

NY-Sun Annual Performance Report through December 31, 2018

Final Report | March 2019

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.

NY-Sun Annual Performance Report through December 31, 2018

Final Report

Prepared by:

New York State Energy Research and Development Authority

Albany, NY

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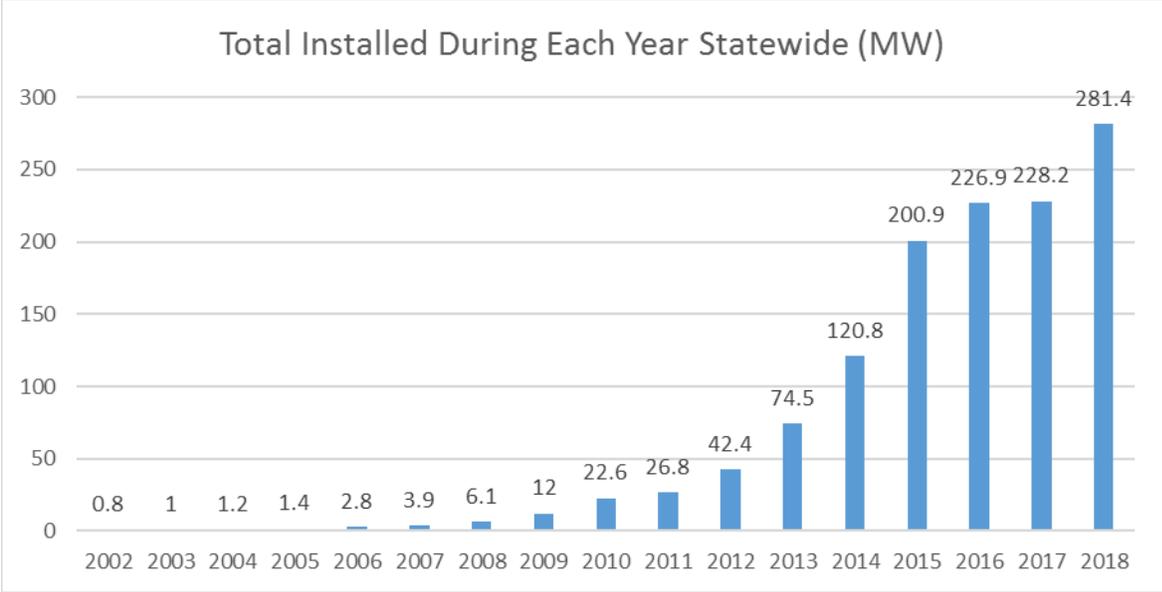
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Summary

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. The program provides financial support for solar electric systems installed by solar installation contractors who have been qualified to receive NY-Sun incentives. With a comprehensive approach to reducing solar costs and barriers, NY-Sun supports the State's goal to install three gigawatts (GW) of solar electric capacity by 2023 while building a self-sustaining solar industry. The highlights of the initiative during 2018 include the continued development of the pipeline for commercial/industrial projects, redesign of the Megawatt Block program, deployment of a new solar plus storage incentive program, and launch of the new Solar for All program. Additional progress was made on efforts to reduce soft costs, including the new Interconnection Implementation Plan and the updated New York Solar Guidebook for Local Governments. Lastly, 2018 saw the introduction of a new Quality Solar Installer designation, which highlights the work of outstanding NY-Sun solar installers in the State. The Quality Solar Installer designation will help consumers to identify builders who consistently meet the high standards for residential and small commercial/nonresidential projects.

Through December 31, 2018, 1,628 megawatts (MW) of solar, including projects completed without New York State Energy Research and Development Authority (NYSERDA) support, were installed statewide.¹ New York State ranked 2nd in the country for distributed solar installations brought online in 2018, with 341 MW. Furthermore, the number of full-time solar jobs grew by 8% in 2018, and New York State now ranks 4th in the country with a total of 9,729 full-time solar jobs.² As of the end of 2018, NYSEDA had directly supported 1,254 MW, with an additional 923 MW under development. Installations through the end of 2018 represent nearly a 1,500% growth in NYSEDA-supported installations since the end of 2011. There were 281 MW of NYSEDA-supported solar projects installed in 2018, which represents a 23% year-over-year growth from 2017 and makes 2018 NY-Sun's most successful year. The NYSEDA-supported solar capacity installed statewide as of the end of 2018 generates approximately 1,454,007 megawatt-hours (MWh)³ of electricity each year, reducing annual carbon dioxide equivalent emissions by 765,267 metric tons.^{4,5}

Figure S-1. Yearly NYSERDA-Supported Statewide Solar Electric Capacity Installations (MW)



1 New York State Solar Market

1.1 Residential and Small Commercial/Nonresidential

The residential and small commercial/nonresidential solar market in New York State consists of installations on 1–4 family residences, multifamily buildings, small and mid-sized commercial buildings, and other nonresidential structures as well as offsite projects under 750 kilowatts (kW). These markets experienced a national contraction in 2017 due to factors such as low electricity prices, federal import tariffs, and the withdrawal of several large national residential developers, but the overall market in the State rebounded in 2018. In June 2018, NYSERDA implemented changes that helped to improve market conditions, revising the Megawatt Block program (MW Block) by strategically restructuring incentives for the Nonresidential, and Commercial and Industrial MW Blocks.

Standout accomplishments for 2018 include the third quarter of 2018, with over 105 MW brought online representing a 135% increase over Q3 2017 installations. Additionally, total annual completions for the year were 281 MW, which was NY-Sun’s best year ever. 2018 was marked by a shift away from residential and small commercial/nonresidential projects toward commercial and industrial scale projects. Of the 281 MW completed in 2018, 27% were residential, 14% were small commercial/nonresidential, and 59% were commercial and industrial. In 2017, 42% of total installed capacity was residential, 18% was small commercial/nonresidential, and 39% was commercial and industrial.

Although NY-Sun incentives have not been available for most residential projects in the area served by PSEG-Long Island since April 2016, federal tax credits, State tax credits, and net metering continue to support the market. In addition, Green Jobs - Green NY (GJGNY) financing and the NY-Sun Affordable Solar incentive for low- and moderate-income customers remain available, with 15 projects completed in 2018. Through the end of 2018, 1,140 Long Island projects have received GJGNY financing without any NY-Sun incentive.

Residential solar customers had multiple financing options available to them in 2018, including loans from private banks, the GJGNY loan program, and power purchase agreements (PPAs) or leases provided through their solar installer. GJGNY provided financing for 579 residential projects completed in 2018. In parallel with national trends, the proportion of residential solar projects that were leases or PPAs decreased in 2018 compared to 2017, while the proportion structured as direct purchases by the customer grew to 53% in 2018 compared to 43% in 2017.

1.2 Commercial and Industrial

Deployment of commercial and industrial (C/I) projects (those greater than 750 kW) accelerated in 2018, especially in the upstate region. This territory includes all areas not served by Con Edison or PSEG Long Island, and it has been attractive to a diverse group of projects, including large commercial, remote net metered (RNM), and community distributed generation (CDG). This growth was supported by continued refinement of the Value of Distributed Energy Resources (VDER) framework and the increase of the interconnection cap for VDER-compensated projects to 5 MW AC.

Siting barriers, such as local permitting and zoning, continue to impact ground-mounted RNM and CDG projects. Project development was also dampened by federal import tariffs on solar modules, steel, and aluminum. Additionally, site availability for C/I projects remains a barrier in the Con Edison region. Statewide, 36 new project applications were received and approved in 2018. Thirty-one of these projects will use the State's CDG policy to credit offsite customers for the electricity generated by the project. As discussed in section 1.3, the pipeline for CDG represents significant growth opportunities for the larger-scale commercial market.

Throughout 2018, NYSERDA and its partners implemented program and policy measures to reduce project development barriers and the associated costs and time, which are described in Section 3 of this report. NYSERDA staff also actively reviewed the pipeline of projects with approved incentive applications throughout the year and worked with developers to cancel applications for 17 projects that were unlikely to complete development. This process allows NY-Sun to reallocate funds to new projects.

1.3 Community Distributed Generation

Growth in the CDG market continued in 2018 with a total installed capacity of 12.3 MW. The total number of installations and installed capacity is expected to grow substantially in 2019 with progress expected on much of the 765 MW of CDG projects currently in the NY-Sun pipeline.

In September 2018, the NY PSC issued an order that increased the flexibility of CDG projects. This order expanded the eligibility and availability of interzonal crediting for VDER-compensated CDG projects. Beginning in December 2018, VDER-compensated CDG projects may include subscribers outside of the New York Independent System Operator (NYISO) zone of the project location as long as they are in the same utility service territory.⁶

2 NY-Sun Incentive Program

New York's various solar market sectors and regions experienced different levels of activity in 2018. Appendix A provides a complete review of the progress of each part of the program's MW Block structure. In addition to the availability of the incentives, NY-Sun continued to make improvements to program processes and resources in 2018, including a redesign of the MW Block incentive structure.

2.1 Megawatt Block Redesign

In response to changing solar market conditions and the Value of Distributed Energy Resources Phase One Order issued by the New York Public Service Commission in March 2017,⁷ NY-Sun instituted a number of alterations to the MW Block incentive structure in June 2018. In addition to the adjustments to the MW Block structure and incentives, the redesign introduced new incentives for projects on brownfields/landfills, parking/rooftop canopies, and multifamily affordable housing. In the Con Edison region, the Commercial/Industrial and Small Commercial MW Blocks were combined into a single Nonresidential MW Block. The new Con Edison Nonresidential MW Block has a system size cap of 7.5 MW, which is accompanied by a flat, capacity-based incentive.

In the Upstate region, the Small Commercial blocks were renamed Nonresidential and the incentive cap was increased to 750 kW. The Commercial and Industrial program added a new block of 270 MW with a performance-based incentive for projects between 750 kW and 7.5 MW. Projects Upstate, in both the Nonresidential and C/I programs, are also now eligible to receive the brownfields/landfills and the multifamily affordable housing added incentives.

In the PSEG Long Island region, the Small Commercial program was renamed the Nonresidential program, and the system size cap was increased from 500 kW to 750 kW. The MW Block program incentive rates for PSEG Long Island remained the same.

2.2 Quality Assurance

NY-Sun employs a rigorous Quality Assurance (QA) process, which involves both document review and field inspections on completed projects using a targeted sampling method. The solar contractor or installer responsible for the project must correct any identified deficiencies. In 2018, over 1,100 field inspections were performed. NY-Sun continued to expand the residential and nonresidential photo inspection process to provide additional oversight in a cost-effective manner, while giving contractors and installers more timely feedback. In furtherance of this goal, NY-Sun performed photo inspections on over 850 projects in 2018. NY-Sun is also developing a QA process to ensure continued oversight once the MW Block program is complete and solar projects are no longer receiving funding from NYSERDA.

In 2018, NY-Sun announced a new Quality Solar Installer designation for the Residential and Nonresidential programs beginning in Q1 2019. This designation will be provided to installers who are in good standing and have achieved an average QA inspection score of 4.0 or better out 5.0 for the previous calendar year. The goal of this designation is two-fold: (1) to recognize those installers who have consistently delivered projects that meet the high standards of quality, and (2) to motivate those installers who have not achieved this designation to perform better. NYSERDA's Quality Solar Installer designees will be denoted as such on the NY-Sun website and will be provided with a specialized logo for use in their own marketing materials. NYSERDA anticipates using the Quality Solar Installer designation structure for other NYSERDA programs in the future.

New York State Department of Public Service (DPS) expanded its oversight of the solar industry with its October 2017 order establishing uniform business practices for distribute energy resource providers.⁸ In 2018, NY-Sun continued to provide trainings and resources to solar developers on these new requirements and has trained DPS staff on solar-specific contracting and installation concerns.

2.3 Solar Plus Energy Storage Program

Following the release of the NY Energy Storage Roadmap in June 2018,⁹ NYSERDA designed a new Solar Plus Energy Storage incentive program, which includes a set of bridge incentives to help spur the energy storage market. Starting in October 2018, additional incentives were available for nonresidential and C/I solar electric projects paired with an energy storage system. Customers served by PSEG Long Island and New York Power Authority (NYPA) are not eligible for the Solar Plus Energy Storage incentive unless the customer pays into the System Benefits Charge (SBC). In addition to the

standard nonresidential or C/I incentive for solar, eligible projects will receive an additional \$350 per kWh of usable AC storage capacity until the storage incentive steps down to a lower amount. The incentive can be applied to new or approved projects, but completed solar projects are not eligible. A stand-alone energy storage incentive is expected to be available in 2019 for nonresidential and C/I customers who have previously installed solar and want to add storage.

The solar electric system and energy storage system must be physically and permanently located at the same site and must be installed behind the same utility host meter. Eligible energy storage system equipment must be new and commercially available.

2.4 Coordination with other DER Technologies

NYSERDA has restructured its NY-Sun, Energy Storage, and On-Site Power teams into a single Distributed Energy Resources (DER) team. Staff from these three programs will continue to work closely to share lessons learned and coordinate their respective work to leverage resources and maximize efficiency. NYSERDA is also unifying the VDER educational resources to serve stakeholders in the solar, Combined Heat and Power, energy storage, and anaerobic digester sectors.

3 Reducing Solar Costs and Barriers

The NY-Sun initiative includes a comprehensive set of strategies to reduce solar costs and barriers. NY-Sun seeks to reduce non-hardware costs in key areas such as interconnection, customer education and outreach, and local policies and permitting processes. NYSERDA continues efforts to reduce solar soft costs through initiatives such as the New York Solar Guidebook for Local Governments. NY-Sun, in collaboration with other NYSERDA programs and external partners, will also continue to seek new ways to support grid efficiency by incorporating energy storage, locational incentives, and financing when needed. These strategies are being implemented alongside the NY-Sun incentives.

3.1 Clean Energy Siting and Soft Cost Reduction Initiative

In December 2017, NYSERDA filed a Clean Energy Fund investment plan for the Clean Energy Siting and Soft Cost Reduction initiative¹⁰ and formally launched the program in Q1 2018. This initiative coordinates a portfolio of activities that aggressively target the most urgent soft cost barriers to clean energy market growth, with an initial focus that includes distributed solar cost reduction efforts managed by NY-Sun. Through this initiative, NYSERDA has been working with local government officials to help implement sections of the New York Solar Guidebook for Local Governments.

3.1.1 Guidebook for Local Governments

In August 2018, an updated version of the New York Solar Guidebook for Local Governments¹¹ was released. The guidebook offers information, tools, and step-by-step instructions to support local government efforts to develop solar energy resources and create clean energy jobs. New additions to the guidebook in 2018 address the most pressing issues in New York State's solar market today. The Model Solar Energy Local Law that was included in the guidebook is intended to assist municipalities in drafting local laws and ordinances and to facilitate ideas for properly incorporating solar language into local zoning laws and policies. Additionally, a Solar Property Tax Calculator was added to the payment-in-lieu-of-taxes toolkits to provide guidance on assessing community solar projects. The section on State Environmental Quality Review (SEQR) for Solar was updated to include the latest amendments published by the NYS Department of Environmental Conservation. The newest section added to the guidebook is the Municipal Procurement Toolkit which will assist local municipalities with leasing their existing underutilized lands, such as landfills and brownfields, for solar development.

3.1.2 Technical Assistance

The New York Guidebook for Local Governments is complemented by free technical assistance, provided by NY-Sun staff and partners, to help local governments become solar-ready. In 2018, technical assistance was provided to over 150 counties, towns, and villages throughout New York State. Over 30 topic-specific workshops were held, reaching an audience of over 1,500 local officials.

The most frequent topics of assistance requests from municipalities in 2018 were in regard to payment-in-lieu-of-taxes (PILOT) agreements and passing local zoning ordinances for solar. Over half of the meetings and workshops held have focused on this issue as individual municipalities decide whether to opt out of the Real Property Tax Law 487 exemption from property tax payments for solar projects. Through this technical assistance effort, NY-Sun has provided municipalities with clear, trustworthy information about implementing PILOT agreements as an alternative to opting out of the exemption and has helped municipalities negotiate PILOT agreements with solar developers. Municipalities have reported that related costs have been cut in half as a result of the technical support provided.

3.2 Interconnection

In 2018, NY-Sun supported the implementation of the Interconnection Management Plan approved by the New York State Public Service Commission in January 2018,¹² which was based on a proposal jointly submitted by the solar industry and utilities. The Interconnection Management Plan included refinements ordered by the Commission and received input from the interconnection ombudsmen at NYSERDA, the New York Department of Public Service, and the electric utilities. In addition, the Interconnection Technical Working Group and Interconnection Policy Working Group both contributed to major improvements in the interconnection process as experienced by solar developers in 2018.¹³ Project-specific interconnection costs remain a critical factor in determining the economic viability of large commercial projects, and these costs were an important factor in the cancellation of projects with approved NY-Sun C/I incentive applications.

3.3 Value of Distributed Energy Resources Assistance

The Value of Distributed Energy Generation Phase One Order was released by the Public Service Commission in March 2017,¹⁴ and the Phase One Implementation Order was released in September 2017.¹⁵ This new methodology takes the first step in moving beyond Net Energy Metering (NEM) to a more accurate valuation and compensation of Distributed Energy Resources. VDER factors include the wholesale price of the energy, the avoided carbon emissions, the cost savings to customers and utilities, and other savings from avoiding expensive capital investments.

NY-Sun has developed multiple resources and tools to assist solar market participants with the transition to the VDER framework with solar market participants. The Value of Distributed Energy Resources page on the NY-Sun website¹⁶ consolidates relevant information, including Frequently Asked Questions documents, recorded webinars, and the updated capacity of “Phase One Tranches” for CDG compensation. Most importantly, the page features the Value Stack Calculator, which is a downloadable, MS Excel-based tool that can provide an accurate estimate of the compensation for a solar project’s electric generation under the VDER framework. The calculator was revised several times in 2018 to reflect the most recently available compensation inputs.

NYSERDA has been deeply involved in dialogues with solar stakeholders, including project developers and DPS staff, to support improvements to VDER. DPS staff released a pair of whitepapers in July 2018 and in December 2018 with proposed VDER refinements, including expanded support for CDG, improvements to the Demand Reduction Value (DRV) element, and the proposed availability of Phase One NEM for on-site DER projects under 750 kW. NYSERDA will continue to support DPS Staff as needed to maximize the ability of developers to complete projects under VDER while minimizing ratepayer impact.

3.4 Solarize

Solarize campaigns are locally-organized community outreach efforts aimed at getting a critical mass of area homes and businesses to install solar and achieve significant cost savings. NY-Sun supported 14 Solarize campaigns around the State during 2018, five of which focused on community solar. The community solar campaigns were primarily located in the Southern Tier region of New York State, with the remaining nine campaigns focused on on-site installations. The 14 Solarize campaigns resulted in a total of 321 solar contracts for 2.65 MW of new capacity. Of these 321 contracts, 120 were community solar customers. NY-Sun will support additional Solarize campaigns in 2019.

3.5 Low- and Moderate-Income Solar Access

NYSERDA continues to explore new opportunities to expand access to solar for low- and moderate-income (LMI) households. In 2018, NYSERDA launched the Solar for All program, which is described in more detail in section 3.5.5. Following extensive consultations with stakeholders in the LMI VDER Working Group, the New York Public Service Commission issued the Order Adopting Low-Income Community Distributed Generation Initiatives in July 2018.¹⁷ The Commission's Order included the creation of the Bill Discount Pledge (BDP) program, which will subsidize subscription fees for low-income CDG customers. This program will reduce or eliminate CDG subscription fees for low-income customers by allowing low-income customers to use a share of their monthly Affordability program bill discount toward the purchase of a CDG subscription. In December 2018, the electric utilities of New York presented an implementation plan for the BDP, and the rollout process will continue in 2019.

Additionally, the Commission's Order addressed the creation of a loss reserve fund for CDG projects serving LMI customers, which led to a new Request for Information (RFI) from the New York Green Bank (NYGB) seeking feedback on financing approaches and credit enhancement opportunities to fund CDG projects that serve LMI customers. Specifically, the NYGB is interested in eligible LMI-focused CDG projects, informing prospective borrowers about NYGB's CDG financing approach, determining market interest in NYGB's CDG-related product offerings, and developing methods to serve the LMI market segment needs and further accomplish NYGB's investment objectives. Responses were accepted until December 31, 2018.

Combined with existing NYSERDA support for LMI solar access, these new initiatives will broaden the range of strategies available to grow the LMI solar market.

3.5.1 Affordable Solar On-site Residential Incentive

The Affordable Solar On-site Residential Incentive launched in October 2015, and it increases the incentive provided by the NY-Sun program for solar installed on owner-occupied residences of LMI households. Through the end of 2018, 416 projects were completed using the added incentive, with an additional 35 projects in the pipeline. Seventy-nine solar installers have used the added incentive to serve LMI homeowners across the State.

3.5.2 Affordable Solar Predevelopment and Technical Assistance Program

The Affordable Solar Predevelopment and Technical Assistance Program launched in December 2016, and new project applications were accepted through August 2018. This program provided funding to address barriers to achieving solar benefits for LMI households through solar for multifamily affordable housing and community solar. Funding to proposals offsets costs for nonengineering predevelopment and technical assistance activities. In June 2018, the program was expanded to include solar thermal as an eligible technology.

Through the end of 2018, thirteen proposals have been approved and awarded funding, totaling more than \$1,800,000, and includes one solar thermal technology project. The awarded proposals address a range of predevelopment and technical assistance needs for solar projects located throughout New York State.¹⁸

3.5.3 Low-Income Community Solar Initiative: Solar For All

In December 2017, NYSERDA filed a Clean Energy Fund investment plan for a Low-Income Community Solar initiative that will enable low-income New Yorkers to participate in community solar subscriptions that reduce their total electricity bill. This unprecedented program, which is now called Solar for All, will provide no-cost community solar subscriptions to low-income New Yorkers for 10 years. NY-Sun is currently offering subscriptions for its first wave of projects.

Following a competitive solicitation process that began in May 2018, nine projects from five different developers across the State were selected in December 2018, allocating 9 MW of capacity to low-income households. Solar for All projects selected in the first round will serve approximately 7,000 low-income homeowners and renters who receive electric service from New York State Electric and Gas (NYSEG), National Grid, Central Hudson, and Orange & Rockland utilities. In addition to savings on participant electric bills, some of the selected projects have also committed to additional community benefits, including donations to local organizations serving families in need, educational programs for local schools, and committing additional project capacity to subscriptions for low- to moderate-income households.

NYSERDA will launch a second round of the program in 2019, which will expand the number of households and areas served.

4 Summary of Benefits and Funding

Tables 1 and 2 provide detailed information about solar capacity and expected solar production as related to projects funded through the NY-Sun initiative. With over 1.6 GW of installed and pipeline capacity, NY-Sun is making good progress toward the State goal to install 3 GW of solar capacity by 2023. Tables 3 and 4 provide capacity and expected production information for all NYSERDA-supported distributed solar projects, including those that were not part of the NY-Sun initiative. Tables 5 and 6 provide detailed information about budgets, expenditures, and committed funds for NYSERDA NY-Sun and all solar funding, respectively.

Table 1. NY-Sun: Capacity Toward 3GW Goal (MW)

Program	Projects Completed (Installed Units) with Adjustments through 12/31/17	Projects Completed (Installed Units) 1/1/18 - 12/31/18	Projects Completed (Installed Units) through 12/31/18	Applications Approved but Not Yet Contracted (Current Pipeline)	Projects Contracted but Not Yet Completed (Current Pipeline)	Total (Current Pipeline + Installed Units) through 12/31/18
Residential / Small Commercial	373.43	100.72	474.15	5.15	55.75	535.06
Commercial / Industrial	48.51	121.73	170.24	44.41	761.87	976.52
Competitive PV	62.76	37.38	100.14	0.00	16.24	116.37
Grand Total	484.69	259.84	744.53	49.56	833.86	1,627.95

Table 2 NY-Sun: Expected Annual Production Associated with 3GW Goal (MWh)

NYSERDA NY Sun Expected Annual Generation (MWh)

Program	Projects Completed (Installed Units) with Adjustments through 12/31/17	Projects Completed (Installed Units) 1/1/18 - 12/31/18	Projects Completed (Installed Units) through 12/31/18	Applications Approved but Not Yet Contracted (Current Pipeline)	Projects Contracted but Not Yet Completed (Current Pipeline)	Total (Current Pipeline + Installed Units) through 12/31/18
Residential / Small Commercial	438,348	118,231	556,580	6,051	65,447	628,077
Commercial / Industrial	56,937	142,897	199,834	52,130	894,312	1,146,276
Competitive PV	73,665	43,878	117,543	0	19,058	136,601
Grand Total	568,951	305,006	873,957	58,181	978,816	1,910,954

Note: 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.

Note: 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 State, 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. All Solar: Statewide Distributed Solar Capacity Supported by NYSERDA (MW)

Program	Projects Completed (Installed Units) with Adjustments through 12/31/17	Projects Completed (Installed Units) 1/1/18 - 12/31/18	Projects Completed (Installed Units) through 12/31/18	Applications Approved but Not Yet Contracted (Current Pipeline)	Projects Contracted but Not Yet Completed (Current Pipeline)	Total (Current Pipeline + Installed Units) through 12/31/18
Residential / Small Commercial*	510.86	102.08	612.94	5.16	56.17	674.28
Commercial / Industrial	48.51	121.73	170.24	44.41	761.87	976.52
Competitive PV	168.64	45.25	213.89	0.00	17.13	231.03
NYPA - RGGI	6.70	0.17	6.87	0.00	7.27	14.14
LIPA - RGGI	231.03	8.69	239.72	1.47	29.38	270.57
Financing Only	6.82	3.09	9.91	0.00	0.00	9.91
Grand Total	972.55	281.02	1,253.57	51.04	871.82	2,176.43

Note: NYPA Customers and LIPA Service Territory represents incentive funding supported with proceeds under the Regional Greenhouse Gas Initiative (RGGI).

Table 4. All Solar: Statewide Distributed Solar Expected Annual Production Supported by NYSERDA (MWh)

Program	Projects Completed (Installed Units) with Adjustments through 12/31/17	Projects Completed (Installed Units) 1/1/18 - 12/31/18	Projects Completed (Installed Units) through 12/31/18	Applications Approved but Not Yet Contracted (Current Pipeline)	Projects Contracted but Not Yet Completed (Current Pipeline)	Total (Current Pipeline + Installed Units) through 12/31/18
Residential / Small Commercial*	599,667	119,829	719,496	6,057	65,940	791,492
Commercial / Industrial	56,937	142,897	199,834	52,130	894,312	1,146,276
Competitive PV	181,396	52,197	233,593	0	20,111	253,705
NYPA - RGGI	7,865	203	8,067	0	8,534	16,602
LIPA - RGGI	271,191	10,197	281,388	1,728	34,484	317,600
Financing Only	8,000	3,628	11,628	0	0	11,628
Grand Total	1,125,056	328,951	1,454,007	59,915	1,023,381	2,537,303

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

Note: NYPA Customers and LIPA Service Territory represents incentive funding supported with proceeds under the Regional Greenhouse Gas Initiative (RGGI).

Note: The megawatt-hours included in Table 4 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.

Note: 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 State, 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 5. NY-Sun Financial Status in Dollars as of December 31, 2018

Program	Pre-encumbrances	Open Encumbrances	Expended Funds	Grand Total	Budgeted Funds 2014-2023
Residential/Small Commercial	\$596,412	\$18,376,595	\$249,709,297	\$268,682,304	\$533,522,000
Commercial/Industrial	\$14,651,332	\$264,523,527	\$26,888,186	\$306,063,045	\$479,804,133
Competitive PV	\$0	\$33,820,968	\$19,896,899	\$53,717,867	\$53,717,867
Program Implementation	\$445,242	\$2,519,623	\$5,706,242	\$8,671,107	\$32,600,000
Low-Moderate Income	\$237,910	\$1,299,515	\$1,262,981	\$2,800,406	\$13,000,000
Consumer Education	\$0	\$2,960,819	\$539,181	\$3,500,000	\$3,500,000
Administration	\$0	\$871,911	\$9,371,076	\$10,242,987	\$38,706,000
Evaluation	\$0	\$2,858	\$147,142	\$150,000	\$2,500,000
NYS Cost Recovery Fee	\$0	\$0	\$2,163,600	\$2,163,600	\$19,250,000
Total	\$15,930,896	\$324,375,816	\$315,684,604	\$655,991,316	\$1,176,600,000

Note: Administration, Evaluation, and Cost Recovery Fee are for 2016–2023 NY-Sun only.

Table 6. All Distributed Solar Solar Financial Status in Dollars as of December 31, 2018

Program	Pre-encumbrances	Open Encumbrances	Expended Funds	Grand Total	Budgeted Funds 2006–2023
Residential/Small Commercial	\$596,412	\$18,742,717	\$472,723,967	\$492,063,096	\$776,271,457
Commercial/Industrial	\$14,651,332	\$264,523,527	\$26,888,186	\$306,063,045	\$517,930,344
Competitive PV	\$0	\$55,211,343	\$103,280,313	\$158,491,656	\$158,491,656
Program Implementation	\$445,242	\$2,519,623	\$5,706,242	\$8,671,107	\$32,600,000
Low-Moderate Income	\$237,910	\$1,299,515	\$1,262,981	\$2,800,406	\$13,000,000
Consumer Education	\$0	\$2,960,819	\$539,181	\$3,500,000	\$3,500,000
Administration	\$0	\$871,911	\$9,371,076	\$10,242,987	\$38,706,000
Evaluation	\$0	\$2,858	\$147,142	\$150,000	\$2,500,000
NYS Cost Recovery Fee	\$0	\$0	\$2,163,600	\$2,163,600	\$19,250,000
Total	\$15,930,896	\$346,132,313	\$622,082,688	\$984,145,897	\$1,562,249,457

Note: Administration, Evaluation, and Cost Recovery Fee are for 2016–2023 NY Sun only.

Note: All Solar Financial Status as of December 31, 2018 are a subset of the numbers in Table 3. NY-Sun Financial Status as if December 31, 2018.

Appendix A: Completed and Pipeline Megawatt Blocks by Block

Table A-1. Long Island Residential Block Structure

Block	Design MW Capacity	Completed MW Capacity as of 12/31/18	Pipeline MW Capacity as of 12/31/18
1	37	31.71	0
2	15	12.22	0
3	20	16.30	0
4	77	67.11	0
Total	149	127.34	0

Note: For more information about blocks and block design, please refer to the NY-Sun MW Block Dashboards <https://www.nysedra.ny.gov/All-Programs/Programs/NY-Sun/Megawatt-Block-Dashboards> and the 2016–2023 Operating Plan. NY-Sun periodically adjusts block sizes based on project cancellations and market needs; the tables in this section show the original block capacities.

Table A-2. Con Edison Residential Block Structure

Block	Design MW Capacity	Completed MW Capacity as of 12/31/18	Pipeline MW Capacity as of 12/31/18
1	14	11.58	0
2	6	4.80	0
3	9	7.30	0
4	12	9.81	0
5	17	14.67	0
6	18	15.37	0
7	38	39.96	1.37
8	70	15.89	17.40
9	120	0.00	0
Total	304	119.37	18.77

Table A-3. Upstate Residential Block Structure

Block	Design MW Capacity	Completed MW Capacity as of 12/31/18	Pipeline MW Capacity as of 12/31/18
1	40	35.69	0
2	15	12.80	0
3	19	16.20	0
4	22	19.02	0
5	24	21.83	0
6	35	31.71	0
7	70	81.36	.01
8	75	37.14	13.24
9	148	0.00	0
Total	448	255.73	13.25

Table A-4. Long Island Nonresidential Block Structure

Block	Design MW Capacity	Completed MW Capacity as of 12/31/18	Pipeline MW Capacity as of 12/31/18
1	7	5.76	0
2	6	5.02	0
3	7	5.07	0.18
4	9	6.14	1.37
5	15	9.64	9.63
6	14	0.75	18.61
Total	58	28.59	29.79

Table A-5. Con Edison Nonresidential Block Structure

Block	Design MW Capacity	Completed MW Capacity as of 12/31/18	Pipeline MW Capacity as of 12/31/18
1	6	3.53	0
2	4	0.79	0
3	7.5	5.22	0.87
4	8	9.04	4.67
5	10	2.22	3.67
6	15	0.17	10.28
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	20.95	19.49

Table A-6. Upstate Nonresidential Block Structure

Block	Design MW Capacity	Completed MW Capacity as of 12/31/18	Pipeline MW Capacity as of 12/31/18
1	35	20.78	0.20
2	8	6.17	0
3	10	5.72	0
4	12	6.61	0.63
5	18	9.04	0.07
6	23	4.09	0.05
7	33	24.39	7.85
8	77	1.82	6.78
9	95	0.00	0.00
10	145	0.00	0.00
Total	456	78.62	15.58

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

Block	Design MW Capacity	Completed MW Capacity as of 12/31/18	Pipeline MW Capacity as of 12/31/18
1	15	12.54	1.09
2	20	4.69	11.53
3	20	0.23	3.82
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	17.46	16.44

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

Block	Design MW Capacity	Completed MW Capacity as of 12/31/18	Pipeline MW Capacity as of 12/31/18
1	120	62.71	10.11
2	120	28.24	26.92
3	130	19.69	42.99
4	130	12.87	49.43
5	140	7.90	73.89
6	140	1.94	102.46
7	150	4.49	64.81
8	150	0.00	92.89
9	160	6.68	91.46
10	170	8.07	111.91
11	180	0.00	25.51
12	270	0.00	171.63
Total	1590	152.78	864.04

Endnotes

- ¹ Wood Mackenzie: U.S. Solar Market Insight Full Report, data through December 31, 2018.
- ² National Solar Jobs Census 2018.
- ³ The NY-Sun program does not determine the delivery or use of energy (MWh) from projects that receive funding, and NYSERDA makes no claim to the environmental attributes of that energy. 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 renewable energy Certificates from those projects.
- ⁴ 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.
- ⁵ 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
- ⁶ Order on Value Stack Eligibility Expansion and Other Matters:
<http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7B4E6C68C3-1A3E-4252-8953-96B532AEB1C3%7D>.
- ⁷ Value of Distributed Energy Generation Phase One Decision:
<http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={5B69628E-2928-44A9-B83E-65CEA7326428}>.
- ⁸ Order Establishing Oversight Framework and Uniform Business Practices for DER Suppliers:
<http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={E2E3114D-B0A7-401C-AA31-198C4845D6C9}>.
- ⁹ New York State Energy Storage Roadmap:
<http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7b2A1BFBC9-85B4-4DAE-BCAE-164B21B0DC3D%7d>.
- ¹⁰ Clean Energy Fund Multi-Sector Solutions Chapter: <https://www.nyserda.ny.gov/-/media/Files/About/Clean-Energy-Fund/CEF-Multi-Sector-Solutions-chapter.pdf>.
- ¹¹ NY Solar Guidebook for Local Governments: <https://www.nyserda.ny.gov/-/media/NYSun/files/solar-guidebook.pdf>.
- ¹² Order Adopting Interconnection Management Plan and Cost Allocation Mechanism, and Making Other Findings:
<http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={22BEAB22-7F9F-45B8-89FD-0E8AD84692B4}>.
- ¹³ Detailed information on these activities can be found on the New York Department of Public Service Distributed Generation Information webpage:
<http://www3.dps.ny.gov/W/PSCWeb.nsf/All/DCF68EFCA391AD6085257687006F396B?OpenDocument>
- ¹⁴ Value of Distributed Energy Generation Phase One Decision:
<http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={5B69628E-2928-44A9-B83E-65CEA7326428}>.

- ¹⁵ Value of Distributed Energy Resources Phase One Implementation Order:
<http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={A04D9EF3-9779-477E-9D98-43C7B060DAEB}>.
- ¹⁶ <https://www.nyserda.ny.gov/vder>.
- ¹⁷ Order Adopted Low-Income CDG Initiatives:
<http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7BB154D4F0-C6EC-49BE-8B51-A4E87DB2E00B%7D>.
- ¹⁸ For more details on the projects and activities that have been funded through Affordable Solar Predevelopment and Technical Assistance, please see the presentation slides from the program webinar held on December 18, 2017:
<https://www.nyserda.ny.gov/-/media/Files/Programs/NYSun/20171218-WebinarAffordableSolarPredevelopment-TechnicalAssistance.pdf>.

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**New York State
Energy Research and
Development Authority**

17 Columbia Circle
Albany, NY 12203-6399

toll free: 866-NYSERDA
local: 518-862-1090
fax: 518-862-1091

info@nyserdera.ny.gov
nyserdera.ny.gov



State of New York

Andrew M. Cuomo, Governor

New York State Energy Research and Development Authority

Richard L. Kauffman, Chair | Alicia Barton, President and CEO