

# NY-Sun Annual Performance Report Through December 31, 2016

**Final Report** 

March 2017

# **NYSERDA's Promise to New Yorkers:**

NYSERDA provides resources, expertise, and objective information so New Yorkers can make confident, informed energy decisions.

# **Mission Statement:**

Advance innovative energy solutions in ways that improve New York's economy and environment.

# **Vision Statement:**

Serve as a catalyst – advancing energy innovation, technology, and investment; transforming New York's economy; and empowering people to choose clean and efficient energy as part of their everyday lives.

# **NYSERDA Record of Revision**

**Document Title** 

#### NY-Sun Annual Performance Report Through December 31, 2016 March 2017

| Revision Date  | Description of Changes | Revision on Page(s) |
|----------------|------------------------|---------------------|
| March 31, 2017 | Original Issue         | Original Issue      |
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# NY-Sun Annual Performance Report through December 31, 2016

Final Report

Prepared by:

New York State Energy Research and Development Authority

Albany, NY

# **Table of Contents**

| Ν | YSER       | DA Record of Revisioni                       | i |  |  |
|---|------------|--|---|--|--|
| S | SummaryS-1 |  |   |  |  |
| 1 | Nev        | w York Solar Market1                         |   |  |  |
|   | 1.1        | Residential and Small Commercial1            |   |  |  |
|   | 1.2        | Commercial and Industrial2                   |   |  |  |
| 2 | NY         | -Sun Incentive Program3                      | ; |  |  |
|   | 2.1        | Quality Assurance                            | ; |  |  |
|   | 2.2        | NY-Sun Contractor Portal (Salesforce)        | ; |  |  |
|   | 2.3        | Open NY4                                     |   |  |  |
| 3 | Red        | ducing Solar Costs and Barriers5             | ; |  |  |
|   | 3.1        | Interconnection                              | ; |  |  |
|   | 3.2        | Solarize6                                    | ; |  |  |
|   | 3.3        | Low- and Moderate-Income Solar Access6       | ; |  |  |
|   | 3.4        | Local Permitting and Policies7               | , |  |  |
|   | 3.4.       | 1 Unified Solar Permit7                      | , |  |  |
|   | 3.4.       | 2 Guidebook for Local Governments7           | , |  |  |
|   | 3.4.       | 3 PV Trainers Network7                       | , |  |  |
|   | 3.5        | Solar Ready Vets8                            | ; |  |  |
| 4 | Su         | mmary of Benefits and Funding9               | ) |  |  |
| A | ppenc      | dix A: Completed and Pipeline MW by BlockA-1 |   |  |  |

# Summary

NY-Sun is a \$1 billion initiative to expand solar capacity throughout New York State that uses public funds in a strategic manner to build a self-sustaining solar market. NY-Sun provides financial support for solar electric systems installed by solar installation contractors that have qualified to receive NY-Sun incentives, as well as a comprehensive approach to reducing solar costs and barriers. The NY-Sun goal is to install three gigawatts (GW) of solar electric capacity by 2023 while building a self-sustaining solar industry. Highlights of the NY-Sun Initiative for 2016 include the continued strength of the residential solar market, the rapid growth of the pipeline for commercial/industrial projects, significant progress on the interconnection process, improvements to program application processing and data sharing, and expanded resources for local governments.

Through the end of December 31, 2016, 744 MW of solar have been installed statewide with NYSERDA funding, and an additional 887 MW is in the pipeline. Of the total solar capacity installed in New York State, 301 MW have been installed across residential, commercial, and industrial sectors through the NY-Sun initiative, counting toward the 3-GW goal, with an additional 826 MW in the pipeline. The NYSERDA-funded solar capacity installed statewide as of the end of 2016 generates approximately 858,995 MWh of electricity each year, reducing annual carbon dioxide emissions by 452,103 metric tons.<sup>1,2</sup>

In March of 2017, in pursuit of its Reforming the Energy Vision policies, the Commission issued an order (VDER Order) that provides for a transition from net metering to a value-based compensation scheme for behind-the-meter resources, and revised Commission policy regarding the acquisition of the rights to energy attributes.<sup>3</sup> Under previous orders, the Commission had directed NYSERDA to acquire the renewable energy attributes from all projects to which it provided financial incentives under the NY-Sun program. In the VDER Order, the Commission provided the following directives:

With the submittal of its Clean Energy Fund Investment Plan Budget Accounting and Benefits Chapter on February 22, 2016, NYSERDA adopted the NYS Public Service Commission's recommendation in its January 21, 2016 Order Establishing the Benefit Cost Analysis Framework that the State's GHG emissions factor methodology shift from an average grid emission profile to a marginal grid emission profile. Due to this shift, the State's factor to calculate GHG emissions reductions has changed from 625 pounds CO2e/MWh to 1,160 pounds CO2e/MWh. The emissions reductions calculated for this quarterly report reflect the new factor of 1,160 pounds CO2e/MWh.

<sup>&</sup>lt;sup>2</sup> Note that the megawatt-hours included in Table 2 are estimated amounts based on a statewide capacity factor. NYSERDA does not, by filing this report, make any claim to the environmental attributes associated with those megawatt-hours.

<sup>&</sup>lt;sup>3</sup> Case 15-E-0751; In the Matter of the Value of Distributed Energy Resources, "Order on Net Energy Metering Transition, Phase One of Value of Distributed Energy Resources, and Related Matters," issued and effective March 9, 2017.

Effective immediately, NYSERDA shall relinquish all rights to any environmental claims, certificates, attributes or other embodiments or memorializations of those claims for energy produced by any system to which it provided financial incentives under the CST and NY-Sun programs. This directive to relinquish rights applies both to Certificates minted in NYGATS and to all environmental claims, attributes or other embodiments or memorializations of those claims prior to the commencement of NYGATS tracking.<sup>4</sup>

Accordingly, NYSERDA has relinquished all such rights and disavows any and all rights to any environmental claims or renewable energy Certificates for New York Sun and Customer-Sited Tier projects to which it had made claims under previous policies. The NY-Sun and CST programs do not determine the delivery or use of energy (MWh) from projects that receive funding. Generation from NY-Sun and CST–funded projects may be used by customers for their own voluntary use or used toward meeting state requirements to deliver renewable energy to electricity customers in New York, depending on ownership of the environmental attributes and/or renewable energy Certificates from those projects. Where NYSERDA has not acquired the RECs from a NY-Sun–funded or CST project, NYSERDA makes no claim to the environmental attributes of that energy.





4

VDER Order at pp. 70-71.

# **1** New York Solar Market

## 1.1 Residential and Small Commercial

The residential solar market experienced steady growth in 2016, with the area served by Con Edison, including New York City and part of Westchester County, experiencing exceptional growth compared to previous years. The small commercial (projects with a capacity of 200 kilowatts or less) solar market remained steady in 2016 compared to 2015. One small commercial solar project was completed under the Community Distributed Generation policy established by the New York Public Service Commission in 2015,<sup>5</sup> with 13 additional Community Distributed Generation projects in the NY-Sun Small Commercial pipeline as of the end of the year. This pipeline is expected to continue growing during 2017.

In April 2016, the NY-Sun incentives for residential projects in the area served by PSEG Long Island were completed as designed, demonstrating the health of this market segment. Although NY-Sun incentives are no longer available for most Long Island residential projects, federal and State tax credits and net metering still support the market. In addition, Green Jobs - Green NY (GJGNY) financing and the NY-Sun Affordable Solar incentive for low- and moderate-income customers remains available.

Residential solar customers had multiple financing options available to them in 2016, including loans from private banks, the GJGNY loan program, and financing provided directly through their solar installer. Most residential solar projects were leases or power purchase agreements in 2016, with only 36% structured as direct purchases by the customer.

GJGNY provided financing for 3,339 residential projects completed in 2016. On September 1, 2016, GJGNY interest rates were adjusted to ensure the continued availability of the loan fund. The new interest rates are structured at different tiers, indexed to a household's income level.

Energize NY financing for small commercial solar installations was used to develop a limited number of projects in 2016 in the municipalities that joined Energize NY. The number of municipalities offering Energize NY financing is expected to continue growing in 2017.

<sup>&</sup>lt;sup>5</sup> CASE 15-E-0082, Proceeding on Motion of the Commission as to the Policies, Requirements, and Conditions for Implementing a Community Net Metering Program, July 17, 2015

### 1.2 Commercial and Industrial

The pace of large commercial project development (projects with a capacity between 200 and 2,000 kilowatts) picked up in 2016. Projects were completed in 2016 from the State's Competitive Bid Program, which was replaced by the MW Block design July 2014. Additional projects from this program are expected to be completed in 2017 and 2018.

The Commercial/Industrial Megawatt Block project pipeline grew dramatically in 2016. Most of these projects will be sited in the program's Rest of State Region (all areas not served by Con Edison or PSEG Long Island), and represent approximately half of the total capacity planned for that region through the NY-Sun Initiative.

Most of the projects that were completed or entered the pipeline in 2016 are using the State's Community Distributed Generation or Remote Net Metering policies to credit offsite customers for the electricity generated by the project. The number of projects sited in the utility-designated Strategic Zones<sup>6</sup> increased significantly in 2016, particularly in the New York State Electric and Gas Corporation (NYSEG) service territory.

Of the completed Commercial/Industrial projects, the typical time from NY-Sun application to project interconnection ranged from 10 to 18 months. The main causes cited by project developers for longer development times in 2016 were backlogs in the utility interconnection process, time required for local permitting and approvals, and higher than anticipated interconnection costs. As discussed in the following section, NYSERDA and its partners are taking significant steps to reduce these barriers and the associated cost and time required. In addition, 2017 will bring added certainty on the valuation of solar generation from Community Distributed Generation projects.

<sup>&</sup>lt;sup>6</sup> These zones were strategically selected geographical regions where solar power is most viable and beneficial from a technical standpoint including "day-peaking" energy usage profiles that conform closely to solar production.

# 2 NY-Sun Incentive Program

As described above, demand for NY-Sun Incentives was robust in 2016. Appendix A provides a complete review of the progress of each part of the program's Megawatt Block structure. In addition to the availability of the incentives, the NY-Sun program introduced several improvements to program process and resources in 2016.

### 2.1 Quality Assurance

NY-Sun employs a rigorous Quality Assurance process, which involves both document review and field inspections on completed projects using a targeted sampling method. In 2016, 1,039 field inspections were performed, and the solar contractor responsible for the project corrected any identified deficiencies.

To provide additional contractor oversight in a cost-effective manner, while giving contractors more timely feedback on any deficiencies, NY-Sun began implementing a residential photo inspection process. In 2016, 60 photo inspections were performed, and it is anticipated that the planned expansion of the photo review process will allow NYSERDA to conduct quality control inspections for more than 10% of all completed residential solar projects each year. In 2017, the photo inspection process will expand, on a pilot basis, to include sharing inspection photos with local code officials to assist them with their own inspection process. If successful, photo sharing will expand statewide to provide local governments with the tools they need to effectively inspect solar projects.

### 2.2 NY-Sun Contractor Portal (Salesforce)

In September 2016, the NY-Sun program transitioned to a new Contractor Portal (Salesforce). This undertaking allowed NY-Sun to redesign the program application and review processes to reduce administrative burdens on program staff and contractors while maintaining quality and speed. Since the portal was introduced, solar contractors and customers have experienced improved efficiencies (such as the use of electronic signatures and integrated invoicing) throughout the NY-Sun incentive process from project application submission to project completion. In addition, contractors now have better visibility into their project pipeline and incentive status.

### 2.3 Open NY

Open NY is Governor Cuomo's award-winning initiative of policies, programs, and tools providing public access to digital data for collaboration and analysis. The State's Open Data Portal is a powerful tool that provides centralized access to high-value government data to search, explore, download, and share. This public-facing website is a clearinghouse for data on NYS government-supported projects, and is an excellent resource for researchers, industry stakeholders, and the public. NY-Sun publishes project-level data for projects completed in 2000 and forward, on the Open NY Open Data platform. The solar electric dataset consists of completed and pipeline projects for residential, small commercial, and commercial / industrial projects, and includes information such as city, sector, electric utility, inverter and module manufacturer, project cost, incentive amount, total nameplate rating, expected annual production, contractor business name for completed projects, and additional project information, such as participation in Community Distributed Generation, GJGNY, or the Affordable Solar program. Please visit the Open NY website for more information, or to download and view the solar electric dataset.<sup>7</sup>

<sup>&</sup>lt;sup>7</sup> https://data.ny.gov/Energy-Environment/Solar-Electric-Programs-Reported-by-NYSERDA-Beginn/3x8r-34rs

# 3 Reducing Solar Costs and Barriers

The NY-Sun initiative includes a comprehensive set of strategies to reduce solar costs and barriers. In particular, NY-Sun seeks to reduce non-hardware costs in key areas such as interconnection, customer education and outreach, and local policies and permitting processes. NY-Sun will also continue to seek new ways to support grid efficiency by incorporating battery storage, locational incentives and financing when needed. These strategies are being implemented alongside the NY-Sun incentives.

In 2017, NY-Sun plans to establish a Market Acceleration Hub to further reduce balance-of-system (BOS) or "soft" costs in New York State. The Hub will work in partnership with representatives from State agencies, the solar industry, utilities and municipalities to resolve the most urgent market obstacles inhibiting greater PV adoption. It will harness the interdisciplinary expertise and capabilities required to generate turnkey solutions to BOS barriers, and will then work to implement and scale those solutions across the State.

### 3.1 Interconnection

In 2016, New York State's solar market reached a scale where the interconnection process was a major bottleneck, preventing continued market growth. The grid integration activities undertaken in response are critical to effectively reach high solar penetration levels in the State's electric power system.

In 2016, the New York Department of Public Service, in conjunction with NYSERDA, created two State Ombudsmen positions to resolve issues delaying interconnection for solar projects. Each investor-owned utility appointed an ombudsperson of its own to help manage interconnection applications. The Ombudsmen successfully created a reporting mechanism for the interconnection queue, deployed technical assistance, developed utility maps showing areas with distributed generation constraints, cleared inactive projects, and assisted the solar industry with the interconnection timeline. Because of these and other efforts, the backlog of incomplete utility engineering studies was eliminated by August 2016.

In addition, the Department of Public Service formed the Interconnection Policy Working Group to address various improvements to the interconnection process, including development of a queue management solution in June 2016. Members included representatives from the utilities, solar industry groups, project developers active in New York State, and other large stakeholders.

An interconnection queue management proposal that would require older projects to move forward or withdraw was jointly submitted to the New York Public Service Commission by the solar industry and utilities on September 30, 2016. The proposal recommended binding project development milestones and payment requirements for developers, as well as a cost-sharing mechanism for grid upgrades. The New York State Public Service Commission approved the interconnection queue management proposal on January 25, 2017.

Lastly, the Department of Public Service established a Technical Working Group to address technical barriers to interconnection. The Technical Working Group is working on new, less restrictive, criteria for large solar systems looking to interconnect with the grid. The new criteria make use of the latest industry knowledge and experience; preserves the safety and integrity of the grid.

### 3.2 Solarize

Solarize campaigns are locally-organized community outreach efforts aimed at getting a critical mass of area homes and businesses to go solar and achieve significant cost savings. NY-Sun supported 23 Solarize campaigns around the state during 2016, resulting in 632 solar installations totaling 4.52 megawatts of new capacity. Solar customer savings for this round totaled more than \$1.5 million compared to average solar installation costs. NY-Sun will support additional Solarize campaigns in 2017, including campaigns focused on rooftop residential, rooftop commercial, and Community Distributed Generation projects.

### 3.3 Low- and Moderate-Income Solar Access

The Affordable Solar Onsite Residential Incentive, launched in October 2015, doubles the incentive provided by the NY-Sun program for solar installed on owner-occupied residences of low and moderate-income households. Through the end of 2016, 102 projects were completed using the added incentive, with an additional 66 projects in the pipeline. More than 50 solar installers used the added incentive to serve low- and moderate-income homeowners across the State.

The Affordable Solar Predevelopment and Technical Assistance Program launched in December 2016. This program provides funding to address barriers to achieving solar benefits for low- to moderateincome households through solar for multifamily affordable housing and community solar. Funding to proposals will offset costs for non-engineering predevelopment and technical assistance activities. Local Permitting and Policies

### 3.4 Local Permitting and Policies

#### 3.4.1 Unified Solar Permit

NY-Sun released a revised and expanded Unified Solar Permit, along with new guidance documents, in 2016. The revision process included a wide range of stakeholders, including municipal governments, code officials, the New York Department of State, and others. The revised Unified Solar Permit increased the maximum system size from 12 to 25 kilowatts, includes ground-mounted solar installations, and provides greatly expanded guidance for plan review and inspections.

#### 3.4.2 Guidebook for Local Governments

The NY-Sun Guidebook for Local Governments was released in September 2016. The guidebook was developed to respond to demand from local governments for additional resources to help manage a growing number of solar projects. In addition to the revised Unified Solar Permit, the guidebook includes factsheets and technical toolkits addressing rooftop access and ventilation requirements, property tax exemptions, solar installations in agricultural districts, landowner considerations for solar land leases, and decommissioning of large ground-mounted solar installations.

#### 3.4.3 PV Trainers Network

The NY-Sun PV Trainers Network continues to provide trainings and expert technical assistance to municipalities across the State. In 2016, PV Trainers Network conducted 134 in-person workshops, and provided over 550 hours of one-on-one technical assistance. These efforts reached 4,250 local officials, first responders, and code officials. This year, the PV Trainers Network saw increased demand for planning and zoning trainings, and steady demand for first responder trainings.

The PV Trainers Network received over 60 technical assistance requests in 2016. Three-quarters of the technical assistance questions focused on planning, zoning, permitting, and fiscal considerations for developing larger-scale solar arrays across the State. Specifically, many questions focused on the Real Property Tax Law Section 487, developing Payment in Lieu of Taxes (PILOT) agreements, zoning for larger-scale solar arrays, and guidance for developing solar in agricultural areas.

## 3.5 Solar Ready Vets

Solar Ready Vets is a U.S. Department of Energy SunShot Initiative program that trains U.S. military veterans for careers in the solar industry. As a participant in the program, NY-Sun helps train veterans for careers as solar installers, manufacturers, inspectors and sales representatives. In 2016, NY-Sun trained five cohorts of veterans, graduating more than 100 transitioning military personnel from the program.

# 4 Summary of Benefits and Funding

Tables 1 and 2 provide detailed information about solar capacity and expected solar production as related to NYSERDA funding. Tables 3 and 4 provide detailed information about budgets, expenditures, and committed funds for NYSERDA solar funding.

| Program                         | Projects Completed<br>(Installed Units) with<br>Adjustments through<br>12/31/15 | Projects Completed<br>(Installed Units)<br>1/1/16 - 12/31/16 | Projects Completed<br>(Installed Units)<br>through<br>12/31/16 | Applications Approved<br>but Not Yet Contracted<br>(Current Pipeline) | Projects Contracted<br>but Not Yet Completed<br>(Current Pipeline) | Total (Current Pipeline<br>+ Installed Units)<br>through<br>12 <i>1</i> 31/16 |
|---------------------------------|---|--|--|---|--|---|
| Residential / Small Commercial* | 272.86  | 122.65   | 395.51   | 15.96   | 120.02   | 531.49  |
| Commercial / Industrial         | 1.70  | 15.31  | 17.01  | 66.81   | 486.48   | 570.30  |
| Com petiti ve PV                | 85.52   | 26.38  | 111.90   | 3.83  | 152.95   | 268.68  |
| NYPA - RGGI                     | 0.04  | 4.60   | 4.64   | 0.07  | 10.98  | 15.69   |
| LIPA - RGGI                     | 156.73  | 54.83  | 211.56   | 4.82  | 24.85  | 241.23  |
| Financing Only                  | 0.00  | 3.18   | 3.18   | 0.00  | 0.00   | 3.18  |
| Grand Total                     | 516.86  | 226.95   | 743.81   | 91.48   | 795.29   | 1,630.58  |

Table 1. All Solar: Statewide Capacity Funded by NYSERDA (MW)<sup>8</sup>

<sup>&</sup>lt;sup>8</sup> NYPA Customers and LIPA Service Territory represents incentive funding supported with proceeds under the Regional Greenhouse Gas Initiative (RGGI).

#### Table 2. All Solar Statewide: Expected Annual Production Funded by NYSERDA (MWh)<sup>9,10,11</sup>

| Program                         | Projects Completed<br>(Installed Units) with<br>Adjustments through<br>12/31/15 | Projects Completed<br>(Installed Units)<br>1/1/16 - 12/31/16 | Projects Completed<br>(Installed Units)<br>through<br>12/31/16 | Applications Approved<br>but Not Yet Contracted<br>(Current Pipeline) | Projects Contracted<br>but Not Yet Completed<br>(Current Pipeline) | Total (Current Pipeline<br>+ Installed Units)<br>through<br>12/31/16 |
|---------------------------------|---|--|--|---|--|--|
| Residential / Small Commercial* | 320,295   | 143,968  | 464,262  | 18,729  | 140,889  | 623,881  |
| Commercial / Industrial         | 1,995   | 17,975   | 19,969   | 78,421  | 571,048  | 669,439  |
| Competitive PV                  | 87,690  | 29,507   | 117,197  | 4,492   | 176,234  | 297,923  |
| NYPA - RGGI                     | 52  | 5,399  | 5,450  | 80  | 12,890   | 18,421   |
| LIPA - RGGI                     | 183,981   | 64,358   | 248,339  | 5,660   | 29,168   | 283,167  |
| Financing Only                  | 0   | 3,735  | 3,735  | 0   | 0  | 3,735  |
| Grand Total                     | 594,012   | 264,941  | 858,953  | 107,383   | 930,230  | 1,896,566  |

\*Funding includes supplemental funding such as RGGI, ARRA, VEPO and SBCIII

<sup>&</sup>lt;sup>9</sup> NYPA Customers and LIPA Service Territory represents incentive funding supported with proceeds under the Regional Greenhouse Gas Initiative (RGGI).

<sup>&</sup>lt;sup>10</sup> Note that the megawatt-hours included in Table 2 are estimated amounts based on a statewide capacity factor. NYSERDA does not, by filing this report, make any claim to the environmental attributes associated with those megawatt-hours.

<sup>&</sup>lt;sup>11</sup> The NY-Sun program does not determine the delivery or use of solar energy (MWh) from projects that receive funding. Generation from NY-Sun–funded projects may be used by customers for their own voluntary use or used toward meeting state requirements to deliver renewable energy to electricity customers in New York, depending on ownership of the environmental attributes and/or renewable energy certificates (RECs) from those projects. Where NYSERDA has not acquired the RECs from a NY-Sun–funded project, NYSERDA makes no claim to the environmental attributes of that energy.

| Table 3. NY Su | In Financial | Status as | if December 31. | 2016 in dollars <sup>12</sup> |
|----------------|--------------|-----------|-----------------|-------------------------------|
|                |              |           |                 |                               |

| Program                         | Pre-<br>encumbrances | Open<br>Encumbrances | Expended<br>Funds | Grand Total | Budgeted Funds<br>2014-2023 |
|---------------------------------|----------------------|----------------------|-------------------|-------------|-----------------------------|
| Residential/Small<br>Commercial | 6.276.936            | 61.998.510           | 168.545.833       | 236.821.279 | 594,234,379                 |
|                                 | 0,2:0,000            |                      | ,,                |             |                             |
| Commercial/Industrial           | 25,986,966           | 178,778,235          | 1,050,392         | 205,815,593 | 464,192,069                 |
|                                 |                      |                      |                   |             |                             |
| Competitive PV                  | 2,274,031            | 76,338,143           | 3,166,329         | 81,778,503  | 81,778,503                  |
|                                 |                      |                      |                   |             |                             |
| Program Implementation          | -                    | 646,953              | 761,346           | 1,408,299   | 33,275,000                  |
|                                 | 00.004               | 005 545              | 4 000 000         | 0.050.700   | 00 700 000                  |
| Administration                  | 36,024               | 325,515              | 1,898,229         | 2,259,768   | 38,706,000                  |
| Evaluation                      | -                    | -                    | -                 | -           | 2,500,000                   |
| NYS Cost Recovery Fee           | -                    | -                    | 668,774           | 668,774     | 19,250,000                  |
| Total                           | 34,573,957           | 318,087,356          | 176,090,903       | 528,752,215 | 1,233,935,951               |

<sup>&</sup>lt;sup>12</sup> Administration, Evaluation, and Cost Recovery Fee are for 2016–2023 NY-Sun Only.

| Program                         | Pre-<br>encumbrances | Open<br>Encumbrances | Expended<br>Funds | Grand Total | Budgeted Funds<br>2006–2023 |
|---------------------------------|----------------------|----------------------|-------------------|-------------|-----------------------------|
| Residential/Small<br>Commercial | 6,276,936            | 66,931,046           | 388,528,607       | 461,736,589 | 829,288,808                 |
| Commercial/Industrial           | 25,986,966           | 178,778,235          | 1,050,392         | 205,815,593 | 464,192,069                 |
| Competitive PV                  | 2,274,031            | 116,089,420          | 56,630,129        | 174,993,580 | 174,993,580                 |
| Program Implementation          | _                    | 646,953              | 761,346           | 1,408,299   | 33,275,000                  |
| Administration                  | 36.024               | 325.515              | 1.898.229         | 2.259.768   | 38,706,000                  |
| Evaluation                      |                      |                      |                   |             | 2 500 000                   |
|                                 |                      |                      | 000 774           | 000 774     | 10.050.000                  |
| NYS COSI RECOVERY FEE           | -                    | -                    | 668,774           | 668,774     | 19,250,000                  |
| Total                           | 34,573,957           | 362,771,169          | 449,537,477       | 846,882,602 | 1,562,205,457               |

### Table 4. All Solar Financial Status as of December 31, 2016 in dollars<sup>13</sup>, <sup>14</sup>

<sup>&</sup>lt;sup>13</sup> Administration, Evaluation and Cost Recovery Fee are for 2016–2023 NY Sun Only.

All Solar Financial Status as of December 31, 2016 are a subset of the numbers in Table 3. NY-Sun Financial Status as if December 31, 2016. Tables 3 and 4 are not additive.

# Appendix A: Completed and Pipeline MW by Block<sup>15</sup>

#### A-1. Long Island Residential Block Structure

| Block | Design MW<br>Capacity | Completed MW<br>Capacity as of<br>12/31/16 | Pipeline MW<br>Capacity as of<br>12/31/16 |
|-------|-----------------------|--|---|
| 1     | 37                    | 31.66                                      | 0.05                                      |
| 2     | 15                    | 12.08                                      | 0.17                                      |
| 3     | 20                    | 16.07                                      | 0.56                                      |
| 4     | 77                    | 59.59                                      | 21.16                                     |
| Total | 149                   | 119.41                                     | 21.94                                     |

#### A-2. Con Edison Residential Block Structure

| Block | Design MW<br>Capacity | Completed MW<br>Capacity as of<br>12/31/16 | Pipeline MW<br>Capacity as of<br>12/31/16 |
|-------|-----------------------|--|---|
| 1     | 14                    | 11.52                                      | 0.12                                      |
| 2     | 6                     | 4.66                                       | 0.29                                      |
| 3     | 9                     | 6.97                                       | 0.74                                      |
| 4     | 12                    | 8.67                                       | 2.04                                      |
| 5     | 17                    | 11.52                                      | 4.51                                      |
| 6     | 18                    | 6.96                                       | 10.80                                     |
| 7     | 38                    | 0.02                                       | 2.18                                      |
| 8     | 70                    | 0.00                                       | 0   |
| 9     | 120                   | 0.00                                       | 0   |
| Total | 304                   | 50.34                                      | 20.68                                     |

<sup>&</sup>lt;sup>15</sup> For more information about blocks and block design, please refer to the NY-Sun MW Block Dashboards https://www.nyserda.ny.gov/All-Programs/Programs/NY-Sun/Megawatt-Block-Dashboards and the 2016–2023 Operating Plan

http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&uact=8&ved=0ahUKEwjXk9Lvz NPSAhUl3YMKHdOXBZ4QFggeMAE&url=http%3A%2F%2Fdocuments.dps.ny.gov%2Fpublic%2FCommon%2F ViewDoc.aspx%3FDocRefId%3D%257BF5DA32B6-FB3F-4F7E-BBCB-

<sup>609</sup>B41E0FAC4%257D&usg=AFQjCNETRfoH\_TgN7yDLVmlYMIxVJOp87A&bvm=bv.149397726,d.eWE

#### A-3. Upstate Residential Block Structure

| Block | Design MW<br>Capacity | Completed MW<br>Capacity as of<br>12/31/16 | Pipeline MW<br>Capacity as of<br>12/31/16 |
|-------|-----------------------|--|---|
| 1     | 40                    | 35.55                                      | 0.36                                      |
| 2     | 15                    | 12.75                                      | 0.18                                      |
| 3     | 19                    | 16.12                                      | 0.38                                      |
| 4     | 22                    | 18.74                                      | 0.73                                      |
| 5     | 24                    | 21.24                                      | 1.10                                      |
| 6     | 35                    | 30.41                                      | 2.40                                      |
| 7     | 70                    | 33.85                                      | 21.11                                     |
| 8     | 75                    | 0.00                                       | 0.00                                      |
| 9     | 148                   | 0.00                                       | 0.00                                      |
| Total | 448                   | 168.65                                     | 26.27                                     |

### A-4. Long Island Nonresidential Block Structure

| Block | Design MW<br>Capacity | Completed MW<br>Capacity as of<br>12/31/16 | Pipeline MW<br>Capacity as of<br>12/31/16 |
|-------|-----------------------|--|---|
| 1     | 7                     | 5.38                                       | 0.38                                      |
| 2     | 6                     | 4.59                                       | 0.71                                      |
| 3     | 7                     | 2.30                                       | 3.34                                      |
| 4     | 9                     | 0.31                                       | 9.24                                      |
| 5     | 15                    | 0.06                                       | 3.98                                      |
| 6     | 14                    | 0.00                                       | 0.00                                      |
| Total | 58                    | 12.64                                      | 17.65                                     |

#### A-5. Con Edison Nonresidential Block Structure

| Block | Design MW<br>Capacity | Completed MW<br>Capacity as of<br>12/31/16 | Pipeline MW<br>Capacity as of<br>12/31/16 |
|-------|-----------------------|--|---|
| 1     | 6                     | 3.48                                       | 0.10                                      |
| 2     | 4                     | 0.76                                       | 2.10                                      |
| 3     | 7.5                   | 2.02                                       | 5.34                                      |
| 4     | 8                     | 0.13                                       | 3.17                                      |
| 5     | 10                    | 0.00                                       | 0.00                                      |
| 6     | 15                    | 0.00                                       | 0.00                                      |
| 7     | 35                    | 0.00                                       | 0.00                                      |
| 8     | 45                    | 0.00                                       | 0.00                                      |
| 9     | 73                    | 0.00                                       | 0.00                                      |
| 10    | 101                   | 0.00                                       | 0.00                                      |
| Total | 304.5                 | 6.39                                       | 10.70                                     |

### A-6. Upstate Nonresidential Block Structure

| Block | Design MW<br>Capacity | Completed MW<br>Capacity as of<br>12/31/16 | Pipeline MW<br>Capacity as of<br>12/31/16 |
|-------|-----------------------|--|---|
| 1     | 35                    | 16.58                                      | 9.26                                      |
| 2     | 8                     | 3.17                                       | 4.01                                      |
| 3     | 10                    | 2.42                                       | 7.22                                      |
| 4     | 12                    | 4.09                                       | 5.16                                      |
| 5     | 18                    | 2.05                                       | 13.86                                     |
| 6     | 23                    | 1.11                                       | 18.44                                     |
| 7     | 33                    | 5.77                                       | 20.88                                     |
| 8     | 77                    | 0.00                                       | 0.00                                      |
| 9     | 95                    | 0.00                                       | 0.00                                      |
| 10    | 145                   | 0.00                                       | 0.00                                      |
| Total | 456                   | 35.19                                      | 78.84                                     |

#### A-7. Con Edison Commercial/Industrial Block Structure

| Block | Design MW<br>Capacity | Completed MW<br>Capacity as of<br>12/31/16 | Pipeline MW<br>Capacity as of<br>12/31/16 |
|-------|-----------------------|--|---|
| 1     | 15                    | 2.24                                       | 6.48                                      |
| 2     | 20                    | 0.00                                       | 0.00                                      |
| 3     | 20                    | 0.00                                       | 0.00                                      |
| 4     | 25                    | 0.00                                       | 0.00                                      |
| 5     | 25                    | 0.00                                       | 0.00                                      |
| 6     | 30                    | 0.00                                       | 0.00                                      |
| 7     | 30                    | 0.00                                       | 0.00                                      |
| 8     | 35                    | 0.00                                       | 0.00                                      |
| 9     | 35                    | 0.00                                       | 0.00                                      |
| 10    | 40                    | 0.00                                       | 0.00                                      |
| 11    | 45                    | 0.00                                       | 0.00                                      |
| 12    | 50                    | 0.00                                       | 0.00                                      |
| 13    | 55                    | 0.00                                       | 0.00                                      |
| Total | 425                   | 2.24                                       | 6.48                                      |

#### A-8. Rest of State Commercial/Industrial Block Structure

| Block | Design MW<br>Capacity | Completed MW<br>Capacity as of<br>12/31/16 | Pipeline MW<br>Capacity as of<br>12/31/16 |
|-------|-----------------------|--|---|
| 1     | 120                   | 11.19                                      | 101.11                                    |
| 2     | 120                   | 2.80                                       | 108.75                                    |
| 3     | 130                   | 0.36                                       | 91.77                                     |
| 4     | 130                   | 0.00                                       | 103.67                                    |
| 5     | 140                   | 0.42                                       | 118.76                                    |
| 6     | 140                   | 0.00                                       | 32.73                                     |
| 7     | 150                   | 0.00                                       | 0.00                                      |
| 8     | 150                   | 0.00                                       | 0.00                                      |
| 9     | 160                   | 0.00                                       | 0.00                                      |
| 10    | 170                   | 0.00                                       | 0.00                                      |
| 11    | 180                   | 0.00                                       | 0.00                                      |
| Total | 1590                  | 14.78                                      | 556.79                                    |

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