
2	8	\$0.90	\$0.55	\$0.77
3	10	\$0.80	\$0.50	\$0.69
4	12	\$0.70	\$0.45	\$0.61
5	18	\$0.60	\$0.40	\$0.53
6	23	\$0.50	\$0.35	\$0.44
7	28	\$0.40	\$0.30	\$0.36
8	77	\$0.30	\$0.25	\$0.28
9	95	\$0.20	\$0.20	\$0.20
10	145	\$0.15	\$0.15	\$0.15
Total	451			

Table 2-7. Initial Upstate Commercial-Industrial Block Structure

Block	MW	PBI (\$/W) Monetary Crediting	PBI (\$/W) Volumetric Crediting
1	120	\$0.34	\$0.40
2	120	\$0.28	\$0.40
3	130	\$0.21	\$0.39
4	130	\$0.15	\$0.39
5	140	\$0.11	\$0.37
6	140	\$0.06	\$0.35
7	150	\$0.05	\$0.33
8	150	\$0.04	\$0.28
9	160	\$0.02	\$0.22
10	170	\$0.01	\$0.16
11	180	\$0.01	\$0.09
Total	1,590		
Total after 20% attrition*	1,272		

*15-30% rate of attrition is typical for large renewable energy projects based on data from other state programs and Competitive PV and Main Tier RPS program history

The initial incentive and block structures for Long Island are included below to provide a more complete picture of the statewide program.

Table 2-8. Initial Long Island Residential Block Structure

Block	MW	Incentive/watt
1	37	\$0.50
2	15	\$0.40
3	20	\$0.30
4	50	\$0.20
Total	122	

Table 2-9. Initial Long Island Small Non-Residential Block Structure

Block	MW	Incentive/Watt for first 50kW	Incentive/Watt for each additional Watt up to 200kW total	Average ("Design") Incentive/watt
1	7	\$0.50	\$0.50	\$0.50
2	6	\$0.45	\$0.43	\$0.45
3	7	\$0.40	\$0.36	\$0.40
4	9	\$0.35	\$0.30	\$0.35
5	15	\$0.25	\$0.23	\$0.25
6	14	\$0.15	\$0.15	\$0.15
Total	58			

As stated in Section 1.1, NY-Sun provides incentives for PV installations for customers that do not pay surcharges that fund CEF and are not customers of LIPA (e.g. customers of NYPA and municipal utilities) through RGGI. Because a realistic allocation of incentives among these residential, small non-residential and large non-residential customers would be difficult to determine based on a lack of previous participation in this market, MW goals have not been established in a block structure for those funds. Instead, these customers will be served on a first-come, first-served basis, subject to the availability of funds, to receive the incentive associated with their sector and the region in which they are located. The MW associated with a project will be counted toward the appropriate MW block, based on sector and region, but the incentives will be paid with RGGI funds. As a result, any funds remaining uncommitted in a block after the block has been fully subscribed based on MW will be used in a later block, as described in Section 2.1.2 “Revisions to the Block Structure.”

2.1.2. Revisions to the Block Structure

NYSERDA will monitor market conditions and MW Block subscription and, in accordance with the April 2014 Order, will make adjustments to the MW block design where necessary. As market conditions can change, the initial allocation of funds may or may not prove most effective and NYSERDA may re-allocate funds between regions or sectors if warranted. If adjustments are needed, such adjustments will be made in consultation with DPS Staff and stakeholders, and will be designed in a manner that enables the overall goal of a sustained PV market and aggregate MW goal achievement.

In addition to consultation, notice will be provided to stakeholders in advance of any planned changes. A number of conditions may precipitate adjustments to the MW block design, including but not limited to:

- A significant increase or decrease in demand in a particular region, sector, or statewide based on changing market, technology, regulatory, and/or policy conditions;
- Projected funding commitments significantly exceeding program budget, for reasons including budget impacts of:
 - Average system size in the Small Non-residential Block Structures due to sliding scale of total incentive funding based on system size;
 - Proportion of projects using volumetric and monetary crediting in the Upstate

Commercial/Industrial Block Structure, due to different incentive levels based on crediting method;

- Other factors related to timing and distribution of projects within blocks;
- Project attrition (cancellation):
 - Capacity from cancelled projects will be added to future blocks;
 - If attrition rate is significantly greater or less than projected, or occurring over a different time frame than anticipated, other adjustments may be necessary.

These situations or others may also require interventions other than, or in addition to, incentives may be needed to increase market activity. Under these circumstances, NYSERDA would approach the issue in a holistic manner, gathering market intelligence, consulting with stakeholders, and developing a comprehensive approach to overcoming existing barriers, which may or may not include adjustments to the MW block structure.

NYSERDA will share information with all stakeholders regarding program progress and market conditions by making data and analysis publically available on an on-going basis. In this way, all stakeholders can monitor the market and assess changes in market activity. NYSERDA staff will conduct a program review, in consultation with DPS Staff and with input from stakeholders, in mid-late 2017 to assess program progress and assess trends, needs and opportunities given conditions at that time. This will be in addition to planned twice yearly stakeholder meetings. The review will also consider the potential impact of regulatory or other changes and initiatives related to Commission Case 14-M-0101, Reforming the Energy Vision (REV). NYSERDA will strive to minimize program and market disruption.

2.1.3. MW Block Program Participation Criteria

The MW Block Program is divided into the Residential/Small Non-Residential Incentive Program and the Commercial/Industrial Incentive Program. Each program maintains a Program Manual for program users that details the rules and regulations specific to the program. These documents describe the requirements for participation, requirements for incentive application, and the rules and processes related to incentive payments. Some key criteria related to each program is described below.

2.1.3.1. Residential and Small Non-Residential Incentive Program Participation Criteria

New PV systems will be provided to customers through a network of NY-Sun eligible Contractors and Builders who will contract directly with the customer. A firm can be approved by NYSERDA for participation as a Contractor only, a Builder only, or as both Contractor and Builder. The primary relationship with NYSERDA financially and contractually is with the eligible Contractor.

Eligible Contractors:

- Must execute a binding Participation Agreement with NYSERDA
- Are responsible for the quality of Builder's work and their compliance with all applicable program rules
- Receive the Incentive Payments

Eligible Builders:

- Are responsible for the installation of projects under the supervision of an eligible Contractor
- Must have at least one technically competent certified installer on staff, who must hold one of the three certification options described below
- Must agree to the terms of Builder / Contractor Relationship Agreement, which require, among other things, the maintenance of liability insurance.

As the quality of the installation is important to consumer safety and system performance, NYSERDA requires that all eligible Builders employ at least one technically competent certified installer. NYSERDA will consider any one of the following certification options:

- North American Board of Certified Energy Practitioners (NABCEP) PV Installation Professional Certification
- Journeymen Electrician, with documented International Brotherhood of Electrical Workers (IBEW)-National Electrical Prime Association (NECA) PV training and experience, such as that provided by the National Joint Apprenticeship and Technical Committee (NJATC) apprenticeship program; with a minimum of 40 hours of PV training.
- Underwriters Laboratories (UL) PV System Installer certification.
- A Non-credentialed existing Builder with at least 24 months of prior NY-Sun installation experience and a sufficient history of quality performance may be granted “Full” eligibility at the discretion of NYSERDA

Additional certification paths may become available, and if so, will be identified on NYSERDA’s website. Installers must describe their experience and provide references. Additionally, the local authority having jurisdiction may have requirements, such as the services of a Master Electrician. Contractors and the installations must meet all local requirements, including those of the utility service provider.

Systems must meet the following criteria:

- For all installations, the electrical output must be generated by new electric generation equipment that is electrically connected to the distribution grid after the date of the NYSERDA received the Incentive Application
- The equipment must be new to the host site and must be newly-manufactured.
- All PV modules must be certified as meeting all applicable standards of the Institute of Electrical and Electronics Engineers (IEEE) and Underwriter’s Laboratory (UL) 1703 and Commission standards; new or existing homes and buildings are eligible for incentives
- All inverters must be certified as meeting all applicable standards of IEEE and UL, found on an approved list by the applicable IOU, and must be listed on the New York State Public Service Commission’s certified equipment listings
- A 5-year system warranties will be required for purchased
- A production guarantee is required for the term of all leases and power purchase agreements (PPA)
- Each PV system must have the ability to record system production in kWh. The contractor has the option of providing this information from a hard wired PV production meter, on-line monitoring system, or inverter display recorded production.

2.1.3.2. Commercial and Industrial Incentive Program Participation Requirements

Eligible PV projects must have a capacity greater than 200 kW and be grid-connected. PV projects must be connected on the customer’s side of the electric meter, and the electricity generated offsets the customer’s grid-supplied (by investor-owned or public utility) electricity usage in accordance with net metering laws, regulations and tariffs that are current at that time. Incentive Applications are limited to one host meter per application. Only eligible Contractors can submit applications for incentive funding.

To become an eligible Contractor in the NY-Sun Commercial-Industrial Program, prospective applicants must complete a Contractor Application Form, via an online portal, in which they agree to abide by the terms and conditions of the NY-Sun Incentive Program Participation Agreement. These documents are

available on the NY-Sun website <http://www.ny-sun.ny.gov>. Applicants must also provide the following credentials:

- Complete the PV Installation Experience section of the Application Form detailing three commercial-scale projects that entered into commercial operation in the past three years that, in aggregate, sum to at least 500 kW. These projects must represent verifiable references for specific projects and be accompanied by a brief description of the systems installed and the applicant's role in the project;

OR

- Indicate that your organization has successfully completed a PV project under any of the prior Competitive PV PONs that has been reporting data to the NYSERDA DG Integrated Data System website for at least three months.

See: <http://chp.nyserda.ny.gov/facilities/index.cfm?Filter=Solar>

Eligible Contractors are responsible for preparing and submitting all required PV Incentive Application documentation to NYSERDA. Incentives are paid directly to the eligible Contractor that submits the Incentive Application unless the Contractor elects to have payment assigned to another party. Only incentive payments may be assigned. All responsibilities for compliance with program rules remain with the participating contractor that submitted the Incentive Application. The eligible Contractor is required to disclose the full amount of the NYSERDA incentive to the end-use customer.

Systems must also meet the following criteria:

- For all installations, the electrical output must be generated by new electric generation equipment that is electrically connected to the distribution grid after the date of the NYSERDA approved Incentive Application.
- The equipment must be new to the host site and must be newly-manufactured.
- All PV modules must be certified as meeting all applicable standards of the Institute of Electrical and Electronics Engineers (IEEE) and Underwriter's Laboratory (UL) 1703.
- All inverters must be certified as meeting all applicable standards of IEEE and UL, found on an approved list by the applicable IOU, and must be listed on the New York State Public Service Commission's certified equipment listings.
- The eligible Contractor must provide, install, and maintain an internet enabled electric meter that displays instantaneous AC power and cumulative total AC energy production and, at a minimum, can record cumulative total AC energy production of the PV system on an hourly and time-stamped basis, store the hourly readings for at least 7 days, and transmit recorded readings once per day to a NYSERDA designated Data Agent.

2.1.4. Quality Assurance/Quality Control (QA/QC)

The QA/QC process for the NY-Sun program is designed to complement the QA protocol already in place with participating Contractors and Builders. Organizations that demonstrate a history of quality QA scores receive the benefit of streamlined oversight by NYSERDA. Contractors and Builders not yet accredited are required to employ or subcontract individuals that meet credentialing requirements defined by the Program. The QA/QC process helps to bring new participants into the Program with demonstrated commitment to quality and supports well defined internal quality management systems while also providing necessary review of submitted project paperwork such as site plans for accuracy, and onsite field inspections along with construction photo documentation to assess finished project quality. The overall

goal is to ensure that partners can consistently provide customers with properly installed, safe, reliable solar photovoltaic systems that will produce the projected amount of energy over their expected life cycle.

NYSERDA will develop and maintain a Program Database to house Program and QA/QC records with specific functions of inspection sampling, scheduling and field data collection in a separate QA module. Annual costs and fees associated with the use and maintenance of the Program Database will support use by program staff, installers and QA/QC contractors to sample and review applications, installation status and quality performance. Services may also include the use of and maintenance of a web-based tool that can be used by Contractors, Builders and consumers to evaluate current market costs and benefits of PV and other related costs, and to estimate expected system production taking into account equipment, and losses due to shading, and orientation.

To increase up-front oversight and improve Builder quality, for Residential and Small Non-Residential projects, onsite field inspections along with as-built photo documentation will be required for the initial systems installed by new Contractors or Builders in the Program. NYSERDA will select a representative sample of completed projects for either onsite field inspections or as-built photo evaluation based upon the Contractor or Builder demonstrated quality performance and production volume. Contractors and Builders that have consistently demonstrated an ability to design and construct projects that meet NY-Sun requirements are considered to be full standing in the Program and are given less oversight. This allows NYSERDA to provide increased assistance where there are quality concerns. Contractors and Builders receive detailed reports following the review of the photographic and in-field assessment. These reports are designed to provide clear direction on the deficiencies that were found, corrective action that must be taken for noncompliance. Performance reports will be shared with Prime Contractor and Builders to facilitate continuous improvement through effective feedback and internal training. Customers are also able to request a QA field inspection at no cost to the customer.

Competitively-selected third party technical experts, under contract with NYSERDA will perform field inspections, and may provide technical assistance and photo review services as requested by NYSERDA. NYSERDA staff will also perform reviews of the as-built photos and will coordinate with Contractors and Builders regarding corrective actions required by the Contractor. Each PV system must have the ability to record system production in kWh, and the recorded production output must be provided to NYSERDA upon request. The contractor has the option of providing this information from either a hard wired PV production meter, on line monitoring system, inverter display recorded production or other approved method.

For Commercial Industrial projects, confirmation that projects are complete and operational (entered commercial operation) is based on all the following criteria: (a) project is providing PV output of meter data to the publicly available website specified by NYSERDA; (b) inspection report verifying system size, operational status, and conformation with National Electric Code that has been conducted by either a NYSERDA approved contractor or by a licensed professional engineer (PE); (c) a copy of IOU communication providing approval (permission to operate or PTO) for the photovoltaic system at the site address; and (d) documentation that the energy assessment report has been provided to the customer where required. Each PV system must have the ability to record system production in kWh based on meters meeting program specifications, and the recorded production output must be provided to NYSERDA for at least the incentive performance period.

NYSERDA's third party QA Contractor will also review the PE inspection reports for the first five installations by a contractor and then on a rational sampling basis thereafter.

SECTION 3: LOW TO MODERATE INCOME CUSTOMER ACCESS

3.1. LOW-TO-MODERATE INCOME (LMI) CUSTOMER ACCESS

The primary goal of NYSERDA’s LMI Solar Access efforts is to make solar energy’s benefits available for low-and-moderate income New Yorkers as part of the sustainable, self-supporting solar market envisioned by NY-Sun. Through continued engagement with the participants in the LMI Solar Working Group, Community Distributed Generation Low Income Collaborative, and other stakeholders, NYSERDA has identified a range of market barriers. NYSERDA will utilize the \$13 million allocated in the NY-Sun Order to initiate strategies to address these barriers, which will be further advanced through additional funding authorized in the Commission’s January 2016 Order Authorizing the Clean Energy Fund Framework, as well as additional funding from the RGGI to serve LMI customers that do not pay surcharges that fund CEF.

Table 3-1. Distribution of Low-to-Moderate Income Customer Access Funds Allocated in the NY-Sun Order

Low-to-Moderate Income Program Area	Funding Allocation
Additional Residential Incentives for Zones A-H (Upstate)	\$3,925,000
Additional Residential Incentives for Zones I-J (ConEd)	\$2,000,000
Additional Incentives for Community Shared Solar and Affordable Rental Housing	\$2,800,000
Technical Assistance, Predevelopment Assistance and Customer Engagement	\$4,000,000
Income Verification and Quality Assurance	\$275,000

3.1.1. Market Assessment

NYSERDA has drawn on its experience serving LMI customers and the input of the LMI Solar Working Group, the Community Distributed Generation Low Income Collaborative, as well as other LMI stakeholders engaged through the CEF process, to segment the LMI market for solar. Low-income homeowners, moderate income homeowners, renters, and multifamily residents face a spectrum of different barriers, level of current access to solar, and opportunities for program intervention. Differences are also found across geographic areas and based on whether a residence is owned by a governmental housing agency or affordable housing provider. Finally, multiple stakeholders have noted that improved access to solar for non-residential customers, such as houses of worship, community facilities, and small businesses, could benefit LMI communities more widely.

NYSERDA has also conducted an analysis of NY-Sun and its predecessor programs to assess the current level of access to solar for LMI customers. This analysis found that 15% of residential solar installations through January 2015 were located in LMI neighborhoods (defined as census block groups with a median household income below 80% of the higher of the county or state median income). While this analysis is limited by the unavailability of household-level income data, it suggests that many LMI neighborhoods are currently being served by NY-Sun, but at lower levels of market penetration than higher income areas.

The New York State Public Service Commission issued an Order which, among other topics, directed Department of Public Service Staff to establish a collaborative (Community Distributed Generation Low Income Collaborative) to identify barriers to low income customer participation in Community DG projects

and the mechanisms necessary to remove those barriers. Case 15-E-0082, Policies, Requirements and Conditions for Implementing a Community Net Metering Program, Order Establishing a Community Distributed Generation Program and Making Other Findings (issued July 27, 2015).

This is further suggested by an analysis of the Green Jobs Green NY loan program. From August 2014, when GJGNY loans became available for solar, through January 2015, 21% of solar loans were issued to LMI customers. As of April 1, 2015, this loan product will only be available for LMI customers.

3.1.2. Initial Program Strategies

As noted above, the \$13 million allocated for LMI Solar Access in the NY-Sun Order is being used to initiate strategies to address LMI solar barriers, which will be further advanced through additional funding in the Clean Energy Fund. Initial program strategies will address the LMI market segments that represent an immediate opportunity; including low and moderate income homeowners, new construction of affordable housing, and affordable housing undergoing rehabilitation and/or financial repositioning. In developing programmatic approaches for LMI Solar Access, NYSERDA has drawn from its experience implementing LMI energy efficiency programs. Projects receiving funding through NYSERDA LMI Solar programs will be required to meet electrical efficiency standards in order to prioritize lowest cost measures and avoid over sizing of PV systems. LMI Solar program approaches will be coordinated with LMI efficiency program approaches, wherever possible utilizing common income verification, applications, and outreach channels. Likewise, wherever feasible NYSERDA will coordinate its LMI Solar strategies with workforce development programming.

The strategies are described below. These strategies will be further advanced through additional funding authorized in the Clean Energy Fund as part of the Market Development portfolio, as well as additional funding from the RGGI to serve LMI customers that do not pay surcharges that fund CEF.

3.1.2.1. Additional financial incentives for residential onsite PV projects.

Incentives for eligible projects will be administered through the NY-Sun incentive process, as detailed in Section 3.1.3 below.

3.1.2.2. Support for financing programs or products serving LMI solar customers.

Green Jobs Green NY solar financing is currently serving LMI customers and NYSERDA believes it will continue to play a role in overcoming this barrier. In addition, NYSERDA is currently working with the NY Green Bank and affordable housing finance providers to identify financing gaps that could be addressed by a targeted state-supported financing program. As an example of this kind of program, the Connecticut Green Bank has developed a PACE-secured solar financing program for municipal affordable housing agencies. NYSERDA may utilize some of the funds allocated in the NY-Sun Order to provide seed funding for this type of financing product.

NYSERDA will also support the development of financing models for projects serving LMI customers through the technical and predevelopment assistance described in section 3.1.2.4.

3.1.2.3. LMI customer outreach, aggregation, and partnership development.

NYSERDA will work with its network of outreach partners, local and state agencies, and providers of affordable housing and other services to engage LMI customers and aggregate demand for solar. A range of aggregation strategies will be employed, including adapting the “Solarize” community-based aggregation model to be more inclusive of LMI customers, and engaging owners of affordable housing portfolios. These strategies reduce the soft costs associated with solar, making it more affordable for LMI customers.

Engaging these partners will also present opportunities to leverage funding for roof repairs and other structural work, identified as an important barrier to LMI solar access. NYSERDA will develop resources to assist these key actors in accessing solar for their residents and clients, and will actively assist in their

implementation.

3.1.2.4. Technical and predevelopment assistance for local governments, affordable housing providers, and other LMI project developers.

NYSERDA will provide technical and predevelopment assistance to address barriers to projects serving LMI solar customers and affordable housing providers, as described in section 3.1.4 below.

3.1.2.5. Community Distributed Generation (CDG), Community Choice Aggregation (CCA) and other future strategies.

CDG has the potential to produce substantial benefits for LMI customers, and is central to NYSERDA's LMI solar access strategy. CDG can remove multiple barriers to LMI solar access identified by the LMI Solar Working Group, the Low Income CDG Collaborative, and other stakeholders, including the high proportion of LMI customers who rent their homes, have homes with roof or structural deficiencies, or simply lack access to sufficient capital for an onsite solar installation. NYSERDA will address remaining barriers to the deployment of CDG for LMI customers with strategies including the technical and predevelopment assistance described in section 3.1.4.

Likewise, CCA and other regulatory changes considered through the Reforming the Energy Vision process may create significant new opportunities for LMI customers to access the benefits of solar energy. As these processes advance, NYSERDA will adapt its LMI Solar strategies to maximize these new opportunities.

3.1.3. Low-to-Moderate Income Onsite Residential Customer Additional Incentive

As of October 2015, projects meeting the requirements details below are eligible for the LMI Onsite Residential Customer Additional Incentive.

Program Eligibility

In order to be eligible for the Low-to-Moderate Income Onsite Residential Customer Additional Incentive (LMI Onsite Additional Incentive), a project must meet all eligibility requirements of the NY-Sun Residential Megawatt Block Incentive program except as noted below, AND:

- Service the owner-occupied residence of a customer who is determined to be income-eligible for the Assisted Home Performance with Energy Star program, administered by NYSERDA. Household income must not exceed 80% of the Area Median Income (AMI) or 80% of the State Median Income (SMI), whichever is higher, and household income must be verified according to the rules of the program. Full eligibility and income verification process details can be found at <http://www.nyserderda.ny.gov/assisted-home-performance>.
- Document completion of an electric energy efficiency audit and implementation of lighting and hot water efficiency measures identified through the audit.
- Have a nameplate capacity (DC) equivalent to not greater than the lower of:
 - 110% of projected annual energy usage after implementation of required efficiency measures, OR
 - 100% of current annual energy usage.
- Provide annual cost savings to the customer for the full lifetime of the PV installation, as demonstrated through the Affordable Solar Residential Screening Tool or other program documentation. NYSERDA may set additional pricing and/or financing requirements to ensure that annual cost savings requirement is met.

Incentive Level

- Projects meeting the requirements above will receive, subject to funding availability, an additional incentive per DC Watt of nameplate capacity, up to 6 kW.

- The additional incentive value per DC Watt will be equal to the NY-Sun Megawatt Block Incentive for which the project is eligible. If all residential Megawatt Block Incentives for the applicable region have been exhausted, the additional incentive value will be equal to that of the final block.
- Total NY-Sun incentives to eligible projects may exceed 50% of the cost of the project.

Income Verification and Quality Assurance

Eligibility for the additional incentive will be determined using the same household income verification requirements and process as the existing Assisted Home Performance with Energy Star program. Customers may verify eligibility for the LMI Onsite Additional Incentive and the Assisted Home Performance (or, if applicable, EmPower) program through the same application. Customers that have verified eligibility for either low-moderate efficiency program within the last two years will be considered eligible for the LMI Onsite Additional Incentive.

A minimum of the first two (2) projects completed by any NY-Sun Participating Contractor receiving the LMI Additional Incentive, and a minimum of 5% of LMI projects completed thereafter, will be subject to NYSERDA's onsite Quality Assurance inspection. In addition to standard NY-Sun onsite Quality Assurance inspection, the LMI projects will also be inspected for compliance with energy efficiency requirements.

3.1.4. Technical and predevelopment assistance for local governments, affordable housing providers, and other LMI project developers.

NYSERDA will dedicate up to \$4 million to address project development barriers to projects serving LMI solar customers and affordable housing providers. NYSERDA has, in consultation with the Low Income Community DG Collaborative and a wide range of stakeholders, has identified several key barriers:

- Lack of capacity by affordable housing owner/managers and other organizations to lead development of solar projects for LMI customers, particularly projects structured to provide economic benefits from solar to tenants.
- Need for finance and ownership models needed to attract market investment and address the higher credit risk profiles and other characteristics of LMI customer portfolios.
- Lack of capacity and interest by solar developers to effectively engage affordable housing or other LMI customer portfolios, due to higher customer acquisition and management costs without effective sponsor partnerships in the LMI sector.

NYSERDA will provide predevelopment funding, via funding solicitation(s), to proposed projects serving LMI customers in order to address key barriers to reach project implementation, provide meaningful benefits to LMI customers and viable project economics for developers, investors and other partners. Resolving these barriers at a project level will produce model solutions to accelerate overall LMI solar market activity.

To address these barriers, NYSERDA will develop solicitation(s) to fund predevelopment activities related to finance and ownership, procurement, customer marketing/management, benefit models unique to affordable housing tenants, or other factors of LMI solar projects. Selection criteria will include project-level considerations such as size, impact on LMI customers, cost-effectiveness, replicability, incorporation of efficiency measures, and related factors; and portfolio-level considerations such as geographic balance, diversity of approaches, overall number of distinct awardees. Anticipated eligible applicants to solicitation include affordable housing providers, community-based organizations, local government entities, technical assistance providers, and other entities with direct capacity to aggregate LMI customers or services to LMI customers. NYSERDA anticipates that the preponderance of projects and models supported under this initiative will utilize Community Distributed Generation.

NYSERDA will facilitate shared learning, through webinars, workshops, case studies, for the LMI market based on resulting project-level solutions in:

- Project financing, including affordable housing finance mechanisms, loan loss reserves, social impact investment, community development lending and other targeted LMI finance measures;
- Project ownership models, including community cooperatives;
- Standardized/aggregated procurement methods and contracting resources;
- Economic benefit models for LMI customers;
- Integrating LMI solar participation with delivery of existing services and efficiency projects.

As part of this initiative, NYSERDA will manage ongoing relationships with market participants and collaborate with internal and external partners, including state and local agencies, as described in section 3.1.2.3.

SECTION 4: NY-SUN BUDGET AND PERFORMANCE EXPECTATIONS

Inherent in the design of the MW Block structure, and as acknowledged in the April 2014 Order, and described in the January 2014 Petition, is the structure to provide a reduced incentive glide path, through participation paths and program design to achieve goals on-budget, based on the pace of market activity unbounded by annual budgets.³ This Operating Plan reflects funding for the MW Block structure beginning January 1, 2016 through 2023, without annual budget constraints.

As required by the April 2014 Order, the MW Block program must maintain the requirement for achieving geographic balance for Independent System Operator zones G-H-I-J.⁴ NYSERDA has developed its incentives and MW Blocks to meet this geographic balance target of at least \$25 million per year in incentives spent in the Con Ed region, and \$5 million in NYISO zones G & H. Budget allocations for the specific program elements are outlined in Table 3-20, and include budgets for 2016 through 2023. Program incentives by region are provided in Table 3-21. Table 3-3 presents expected energy production by region. In addition to the program budget, the Order authorized \$38.7 million for program administration, \$2.5 million for evaluation, and \$19.3 million for the State cost recovery fee (CRF).

The tables below do not include the RGGI funds allocated by NYSERDA for customers served by PSEG Long Island (\$60 million for residential and small non-residential systems), customers that do not pay CEF surcharges (\$20 million for residential, small non-residential and commercial-industrial projects), or Market Development funding from the CEF in support of NY-SUN.

³ Order Authorizing the Expansion of the Solar Photovoltaic and Geographic Balance Programs from 2012 through 2015 and the Reallocation of Main-Tier Unencumbered Funds, issued April 24, 2012.

⁴ April 2014 Order, p. 20.

Table 4-1. NY-Sun Program Budget (\$ millions)

Program^a Budget Element	Budget
Incentives – residential and small non-residential ^b	\$425.5
Incentives – commercial-industrial ^c	\$425.5
LMI Customer Access	\$13
Consumer Education	\$3.5
Implementation and Quality Assurance	\$32.6
Total	\$900.1

^a“Program” funds as defined in the April 2014 Order only included incentive funds.⁵ As presented in this table and NYSERDA’s January 2014 Petition,⁶ Program budget elements also include separately approved funding for consumer education and program implementation. This table below do not include the RGGI funds allocated by NYSERDA for performance expectations associated with customers served by PSEG Long Island and customers that do not pay CEF surcharges nor do these tables include Market Development funding from the CEF in support of NY-SUN.

^bThis Table includes budgets for years 2016-2023 as described above. The budget for the MW Block program may increase over time due to disencumbrance and reprogramming of CST Solar PV Program funds from previous years.

^cThis Table includes budgets for years 2016-2023 as described above. The budget for ‘Incentives - Commercial-Industrial’ will be adjusted based on disencumbered funds from Competitive PV contracts that have been reduced based on system size reductions or underperformance, or been canceled.

Table 4-2. Initial Allocation of NY-Sun Program Incentive Budget (\$ millions)^a

Region	Residential	Small Non-Residential	Commercial-Industrial	Total
Con Ed	\$106.375	\$106.375	\$123.33	\$336.08
Upstate	\$106.375	\$106.375	\$302.170	\$514.92
Total	\$212.75	\$212.75	\$425.50	\$851.00

Table 4-3. Initial NY-Sun Program Expectations

Region - Sector	Capacity in MW Encumbered by 12/31/2023	Total Annual Generation in MWh Encumbered by 12/31/2023
Con Ed Residential	302	354,500
Con Ed Small Non-Residential	303	355,674
Con Ed Commercial-Industrial	300	352,393
Upstate Residential	444	521,185

⁵ April 2014 Order, p. 6.

⁶ January 2014 Petition, pp. 3-5.

Upstate Small Non-Residential	451	529,402
Upstate Commercial-Industrial	1,200	1,409,572
Total	3,000	3,522,726

SECTION 5: PROGRAM ADMINISTRATION

Program administration costs include salary and fringe benefit costs for NYSERDA staff involved in managing programs, allocable salary and fringe benefit costs for administrative support staff, direct program management expenses (travel and other costs), QA/QC, and allocable overhead administrative, facility and equipment expenses. Program Administration funding for NY-Sun has been established in the April 2014 Order.

NYSERDA will to manage within the administration budget, optimize administration of the programs to the best of its ability, and keep DPS Staff informed of actual costs over time. NYSERDA will bring any concerns that arise to the Commission if it appears that an adjustment to the approved budgets is warranted. NYSERDA understands that an overall examination of administrative costs, including QA/QC, and the CRF, will be addressed as part of ongoing program review.

SECTION 6: EVALUATION

It is anticipated that Impact, Market and Process evaluation components will be necessary to support optimization of the NY-Sun program through the 2023 authorized funding period. Given the long term funding authorization and the desire to be responsive and flexible to evolving needs, this section outlines likely evaluation activities at a high level, while purposefully leaving flexibility for future discussion between NYSERDA and DPS staffs to enumerate the specific direction and study plans.

6.1.1. Impact Evaluation

Impact evaluations are expected to: verify actual production of installed PV systems; investigate reasons for differences, if any, in actual vs. projected production; and examine persistence of system production and performance over time. Impact evaluation will deploy a sampling approach to cost-effectively address the population and potentially various segments or types of installed projects. The specific solar PV impact evaluation objectives, approaches and timelines will be further defined through discussions between NYSERDA and DPS staff.

6.1.2. Market and Process Evaluation

This area of evaluation will assess important market indicators over time to understand the impact of the program and to help position the program for maximum effectiveness. Market and Process evaluation will likely be applied in the solar PV area to understand indicators such as system cost, evolution of business models, and installer and customer satisfaction over time. The details of this potential evaluation area will also be determined through further discussion between NYSERDA and DPS staff.

6.1.3. Evaluation Budget

The total budget authorized for evaluation of the NY-Sun Program is \$2.5 million from 2016 through 2023. This aggregate budget, along with remaining funds from previous RPS evaluation allocations, will be managed over the duration of the Program in consultation with DPS staff to deliver the above referenced studies and other studies as may be needed. The evaluation funding will support internal NYSERDA staffing requirements and external consultant activities pertaining to evaluation.