

NY-Sun Annual Performance Report through December 31, 2019

Final Report | March 2020



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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, 2019

Final Report

Prepared by:

New York State Energy Research and Development Authority

Albany, NY

March 2020

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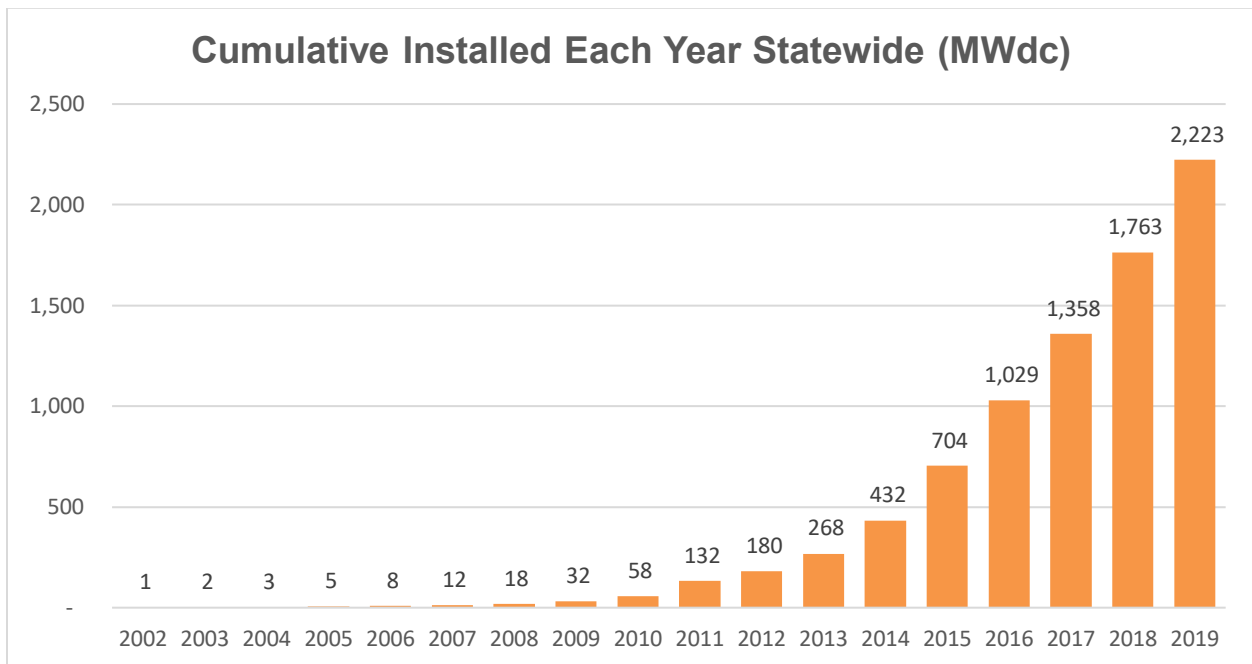
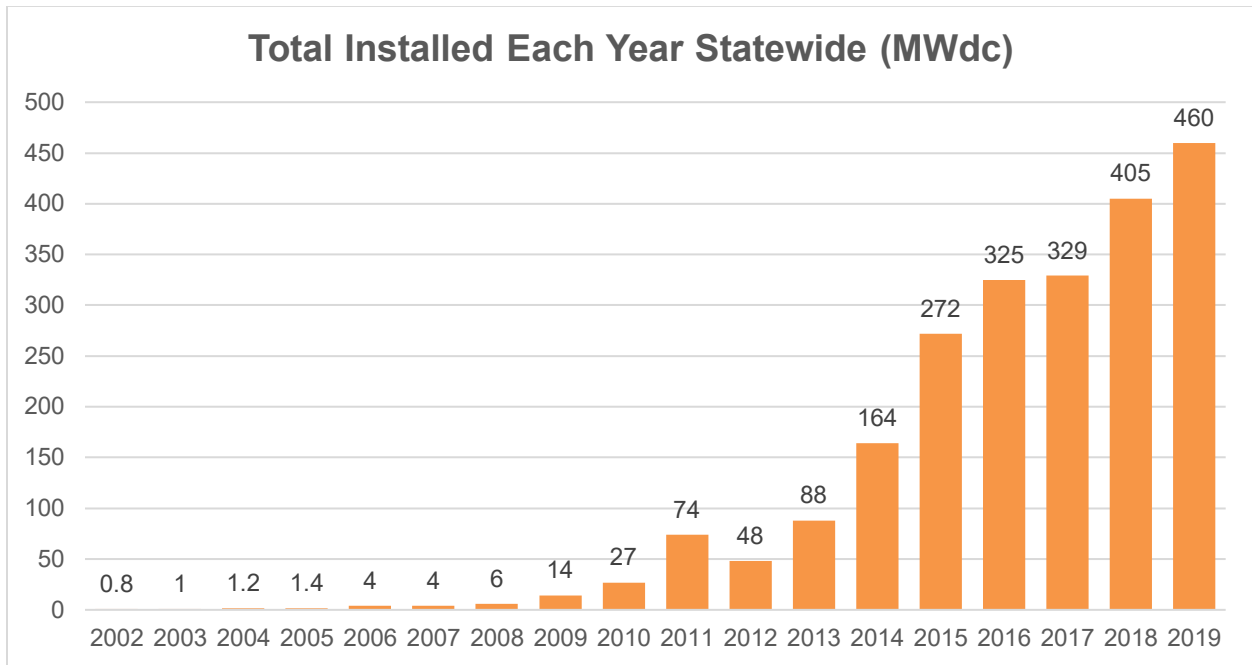
Executive Summary

Two thousand nineteen was a landmark year for the NY-Sun Program. More solar capacity was installed in the State than any previous year (see Figure 1), and the number of full-time solar jobs grew by 10 percent to a total of 10,740 jobs.¹ As part of Governor Andrew M. Cuomo's Green New Deal, and later codified in the Climate Leadership and Community Protection Act (CLCPA), the NY-Sun Program has a new target of 6 gigawatts (GWdc) of distributed solar statewide by 2025 to help put the State on the path to 70 percent renewable energy by 2030.

Highlights of 2019 include the exponential growth of community solar project completions, the rapid development of pipeline projects pairing battery storage with solar, and the ongoing support for low- to moderate-income (LMI) households and affordable housing providers. NY-Sun continues to help local governments, solar developers, and other stakeholders address ongoing challenges, such as the siting and interconnection processes for larger (>750 kilowatts) projects as well as the billing/crediting procedures for community solar.

Through December 31, 2019, 2,223 megawatts direct current (MWdc) of solar (Figure. 1), including projects completed without New York State Energy Research and Development Authority (NYSERDA) support, were installed statewide.² As of the end of 2019, NYSERDA has directly supported 1,651 MWdc, with an additional 1,256 MWdc under development. The NYSERDA-supported solar capacity installed statewide as of the end of 2019 generates approximately 1,920,824 megawatt-hours (MWh)³ of electricity each year, reducing annual carbon dioxide equivalent emissions by 974,922 metric tons.^{4,5}

Figure ES-1. Incremental Yearly Statewide Solar Electric Capacity Installations (MWdc)



1 New York State Solar Market Snapshot

Overall, solar market development in 2019 was characterized by the continued market trend toward commercial/industrial (C/I) scale projects in the upstate region. New installed capacity for C/I increased by almost 30 percent compared to 2018, driven by strong growth in community solar (also referred to as community distributed generation or CDG). The residential and small commercial/nonresidential market sectors experienced slight declines relative to 2018. However, the New York State solar market continues to be well balanced across different market sectors and geographies, fueling the strong 10 percent employment growth.

Table 1. Statewide Solar Installations for 2018 and 2019

Statewide Solar Installations in 2018	
Residential	134.5
Small Comm/Nonresidential (<750 kW)	40.9
Commercial/Industrial (>750 kW)	229.9
	405 MWdc
Statewide Solar Installations in 2019	
Residential	129.9
Small Comm/Nonresidential (<750 kW)	35.5
Commercial/Industrial (>750 kW)	294.1
	460 MWdc

1.1 Residential and Small Commercial/Nonresidential

The residential and small commercial/nonresidential solar market in New York State consists of installations on one to four family residences, multifamily buildings, small and mid-sized commercial buildings, other nonresidential structures, as well as offsite projects under 750 kilowatts (kW). In the residential and small commercial/nonresidential sectors, the growth of installed capacity outside of the Consolidated Edison, Inc. (Con Edison) region declined slightly in 2019 compared to 2018. The drop in the upstate and Long Island region installations was driven by declining electricity prices and the increased market traction of community solar projects. Residential solar customers had multiple financing options available to them in 2019, including loans from private banks, the Green Jobs - Green New York (GJGNY) loan program, and power purchase agreements (PPA) or leases provided through

their solar installer. GJGNY provided financing for 732 residential projects completed in 2019. In parallel with national trends, the proportion of residential solar projects that were leases or PPAs decreased in 2019 compared to 2018, while the proportion structured as direct purchases by the customer grew to 65 percent in 2019 compared to 53 percent in 2018.

1.2 Commercial/Industrial

Deployment of commercial/industrial (C/I) projects (those greater than 750 kW) accelerated in 2019, especially in the upstate region (all areas not served by Con Edison or PSEG Long Island). The sector has been attractive to a diverse group of projects, including large rooftop commercial installations and remote net metered (RNM) projects, as well as community solar. However, in 2019 community solar predominated among both completed C/I projects and new projects entering the NY-Sun pipeline. This reflects the maturing of the community solar market in New York State and was made possible by crucial changes to the Value of Distributed Energy Resources (VDER) and the fruition of efforts by NYSERDA to address development barriers. These include efforts related to project siting, interconnection, and CDG crediting, all described in section 3 of this report, Reducing Solar Costs and Barriers.

Overall growth in the commercial and industrial sector reached 294 MWdc of new installed capacity in 2019, which represents a 28 percent increase over the 230 MWdc completed in 2018. The growth in the commercial and industrial sector was driven by almost 209 MWdc of community solar projects. As of the end of 2019, the total pipeline of community solar projects has reached 1,195 MWdc.

Table 2. Community Solar in 2018 and 2019 (MWdc)

	Completed Installations	Submitted to NY-Sun Program
2018	10 MWdc	133 MWdc
2019	209 MWdc	757 MWdc

2 NY-Sun Program

New York State's various solar market sectors and regions experienced different levels of activity in 2019. Appendix A provides a complete review of the progress for 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 2019.

2.1 NY-Sun Petition 6-Gigawatt Filing

The NY-Sun Program was created to expand solar photovoltaic (PV) capacity throughout New York State, with an original goal of installing 3 gigawatts (GWdc) of PV capacity by 2023. Since the creation of the NY-Sun Program, the State has made great progress on its clean energy goals and installed solar capacity has grown by over 2,000 percent. Recognizing the success of the program, Governor Andrew M. Cuomo announced that distributed solar PV will continue to serve as a critical component for achieving the State's ambitious clean energy agenda, which includes the new 6 GWdc target to help obtain 70 percent of the State's electricity from renewable resources by 2030 and 100 percent from carbon-free resources by 2040.

Following the subsequent passage of the Climate Leadership and Community Protection Act (CLCPA), NYSERDA filed a new petition in September 2019 requesting an additional \$573 million to support the expanded 6 GWdc policy goal and an extension of the NY-Sun Program through calendar year 2025. From this new allocation, NYSERDA seeks to make available \$290 million for the MW Block incentive program and \$111 million for a Community Adder incentive to support the development of community solar once the Community Credit tranche capacity has been fully allocated. Additionally, \$135 million of the allocation would be for projects benefitting low- to moderate-income (LMI) customers, affordable housing, environmental justice communities, and disadvantaged communities. The remaining funding would be incentive adders for projects that meet certain criteria, program administration, customer education, and the New York State Cost Recovery Fee.

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. Any major deficiencies identified by the field inspection team during the QA process must be corrected by the solar contractor

or installer responsible for the project. In 2019, 716 field inspections were performed, which included 659 inspections of residential and small commercial/nonresidential projects and 57 commercial/industrial projects. NY-Sun continued to expand the residential and nonresidential photo inspection process to provide additional oversight cost-effectively, while giving contractors and installers more timely feedback. In furtherance of this goal, NY-Sun performed photo inspections on over 542 projects in 2019. 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 January 2019, NY-Sun recognized its first class of Quality Solar Installers in the residential and nonresidential program. This annual designation is provided to installers who are in good standing and have achieved an average QA inspection score of 4.0 or better out of 5.0 for the previous calendar year. NYSERDA's Quality Solar Installer designees are denoted as such on the NY-Sun website and are provided with a specialized logo for use in their marketing materials. The goal of the designation is two-fold: (1) to recognize installers who have consistently delivered projects that meet the high standards of quality and (2) to motivate installers who have not achieved this designation to perform better. Throughout 2019, NY-Sun received increased awareness and interest from installers seeking to become a Quality Solar Installer. NYSERDA anticipates using the Quality Solar Installer designation structure for other NYSERDA programs in the future.

In November 2019, NY-Sun announced that new QA functionality will be available for installers directly in the NY-Sun Incentive Portal, which they already have access to, beginning in January 2020. The new QA functionality will provide installers with greater visibility to inspection results, the ability to respond to inspection requests in the portal and via email, the capability to better track which inspections require action, and the ability to monitor overall QA trends.

Quality Solar Installers



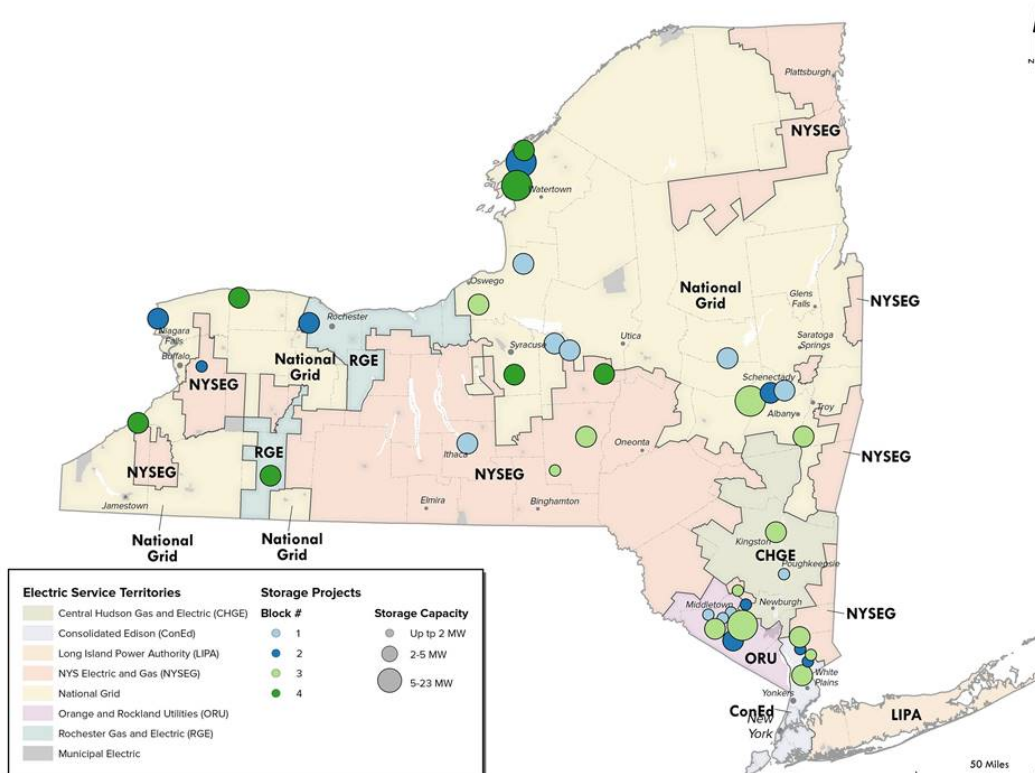
NY-Sun continues to build on the success of designating Quality Solar Installers, a designation given to active PV installers who demonstrate consistent and quality workmanship. Following its inaugural year of 2019 when 17 percent of 156 active contractors received this designation, interest in quality improvements has grown. Now in the second year, 25 percent of the 121 active contractors will receive the QSI designation for 2020.

2.3 Solar Plus Energy Storage Program

Following the release of the NY Energy Storage Roadmap in June 2018,⁶ NYSERDA designed a new Solar Plus Energy Storage incentive program, which includes incentives to help spur the energy storage market. Starting in October 2018, additional incentives were available for small commercial/nonresidential and commercial and industrial solar electric projects paired with an energy storage system. In July 2019, incentives for retail storage projects paired with a solar PV system were also introduced.

The response to the new incentives for solar and storage projects has been very strong. Over the course of 2019, the Rest of State Blocks 1–3 all opened and were fully subscribed, which resulted in 175 MWdc in storage projects that included solar PV systems. These projects were driven by the increased value stack, access to the federal income tax credit, and an exemption from the charging costs. Due to persistent barriers in permitting and siting, no new storage projects in 2019 were established in New York City.

Figure 1. 2019 Planned Retail Storage Installations



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 initiative⁷ 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. During 2019, NYSERDA has continued to work with local government officials through this initiative to help implement sections of the New York Solar Guidebook for Local Governments.

3.2 Guidebook for Local Governments

In January 2019, an updated version of the NY-Sun Solar Guidebook for Local Governments⁸ 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. The guidebook addresses the most pressing issues in New York State's solar market today. The Model Solar Energy Local Law that is 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 enhances the payment-in-lieu-of-taxes toolkits (PILOT) to provide guidance on assessing community solar projects. The section on State Environmental Quality Review (SEQR) for solar includes the latest amendments published by the NYS Department of Environmental Conservation. The newest section of the guidebook is the Municipal Procurement Toolkit which assists local municipalities with leasing their existing underutilized lands, such as landfills and brownfields, for solar development. In 2020, NYSERDA plans to issue a revised PILOT toolkit to incorporate calculators for large-scale projects, in addition to existing community solar guidance. The guidebook will be updated to match the latest NYS electrical code.

In 2019, NYSERDA released the Battery Energy Storage System Guidebook for Local Governments, which consists of a model law, model permit, inspection checklist, and fire safety guidance for local governments to consider when permitting energy storage systems in their communities.

3.3 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 transition to solar energy use. Throughout 2019, technical assistance was provided to approximately 350 counties, towns, and villages across the State. Over 40 topic-specific workshops were held for local officials. In 2019, workshop offerings were expanded to cover energy storage systems, including guidance for code officials regarding the 2019 Energy Storage System Supplement that amended the New York State Uniform Fire Prevention and Building Code. NYSERDA also began offering workshops for first responders on how to respond safely to incidents involving energy storage systems, experience most communities do not have.

The most frequent topics of assistance requests from municipalities in 2019 were regarding payment-in-lieu-of-taxes (PILOT) agreements and passing local zoning ordinances for solar. Many 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.

3.4 Interconnection

In 2019, NY-Sun supported the implementation of the Material Modification Guidance Document and the PV plus Energy Storage System (ESS) Interim Guideline, which was based on a proposal jointly submitted by the solar industry and utilities. The Material Modification Guidance Document outlines approved modifications to solar installations that will not require a new coordinated electric system interconnection review (CESIR) study or full review by the utility. In addition, the Interconnection Technical Working Group and Interconnection Policy Working Group both contributed to major improvements in the interconnection process for the addition of Energy Storage Systems paired with PV systems. This provided a pathway for the solar industry looking to add energy storage to their current portfolio of solar projects without causing complications to the standardized interconnection requirement (SIR) review process.

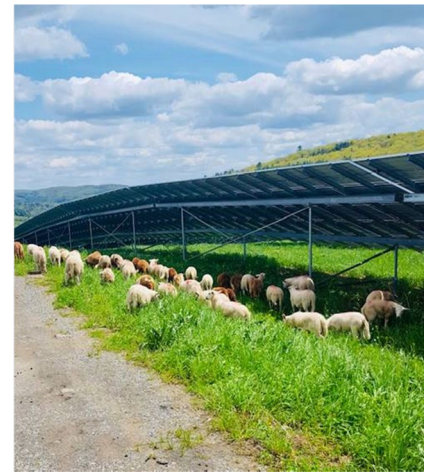
3.5 Siting in Agricultural Districts

As the commercial/industrial (C/I) sector continues to grow, NYSERDA expects the number of ground-mounted arrays to increase as well. These projects typically range between 5 MWdc and 7.5 MWdc in size, which occupy approximately 20–25 acres of land, typically on rural properties that a landowner leases or sells to the solar developer. Notably, this includes properties that are currently used, or could potentially be used for, agricultural production. While it is expected that the total agricultural acreage utilized for distributed solar projects will remain modest compared to total farmland in New York State, NYSERDA will act to ensure that negative impacts on farmland and the State’s agricultural economy are avoided, and where they are unavoidable, minimized and mitigated.

NYSERDA, working with partner agencies and stakeholders, has already taken multiple actions along these lines and will pursue additional actions under an expanded NY-Sun program. For instance, the New York State Solar Guidebook for Local Governments contains resources and information focused on agricultural lands. These resources include step-by-step guidelines for permitting, guidance for landowners with solar installations in NYS Agricultural Districts, and guidance for decommissioning.

In October 2019, the New York State Department of Agriculture and Markets (AGM) published revised Guidelines for Agricultural Mitigation for Solar Energy Projects with support from NYSERDA. These guidelines address construction, post-construction restoration, monitoring and remediation, and decommissioning of solar energy projects impacting agricultural lands. Through the Agricultural Notice of Intent (NOI) process, NYSERDA helps facilitate AGM’s review of solar projects that potentially impact farmland and, as necessary, works with AGM and solar developers to implement appropriate mitigation.

Projects on Farmland



As the number of commercial and industrial scale projects increases in the upstate region, solar developers and landowners have found new ways to integrate projects into the community. At Delaware River Solar’s Baer Road project, sheep can be found grazing beneath the solar panels. NYSERDA has been working with the Department of Agriculture and Markets to protect farmland while accelerating New York State’s clean energy goals.

Through 2019, 39 NY-Sun C/I projects have agreed to mitigation measures to avoid adverse effects on the continuing viability of farm enterprises within the district or State environmental plans, policies, and objectives. Adopted mitigation measures have included, but were not limited to, adherence to AGM's Guidelines for Agricultural Mitigation for Solar Energy Projects that stipulated the return of an affected parcel to its current condition after decommissioning, and a commitment to donate to Land Trusts or similar organizations.

NYSERDA will continue to consider and employ strategies to further encourage the positive impact of solar development on agricultural land and New York State's rural economy, while working closely with impacted and interested stakeholders and government partners.

3.6 Value of Distributed Energy Resources Assistance

In April 2019, the New York State Public Service Commission (PSC) released an updated Value Stack Order, which implemented numerous changes to the compensation structure for new solar projects. The order emerged from several years of collaborative feedback from PV developers, NYSERDA, the investor-owned utilities, and other stakeholders through working groups, whitepaper comments, and other forums.

Most significantly, the new Value Stack Order removed the Market Transition Credit (MTC) for new CDG projects. New CDG projects will now receive the Community Credit and the Community Adder. Both the Community Credit and the Community Adder simplify the predictability of a CDG project's economic value. Previously, CDG projects received additional value for each residential customer subscribed to a project via the MTC. Following the new order, all customers subscribed to CDG projects including nonresidential, small commercial, and large commercial customers in the Con Edison, National Grid, New York State Electric and Gas Corporation (NYSEG), and Rochester Gas & Electric service territories are eligible to receive the Community Credit. The Community Credit is an addition to the value stack, which increases the monetary value of the solar energy production. In the Central Hudson and Orange & Rockland service territories, the Community Adder provides an additional incentive to the NY-Sun contractor, which reduces the cost of the solar PV system.

The Order has reduced uncertainty and complexity in the value stack, making it more accessible and financeable. Industry feedback has been overwhelmingly positive, and project development has accelerated. Additionally, the value stack now has more precise and clear temporal price signals, encouraging grid-beneficial technologies like PV plus storage, and PV mounted on tracking systems. NYSERDA continues to assist solar developers with the Value Stack process through a dedicated webpage with detailed, frequently updated information.

3.7 CDG Crediting and Billing

As more CDG projects have come online in the State, stakeholders representing consumers, solar developers, and electric utilities have identified the need to streamline the billing and crediting process. In July 2019, the New York State Department of Public Service (DPS) and NYSERDA convened the first CDG Crediting and Billing Working Group, which was formed to address the challenges facing utilities and stakeholders throughout the process of crediting CDG customers. Following the recommendations provided during the first working group meetings, multiple stakeholders have reported improvements in communications with the electric utilities, exchanging the customer project allocation information, and troubleshooting problems.

In December 2019, DPS Staff released the Order Regarding Consolidated Billing for Community Distributed Generation. The order specifies that the investor-owned utilities must implement a net crediting mechanism, which has the potential to dramatically reduce the soft costs of managing a community solar project. The proposed changes in the order will reduce administrative costs associated with billing and enrolling CDG customers, and should enable a robust deployment of community solar. These proposed changes have been positively received by solar industry stakeholders.

4 Low- and Moderate-Income Solar Access

NYSERDA continues to advance new opportunities to expand solar access for low- and moderate-income (LMI) households, while continuing to implement a suite of existing programs. In 2019, Governor Cuomo announced his Green New Deal agenda, which included an increase of the statewide goal for distributed solar PV from 3 GWdc to 6 GWdc by 2025. In furtherance of this new goal, the Climate Leadership and Community Protection Act (CLCPA) was passed and directs the Public Service Commission to adopt programs to effectuate the State’s increased clean energy and solar objectives. Specifically, the CLCPA prioritizes the needs of disadvantaged communities, stipulating that relevant program activities need to be responsive to the provisions which state that 40 percent of New York State’s energy investments benefits should be targeted to disadvantaged communities, with no less than 35 percent of the benefits awarded to disadvantaged communities.

In response to the CLCPA, NYSERDA introduced an initial Framework for Solar Energy Equity in a petition filed with the Public Service Commission in September 2019. The Framework for Solar Energy Equity is an expansion of the NY-Sun Program activities focused on low- to moderate-income (LMI) customers, affordable housing, environmental justice communities, and disadvantaged communities as will be defined at a later date through the process established by the CLCPA. NYSERDA also requested that \$135 million be dedicated exclusively to this purpose, complemented by funding from base MW Block incentives as described below, and with the acknowledgment that the identification of disadvantaged communities and associated definitions will be subject to the implementation of the CLCPA.

The majority of the requested \$135 million will be structured as additional funding for eligible projects that receive the MW Block “base” incentives for which they are eligible. Based on its initial assessment of market uptake and other policy and regulatory factors, NYSERDA estimates that at least \$65 million in base incentives and Community Adder incentives (described in section 1.2) would be coupled with the additional funding discussed in this section,

Urban Homesteading Assistance Board Co-Ops Go Solar Project



The Urban Homesteading Assistance Board represents more than 1,600 HDFC co-ops across New York City. Through the Co-ops Go Solar campaign, UHAB has opened the door for the development of solar projects on multifamily affordable housing across New York City. In the process of exceeding the initial project goals, the 643 households served by this project will save \$4.5 million over the lifetime of the solar systems.

resulting in a total of at least \$200 million available to support projects for the benefit of LMI customers, affordable housing, environmental justice communities, and disadvantaged communities. Inclusive of funds remaining from the initial LMI allocation under the original NY-Sun Program, this request represents projected annualized funding commitments of at least \$34 million per year through the end of 2025.

4.1 Affordable Solar On-Site Residential Incentive

The Affordable Solar On-Site Residential Incentive launched in October 2015, increasing the incentive provided by the NY-Sun program for solar installed on owner-occupied residences of LMI households. Through the end of 2019, 518 projects were completed using the added incentive, with an additional 49 projects in the pipeline. Eighty-five solar installers have used the added incentive to serve LMI homeowners across the State. The Affordable Solar incentive remains the only solar incentive available to customers in the Long Island region where 20 projects were completed in 2019.

4.2 Multifamily Affordable Housing Added Incentive

In June 2018, the NY-Sun Program introduced the Multifamily Affordable Housing Added Incentive, which provides an additional incentive for projects associated with regulated multifamily affordable housing. Since its introduction in 2018, this adder has experienced significant growth with 41 of 50 completed projects, and 51 out of 72 projects were approved in the pipeline in 2019. This represents 2.8 MWdc of new solar capacity and nearly \$2.4 million in NYSERDA incentives to support projects relating to multifamily affordable housing.

Saratoga Springs Affordable Solar Initiative



The Saratoga Springs project supported an innovative model connecting community solar and a housing authority. Through this project, 2.4 MW of community solar will provide \$100,000 in energy efficiency investments.

4.3 Affordable Solar Predevelopment and Technical Assistance Program

The Affordable Solar Predevelopment and Technical Assistance Program (Predevelopment 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 non-engineering predevelopment and technical assistance activities. In December 2019, a webinar was hosted with a variety of stakeholders in the low- to moderate-income community including Predevelopment Program grant recipients, community organizations, and nonprofits detailing proposed changes when the program re-opens in 2020. This webinar included plans to incorporate feedback received from stakeholders during the NY-Sun and NYC Environmental Justice Alliance co-lead meeting in September 2019.

Through the end of 2019, 21 proposals were approved and awarded funding, totaling more than \$2,700,000, and include 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.⁹ In 2019, two projects lead by the Urban Homesteading Assistance Board and the Saratoga Springs Housing Authority completed all intended milestones. Following the successful completion of the Co-ops Go Solar campaign, a solar group purchasing effort for Housing Development Fund Corporation cooperatives in New York City, the Urban Homesteading Assistance Board secured commitments to build 23 new solar PV systems totaling 585 kW of installed capacity. This exceeded the original goal of 20 solar installations and 500 kW total installed capacity. Additionally, these installations will provide over \$4.5 million in savings for over 643 households and reduce over 9,500 tons of CO₂ over the lifetime of the systems.

Nexamp Seneca



The Nexamp Seneca Solar for All project became the first project to be fully subscribed in November 2019. The 640 low-income subscribers are expected to receive over \$115,000 in electric bill savings annually.

The Saratoga Springs Housing Authority, a federally funded affordable housing agency for low- and moderate-income households, has developed a new model to secure 2.4 MWdc of community solar capacity. This is double the original target of 1.2 MWdc and is expected to provide more than \$100,000 for energy efficiency investments. These energy efficiency investments will become possible via a novel approach, which will allow other housing authorities across the State to obtain benefits from community solar.

4.4 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 enables low-income New Yorkers to participate in community solar subscriptions to reduce their total electricity bill. This unprecedented program, which is now called Solar for All, provides 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.

In 2019, eight Solar for All projects began providing electricity bill savings to almost 1,200 low-income New Yorkers. An additional 1,200 low-income New Yorkers are enrolled in the program and are waiting for project availability.

5 Evaluation

An impact evaluation of the NY-Sun Program is currently underway and is expected to be completed Q2 2020. This study will verify program energy impacts and assess technology performance for projects completed between May 2016 and March 31, 2018. Performance will be examined for different segments of the population, including customer procurement models for obtaining solar PV. This study is a follow-up to the 2018 impact evaluation that analyzed projects completed between 2011 and May 2016.

6 Summary of Benefits and Funding

Tables 3 and 4 provide detailed information about solar capacity and expected solar production as related to projects funded through the NY-Sun initiative. With over 2.8 GWdc of installed and pipeline capacity installed statewide, NY-Sun is making good progress toward the State goal to install 6 GWdc of solar capacity by 2025. Tables 5 and 6 provide capacity and expected production information for all NYSERDA-supported distributed solar projects, including those not part of the NY-Sun Program. Tables 7 and 8 provide detailed information about budgets, expenditures, and committed funds for NYSERDA NY-Sun and all solar funding, respectively.

Table 3. NY-Sun: Capacity Toward 6 GWdc Goal (MWdc)

Program	Projects Completed (Installed Units) with Adjustments through 12/31/18	Projects Completed (Installed Units) 1/1/19 - 12/31/19	Projects Completed (Installed Units) through 12/31/19	Applications Approved but Not Yet Contracted (Current Pipeline)	Projects Contracted but Not Yet Completed (Current Pipeline)	Total (Current Pipeline + Installed Units) through 12/31/19
Residential / Small Commercial	474.14	102.63	576.77	9.24	96.04	682.04
Commercial / Industrial	170.24	269.74	439.98	126.61	859.63	1,426.21
Competitive PV	102.45	10.07	112.52	0.00	6.51	119.03
Grand Total	746.82	382.44	1,129.27	135.84	962.18	2,227.29

Table 4. NY-Sun: Expected Annual Production Associated with 6 GWdc Goal (MWh)

Program	Projects Completed (Installed Units) with Adjustments through 12/31/18	Projects Completed (Installed Units) 1/1/19 - 12/31/19	Projects Completed (Installed Units) through 12/31/19	Applications Approved but Not Yet Contracted (Current Pipeline)	Projects Contracted but Not Yet Completed (Current Pipeline)	Total (Current Pipeline + Installed Units) through 12/31/19
Residential / Small Commercial	556,564	120,469	677,033	10,841	112,737	800,611
Commercial / Industrial	199,834	316,631	516,465	148,615	1,009,067	1,674,147
Competitive PV	120,398	11,824	132,222	0	7,639	139,861
Grand Total	876,796	448,925	1,325,721	159,456	1,129,443	2,614,620

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. All Solar: Statewide Distributed Solar Capacity Supported by NYSERDA (MWdc)

Program	Projects Completed (Installed Units) with Adjustments through 12/31/18	Projects Completed (Installed Units) 1/1/19 - 12/31/19	Projects Completed (Installed Units) through 12/31/19	Applications Approved but Not Yet Contracted (Current Pipeline)	Projects Contracted but Not Yet Completed (Current Pipeline)	Total (Current Pipeline + Installed Units) through 12/31/19
Residential / Small Commercial*	612.93	102.91	715.84	9.25	96.17	821.26
Commercial / Industrial	170.24	269.78	440.02	126.61	938.33	1,504.95
Competitive PV	216.20	10.97	227.17	0.00	6.51	233.68
NYPA - RGGI	6.87	0.74	7.61	0.00	11.49	19.11
LIPA - RGGI	239.72	6.71	246.43	0.68	35.16	282.27
Financing Only	9.91	4.16	14.07	0.00	0.00	14.07
Grand Total	1,255.87	395.26	1,651.13	136.54	1,087.65	2,875.33

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

Table 6. All Solar: Statewide Distributed Solar Expected Annual Production Supported by NYSERDA (MWh)

Program	Projects Completed (Installed Units) with Adjustments through 12/31/18	Projects Completed (Installed Units) 1/1/19 - 12/31/19	Projects Completed (Installed Units) through 12/31/19	Applications Approved but Not Yet Contracted (Current Pipeline)	Projects Contracted but Not Yet Completed (Current Pipeline)	Total (Current Pipeline + Installed Units) through 12/31/19
Residential / Small Commercial*	719,480	120,798	840,278	10,864	112,888	964,030
Commercial / Industrial	199,834	316,674	516,508	148,615	1,101,444	1,766,567
Competitive PV	236,448	12,875	249,323	0	7,639	256,962
NYPA - RGGI	8,067	869	8,936	0	13,491	22,428
LIPA - RGGI	281,388	7,879	289,268	802	41,271	331,341
Financing Only	11,628	4,883	16,511	0	0	16,511
Grand Total	1,456,846	463,978	1,920,824	160,281	1,276,733	3,357,837

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

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

The megawatt-hours included in Table 6 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.

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 7. NY-Sun Financial Status in Dollars as of December 31, 2019

Program	Pre-encumbrances	Open Encumbrances	Expended Funds	Grand Total	Budgeted Funds 2014-2023
Residential/Small Commercial	\$1,127,190	\$16,095,463	\$285,946,197	\$303,168,849	\$533,522,000
Commercial/Industrial	\$35,661,015	\$350,887,955	\$74,961,717	\$461,510,687	\$482,801,203
Competitive PV	-	\$15,175,420	\$35,545,377	\$50,720,797	\$50,720,797
Program Implementation	\$336,993	\$3,212,071	\$7,796,041	\$11,345,105	\$32,600,000
Low- to Moderate-Income	\$169,562	\$2,257,933	\$2,352,100	\$4,779,595	\$13,000,000
Consumer Education	-	\$2,529,254	\$970,747	\$3,500,000	\$3,500,000
Community Adder	\$1,656,368	\$7,863,599	\$194,040	\$9,714,007	\$43,393,813
Admin (NYSUN Only)	\$14,915	\$225,840	\$12,253,357	\$12,494,112	\$38,706,000
Evaluation (NYSUN Only)	-	\$63,013	\$237,822	\$300,836	\$2,500,000
NYS Cost Recovery Fee (NY-SUN Only)	-	-	\$3,210,857	\$3,210,857	\$19,250,000
Total	\$38,966,043	\$398,310,548	\$423,468,254	\$860,744,845	\$1,219,993,813

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

Table 8. All Distributed Solar Financial Status in Dollars as of December 31, 2019

Program	Pre-encumbrances	Open Encumbrances	Expended Funds	Grand Total	Budgeted Funds 2014-2023
Residential/Small Commercial	\$1,127,190	\$16,095,463	\$508,905,243	\$526,127,895	\$776,271,457
Commercial/Industrial	\$35,661,015	\$350,887,955	\$74,961,717	\$461,510,687	\$524,747,752
Competitive PV	-	\$24,027,737	\$127,646,511	\$151,674,248	\$151,674,248
Program Implementation	\$336,993	\$3,212,071	\$7,796,041	\$11,345,105	\$32,600,000
Low- to Moderate-Income	169,562	\$2,257,933	\$2,352,100	\$4,779,595	\$13,000,000
Consumer Education	-	\$2,529,254	970,747	3,500,000	3,500,000
Community Adder	\$1,656,368	\$7,863,599	\$194,040	\$9,714,007	\$43,393,813
Admin (NYSUN Only)	\$14,915	\$225,840	\$12,253,357	\$12,494,112	\$38,706,000
Evaluation (NYSUN Only)	-	\$63,013	\$237,822	\$300,836	\$2,500,000
NYS Cost Recovery Fee (NY-SUN Only)	-	-	\$3,210,857	\$3,210,857	\$19,250,000
Total	\$38,966,043	\$407,162,865	\$738,528,435	\$1,184,657,343	\$1,605,643,270

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 7 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 12/31/19	Pipeline MW Capacity as of 12/31/19
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.nyscrda.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 12/31/19	Pipeline MW Capacity as of 12/31/19
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	45	40.39	0
8	70	52.00	5.93
9	120	0	0
Total	311	155.92	5.93

Table A-3. Upstate Residential Block Structure

Block	Design MW Capacity	Completed MW Capacity as of 12/31/19	Pipeline MW Capacity as of 12/31/19
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	85	81.42	0
8	95	70.92	4.02
9	148	0	0
Total	483	289.59	4.02

Table A-4. Long Island Nonresidential Block Structure

Block	Design MW Capacity	Completed MW Capacity as of 12/31/19	Pipeline MW Capacity as of 12/31/19
1	7	5.76	3.80
2	6	5.02	0
3	7	5.19	0
4	9	6.39	0
5	22	11.78	7.45
6	33	4.83	24.00
Total	84	38.97	35.25

Table A-5. Con Edison Nonresidential Block Structure

Block	Design MW Capacity	Completed MW Capacity as of 12/31/19	Pipeline MW Capacity as of 12/31/19
1	6	3.53	0
2	4	0.79	0
3	7.5	5.83	0
4	8	13.65	0
5	10	3.98	0.47
6	60	9.70	47.66
7	60	0	0
8	60	0	0
9	70	0	0
10	70	0	0
11	70	0	0
Total	425.5	37.48	48.13

Table A-6. Upstate Nonresidential Block Structure

Block	Design MW Capacity	Completed MW Capacity as of 12/31/19	Pipeline MW Capacity as of 12/31/19
1	35	20.78	0
2	8	6.17	0
3	10	5.72	0
4	12	6.61	0
5	18	9.04	0
6	23	4.09	0
7	59	24.39	1.27
8	50	1.82	10.68
9	65	0	0
10	90	0	0
11	157	0	0
Total	527	78.62	11.95

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

Block	Design MW Capacity	Completed MW Capacity as of 12/31/19	Pipeline MW Capacity as of 12/31/19
1	15	13.62	0
2	20	6.67	6.95
3	4.05	0.54	3.51
Total	39.05	20.83	10.46

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

Block	Design MW Capacity	Completed MW Capacity as of 12/31/19	Pipeline MW Capacity as of 12/31/19
1	120	69.80	2.79
2	120	46.06	6.00
3	130	54.78	6.21
4	130	32.85	13.93
5	140	43.15	34.67
6	140	48.35	23.36
7	150	22.50	39.60
8	150	20.06	37.94
9	160	30.49	44.87
10	170	30.09	48.44
11	180	5.67	15.57
12	270	15.37	238.00
13	350	0	338.50
14	575	0	211.25
Total	2,785	419.17	1,061.13

Endnotes

- 1 National Solar Jobs Census 2019.
- 2 NYSERDA: Statewide Completed Solar Projects, data through December 31, 2019:
<https://www.nyserdada.ny.gov/All-Programs/Programs/NY-Sun/Solar-Data-Maps/Statewide-Projects>.
- 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 Per the Clean Energy Advisory Council (CEAC) Metrics, Tracking and Performance Assessment (MTPA) Working Group, NYSERDA has adopted a marginal electricity grid emission factor of 1,103 pounds CO₂e/MWh for projects completed after 2015 (<http://documents.dps.ny.gov/public/MatterManagement/MatterFilingItem.aspx?FilingSeq=190731&MatterSeq=50399>). Projects completed prior to 2016 will maintain the 1,160 pounds CO₂e/MWh previously used, based on analysis of grid emissions at that time.
- 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 New York State Energy Storage Roadmap:
<http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7b2A1BFBC9-85B4-4DAE-BCAE-164B21B0DC3D%7d>.
- 7 Clean Energy Fund Multi-Sector Solutions Chapter: <https://www.nyserdada.ny.gov/-/media/Files/About/Clean-Energy-Fund/CEF-Multi-Sector-Solutions-chapter.pdf>
- 8 NY Solar Guidebook for Local Governments: <https://www.nyserdada.ny.gov/-/media/NYSun/files/solar-guidebook.pdf>
- 9 For more details on the projects and activities that have been funded through the Affordable Solar Predevelopment and Technical Assistance program, please see the presentation slides from the program webinar held on December 18, 2017: <https://www.nyserdada.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@nyserda.ny.gov
nyserda.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