

Green Jobs - Green New York 2018 Annual Report

Final Report | October 2018

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.

Green Jobs - Green New York

2018 Annual Report

Final Report

Prepared by:

New York State Energy Research and Development Authority

Albany, NY

October 2018

Table of Contents

List of Figures	iii
List of Tables	iv
1 Introduction	1
1.1 Overview	1
1.2 Advisory Council	3
1.3 Funding	5
1.4 Overall Progress and Outcomes	7
1.5 Improvements to Program Offerings	9
2 Audits and Implementation	11
2.1 Residential Sector	11
2.1.1 Target Audience	11
2.1.2 Implementation Approach	11
2.1.3 Energy Audit Fees	12
2.1.4 Implementation and Support Contracts	14
2.2 Multifamily Sector	14
2.2.1 Target Audience	14
2.2.2 Implementation Approach	15
2.2.3 NYSERDA Incentives	15
2.2.4 Coordination with Other Program Administrators	16
2.2.5 Implementation and Support Contracts	17
2.3 Small Commercial and Not-for-Profit Sector	17
2.3.1 Target Audience	17
2.3.2 Implementation Approach	18
2.3.3 Implementation and Support Contracts	18
3 Financing	19
3.1 Revolving Loan Fund	19
3.2 Residential Financing	20
3.2.1 Loan Eligibility Requirements	21
3.2.1.1 Energy Efficiency	21
3.2.1.2 Solar PV and Other Net Metered Technologies	22
3.2.1.3 Solar Thermal Systems	22
3.2.1.4 Wood and Wood Pellet Heating Systems	22
3.2.1.5 Heat Pumps	23

3.2.2	Residential Loan Fund Performance.....	23
3.2.3	Bond Financing	27
3.2.4	Residential Loan Fund Subsidization.....	28
3.3	Multifamily Building Financing.....	29
3.4	Small Commercial/Not-for-Profit Financing.....	30
3.4.1	Participation Loans.....	30
3.4.2	On-Bill Recovery Loans	30
3.5	Distribution of Loans Issued.....	31
3.6	Expenditures for Financing Implementation and Administration.....	32
4	Workforce Training and Development.....	33
4.1	Workforce Training Working Group.....	34
4.2	Workforce Training and Development Contracts	35
5	Outreach and Marketing	36
5.1	Outreach Services through Locally Based Organizations	36
5.2	Outreach Contractor Accomplishments	39
6	Evaluation.....	40
6.1	Evaluation Activities	40
6.2	Evaluation Contracts	40
	Appendix A – Prequalified Measures for Home Performance with ENERGY STAR®	A-1
	Endnotes	EN-1

List of Figures

Figure 3-1.	Financing Applications Received per Month.....	24
Figure 3-2.	Smart Energy Loans and OBR Loans Issued by Financing Type	25
Figure 3-3.	GJGNY Loans Issued by Tier.....	27
Figure 3-4.	Distribution of GJGNY Loans	31

List of Tables

- Table 1-1. GJGNY Advisory Council Members..... 4
- Table 1-2. GJGNY Expenditures as of June 30, 2018..... 6
- Table 1-3. Summary of Performance Metrics 8
- Table 2-1. Residential Assessment Fees13
- Table 2-2. Implementation and Support Contracts - Residential.....14
- Table 2-3. Multifamily Energy Performance Incentive Schedule.....16
- Table 2-4. Implementation and Support Contracts - Multifamily17
- Table 3-1. Revolving Loan Fund Status by Sector as of June 30, 201819
- Table 3-2. GJGNY Residential Loan Underwriting Standards as of June 30, 201826
- Table 3-3. Residential Loan Fund Interest Rates as of September 1, 2016.....29
- Table 3-4. Expenditures for Financing Implementation and Administration32
- Table 4-1. Workforce Training and Development Contracts35
- Table 5-1. Organizations Under Contract to Provide GJGNY Outreach Services38
- Table 6-1. Evaluation Contracts40

1 Introduction

1.1 Overview

Ramping up the rate of participation in energy projects can reduce energy costs, create local jobs, reduce greenhouse gas emissions, improve indoor air quality, and help achieve the State's energy goals. Achieving these objectives is particularly important in economically distressed communities where many households have limited options for undertaking energy improvements.

On October 9, 2009, the Green Jobs - Green New York Act of 2009 (the Act) was signed into law. Pursuant to Title 9-A of New York State Public Authorities Law Section 1890 "The Green Jobs - Green New York Program" directs the New York State Energy and Research Development Authority (NYSERDA) to do the following:

- Establish a revolving loan fund to finance the cost of approved qualified energy efficiency services for residential, multifamily, and nonresidential structures.
- Pursue the feasibility of innovative financing mechanisms.
- Issue one or more competitive opportunities to solicit applications from partnerships or consortia composed of constituency-based organizations (CBOs) that can connect community members to Green Jobs - Green New York (GJGNY). Give preference to applicants that include significant participation by minority- and women-owned business enterprises and/or to applications intended to serve economically distressed communities.
- Target communities in areas where energy costs are particularly high in relation to median household income, as determined by NYSERDA, or those designated as a nonattainment area for one or more pollutants pursuant to Section 107 of the federal Clean Air Act.
- Establish standards for energy assessments based on building type and other relevant considerations.
- Establish a schedule of fees for energy assessments, including a sliding scale by which assessment fees shall be waived for residential applicants based on median county income.
- Enter into contracts to provide employment and training services to support GJGNY.
- Establish an Advisory Council.
- Provide annual reports to the Governor, Senate, and Assembly.

On August 4, 2011, Governor Andrew M. Cuomo signed the Power NY Act of 2011, which established the On-Bill Recovery Financing Program (OBR) for GJGNY project financing and increased the maximum loan limits for residential and small business/not-for-profit GJGNY loans, subject to certain project payback criteria. NYSERDA worked with the utilities and Department of Public Service staff to implement OBR Loans for residential consumers commencing January 30, 2012, four months earlier than required by the law. In April 2012, an amendment to the GJGNY law—Public Authorities Law § 1896(5)—made additional changes to improve the OBR financing mechanism.

An additional amendment to the GJGNY Act of 2009 was signed into law on October 22, 2013, which extended the availability of financing to net metered technologies, enabling residential solar electric installations through GJGNY loans.

Section A.3008/S.2008, Part SS, of the New York State 2015–2016 Budget included requirements for NYSERDA related to GJGNY as follows:

- Provide a report to the Executive, Temporary President of the Senate, Speaker of the Assembly, Chair of the Senate Committee on Energy and Telecommunications, and Chair of the Assembly Committee on Energy regarding the financial status of the GJGNY program.
- Continue to offer financing through the GJGNY program for qualified energy efficiency services to all applicants who were eligible on January 1, 2015 through March 31, 2016.
- Develop standards and/or criteria that will encourage and increase participation of, and issuance of, loans to low- to moderate-income (LMI) households statewide for qualified energy efficiency services under the GJGNY program.
- Convene a working group to assist in developing these standards and/or criteria that includes individual representatives of CBOs.
- Consult with and solicit information and recommendations from the working group on how to increase participation and issuance of loans to LMI households seeking qualified energy efficiency services.
- Report the results of consultations with and solicitations of the working group to the Governor, Senate Majority Leader, and Speaker of the Assembly within six months of the March 31, 2015 effective date of the legislation.

In April 2015, NYSERDA established the GJGNY LMI Working Group, which consisted of 19 members representing CBOs, LMI consumer advocates, advocates on utility and housing issues, and stakeholders (including contractors) of the solar electric and home energy services industries. The working group report was submitted to the Governor and members of the NYS Legislature on October 1, 2015 and was posted on NYSERDA's website.¹ Some working group members also brought forward additional barriers to participation or challenges related to aspects of the GJGNY program that were outside the mission of

the GJGNY LMI Working Group. As a result, in January 2016, NYSERDA established two additional working groups. The report from the GJGNY Community Outreach Working Group was discussed in the 2017 Green Jobs - Green New York Annual Report. Visit NYSERDA's website at nyserdera.ny.gov/-/media/Files/EDPPP/GJGNY/Advisory-Council-Updates/GJGNY-Community-Outreach-Working-Group-Recommendations.pdf for more information. The Green Jobs - Green New York Workforce Training Working Group Recommendations Report is discussed in Section 4.1. Visit NYSERDA's website at nyserdera.ny.gov/-/media/Files/EDPPP/GJGNY/Advisory-Council-Updates/GJGNY-Workforce-Development-Recommendations.pdf for further information.

In December 2017, the Act was amended to include the purchase and installation of geothermal systems as qualified energy efficiency services.

This ninth Annual Report submitted for GJGNY was prepared pursuant to Section 1899 of the Act and provides an update on the progress and achievements of the GJGNY initiative from July 1, 2017 through June 30, 2018.

1.2 Advisory Council

The Advisory Council generally meets twice per year, but it will hold additional special meetings as needed to discuss significant program changes or in response to Advisory Council requests on topics that should not wait for the next scheduled meeting. Advisory Council meetings are open to the public and documentation is posted on NYSERDA's website. Visit nyserdera.ny.gov/About/Green-Jobs-Green-New-York/Advisory-Council/Meetings to view Advisory Council meeting documentation. NYSERDA also issues quarterly reports documenting the status of the GJGNY program. Visit NYSERDA's website at nyserdera.ny.gov/About/Publications/GJGNY-Advisory-Council-Reports to access these reports.

The Advisory Council consists of nine ex-officio members and 22 appointed members who represent constituency-based community groups; consumer advocates on utility and housing issues; community-based workforce development groups; unions, including building trades and property services; home performance contractors; large-scale construction contractors; and investment market experts. Members of the Advisory Council are listed in Table 1-1. Due to the critical and timely nature of discussions taking place about the residential revolving loan fund over the past several years, no changes to membership were proposed, even though some members continue to serve with expired terms.

Table 1-1. GJGNY Advisory Council Members

Name	Organization
Alicia Barton	President and CEO, NYSERDA (Chair)
Howard Zemsky	Commissioner, New York State Department of Economic Development
Samuel D. Roberts	Commissioner, New York State Office of Temporary and Disability Assistance
Thomas Falcone	CEO, Long Island Power Authority
Basil Seggos	Commissioner, New York State Department of Environmental Conservation
Rossana Rosado	Secretary of State
Gil C. Quinines	President and CEO, New York State Power Authority
Roberta Reardon	Commissioner, Department of Labor
RuthAnne Visnauskas	Commissioner and CEO, New York State Homes and Community Renewal
James Barry	Service Employees International Union 32BJ
Chuck Bell	Consumers Union
Les Bluestone	Blue Sea Construction
Tria Case	City University of New York
Sammy Chu	Suffolk County Department of Labor
Stephen Edel	Center for Working Families
Kate Fish	Adirondack North Country Association
Clarke Gocker	People United for Sustainable Housing - Buffalo
Ross Gould	Workforce Development Institute
Dave Hepinstall	Association for Energy Affordability
Alan Higgs	Housing Assistance Program of Essex County
David Johnson	Laborers International Union of North America
William Johnson	Green America Public Private Partnership
Jennifer Keida	Standard Insulation Co. Inc.
Jason Kuflik	Green Street Power
Conrad Metcalf	Building Performance Contractors Assoc.
Jackson Morris	National Resource Defense Council
Ellen Redmond	International Brotherhood of Electrical Workers
Hal Smith	Home Energy Performance by Halco
Lisa Tyson	Long Island Progressive Coalition
Michael Weisberg	Hudson Valley Commercial Bank

In addition to meeting with the Advisory Council, NYSERDA works with utility representatives, Department of Public Service staff, and program implementation contractors to support the implementation of OBR financing and other programs. In addition, NYSERDA meets regularly with stakeholders in the residential energy efficiency sector by scheduling regular calls or meetings and engaging contractors through roundtable meetings to discuss program challenges and opportunities. Feedback provided by the group, as well as other stakeholders, is factored into program improvements.

1.3 Funding

The Act allocated \$112 million in funding from New York State's share of the Regional Greenhouse Gas Initiative (RGGI) to support GJGNY. In consultation with the GJGNY Advisory Council, NYSERDA sub-allocated the funding across the various program components prescribed by the GJGNY Act. Over time, NYSERDA further allocated interest earnings and additional RGGI funds. In addition to the RGGI funds, NYSERDA received a U.S. Department of Energy (DOE) Better Buildings grant in the amount of \$40 million, of which \$18.6 million was used to support GJGNY financing or outreach. NYSERDA supplemented the initial GJGNY program funding with \$90,295,238 in additional RGGI funds to date to ensure uninterrupted program services where needed.

By far the greatest demand for GJGNY funding has been from the residential revolving loan fund, which issued loans totaling its original allocation in less than three years. The residential revolving loan fund is now maintained primarily through proceeds from the sale of bonds:

- August 2013: \$24.3 million in Residential Energy Efficiency Financing Revenue Bonds sold as Qualified Energy Conservation Bonds
- September 2015: \$46.23 million in Residential Energy Efficiency Financing Revenue Bonds to Environmental Facilities Corporation (EFC), in connection with AAA-rated SRF bonds issued by EFC
- October 2015: \$48.5 million to M&T Bank
- September 2016: \$23.2 million in Residential Energy Efficiency Financing Revenue Bonds to EFC, in connection with AAA-rated SRF bonds issued by EFC
- March 2018: \$18.5 million Residential Solar Financing Green Revenue Bonds

Section 3 provides more details regarding the bonds issued during the reporting period.

Even though NYSERDA had success using bonds to support the residential revolving loan fund, because of the subsidized interest rate offered on a rapidly growing number of GJGNY loans, the program required additional RGGI fund allocations to fund loans not recovered through bond

proceeds. The loan fund could not continue operating in a sustainable manner, due to reduced RGGI auction proceeds and the need to balance GJGNY program needs with other initiatives. The need to address the unsustainability of the residential loan fund became critical in 2015. Working with the Advisory Council, a plan was developed to revise interest rates starting on September 1, 2016, reducing the subsidization needed for consumers who have sufficient household incomes and meet traditional market-based underwriting criteria. A spring 2017 review of the impact of the interest rate change showed the strategy reduced the amount of RGGI funds expected to be needed to maintain the loan fund to a manageable amount. Section 3 further details interest rate change and its impact.

To enable continued implementation of GJGNY activities, in addition to using RGGI funds, interest earnings and bond proceeds, NYSERDA included elements of GJGNY in the planning of the Clean Energy Fund (CEF).² Also, though a memorandum of understanding with the Long Island Power Authority (LIPA), certain aspects of GJGNY are delivered by PSEG Long Island, LIPA’s system operator. Table 1-2 outlines expenditures for individual components of GJGNY from all funding sources. Visit NYSERDA at nyserdera.ny.gov/About/Clean-Energy-Fund for information regarding initiatives and budgets of the CEF.

Table 1-2. GJGNY Expenditures as of June 30, 2018

Program Area	Expended 1 Jul 2017-30 Jun 2018	Expended Cumulative to Date
Workforce Development	\$188,451	\$6,867,918
Outreach and Marketing	\$519,017	\$16,045,762
One- to Four-Family Residential Buildings Audits	\$4,323,870	\$32,951,540
Multifamily Buildings Audits	\$155,294	\$4,673,049
Small Commercial and Not-for-Profit Audits	\$9,450	\$7,931,775
Financing – Residential, Small Commercial, Not-for-Profit and Multifamily*	-\$7,372,577	\$107,263,643
Program Evaluation	\$109,655	\$3,462,707
Program Administration	\$652,174	\$11,344,090
NYS Cost Recovery Fee	\$92,169	\$2,326,027
TOTAL*	-\$1,322,497	\$192,866,511

* Negative expenditures reflect capitalization of the residential loan fund through bond issuances. See Table 3-1 for more detail regarding the loan funds.

1.4 Overall Progress and Outcomes

Table 1-3 provides a summary of program performance metrics. Although this table reports primarily on the assessments and projects completed, it is important to note there are many other indicators of program success not captured in the statistics regarding projects. Some of these additional indicators include the growth of participation in the programs active in underserved communities, the creation of quality jobs within those same communities, improved participation of LMI households in energy efficiency projects, and improved access to financing for households typically unable to qualify for financing. Other indicators of program success are seen in new, up-skilled, and higher-waged employment opportunities resulting from the GJGNY program. Some of these program characteristics are reported on in other sections of this report.

Some of the GJGNY initiatives are now funded with CEF funds. Visit nyscrda.ny.gov/About/Clean-Energy-Fund for additional information regarding the CEF.

A priority for the coming year is the ongoing analysis of the residential loan fund to overcome barriers limiting participation by households who would have otherwise undertaken an energy efficiency or renewable energy project.

Table 1-3. Summary of Performance Metrics

July 1, 2017 through June 30, 2018

Metric	One- to Four-Family Residential Buildings	Multifamily Energy Performance	Small Commercial/ Not-for-Profit Energy Efficiency	Total
Assessment Applications Received (number)	23,159	0	1	23,160
Assessments Completed (number)	16,404	1	1	16,406
Projects completed (units)	4,298	1,632	3	5,933
1st Year Net KWh Savings from Projects Receiving Audits ¹	1,507,939	136	(17,848)	1,490,227
1st Year Net MMBtu Savings from Projects Receiving Audits ¹	71,462	51,327	515	123,304
Loan applicants (number)	5,065	0	1	
On-Bill Recovery Loans Issued (number)	528	0	1	
Smart Energy Loans Issued (number)	1,811			
Participation Loans Issued (number)		0	0	
Total Value of Loans	\$23,167,895	\$0	\$20,086	\$23,187,981
Participation Loans			0	\$0
Average Loan Amount	\$9,905	0	\$20,086	
Average Project Cost (Estimate) of Projects Receiving Loans ²	\$15,525	0	\$10,034	
1st Year Net KWh Savings from Projects Receiving Loans ^{1, 3}	347,410	0	(30,526)	
1st Year Net MMBtu Savings from Projects Receiving Loans ^{1, 3}	40,156	0	515	
Number of loan defaults ⁴	249	0	1	
Number of OBR loan recipients who are in arrears on their utility accounts for electric and/or gas service	313		1	
Number of OBR loan recipients who are in arrears in their OBR loan payment	1761		5	
Number of OBR loan recipients whose utility service has been terminated for non-payment	31		0	
Number of OBR loan recipients whose utility service have been reconnected	30		0	

¹ Energy and bill savings represents installed to date saving for the One- to Four-Family sector and the Multifamily sector, and an estimated 44% project installation rate, based on historical performance for the Small Commercial/Not-for-Profit sector.

² There may be more than one project associated with a loan. In cases where the total project cost is not known, the loan amount is used as a proxy.

³ The savings from projects with loans are included in the savings from projects receiving audits.

⁴ A loan default is defined as a loan that is more than 120 days delinquent and has been charged-off.

Note: projects that receive GJGNY audits and/or financing may have also received incentives through Energy Efficiency Portfolio Standard (EEPS), Regional Green House Gas Initiative (RGGI), Clean Energy Fund (CEF), utility programs and/or other organizations such that projects' energy savings may not all be attributable solely to GJGNY.

1.5 Improvements to Program Offerings

NYSERDA is committed to an environment of continuous improvement, particularly focused on the customer. Beginning in 2014, NYSERDA worked with stakeholders to undertake a targeted effort to improve both customer and contractor experience with residential programs and GJGNY financing, resulting in process improvements and faster loan and project approvals. Process improvements continue to be a priority for NYSERDA, with additional improvements under development.

NYSERDA identified a program issue associated with recording GJGNY OBR loans that needs resolution. Under the current GJGNY statute, OBR loans require a property owner to provide written notice to a prospective buyer of the property regarding the OBR loan. In addition, the statute requires NYSERDA to record a declaration of the OBR loan in the municipal recording office and to record the loan's satisfaction when paid off. The declaration does not place a lien on the property. It is intended to notify a prospective buyer of the property that an OBR loan is associated with the building's utility meter and the outstanding balance of the loan will transfer to the new property owner unless satisfied prior to the sale or transfer of the property. To accomplish this, NYSERDA pays fees to a title company to perform a title search to verify the property owner and to record the declaration and its satisfaction in the municipal recording office, including municipal fees. Unfortunately, the loan transfer process is not working effectively. Based on the number of loans that have transferred to successor utility customer compared to OBR loans paid off early (assumed to have occurred through property sale/transfer), it appears that transfer of the loan is only successful about 20% of the time. But the current recording process has led to some confusion for mortgagees, title companies, and attorneys that sometimes disrupts the property transfer process. In some cases, property transfers occurred without written notice by the seller or the purchaser having the ability to be notified through the title search process.

The additional fees associated with issuing an OBR loan, including the required declarations and associated title search, are also costly (ranging from \$135 to \$1,695 per loan, depending on county) and are paid from RGGI funds. The GJGNY residential OBR loans currently offer consumers the same interest rate as the GJGNY residential Smart Energy Loan, despite the payment of these additional costs.

NYSERDA will work with the legislature and seek to amend the current statute to modify the transferability of loans. The proposed change would allow the loan to either be voluntarily assumed by a subsequent purchaser of a property through a written agreement or for the loan to be satisfied by the existing owner at the time of sale. This change in the statute would eliminate the confusion and other issues that have arisen with such property transfers.

NYSERDA will also research options for reducing the cost of the OBR process, which could include alternatives to the declaration recording process, while still ensuring the existence of the OBR loan is addressed appropriately during property transfer. NYSERDA will work to identify any changes needed to enable the use of such alternatives and will plan to propose any necessary amendments to the current statute to the legislature.

2 Audits and Implementation

Consistent with the legislation, some GJGNY services are delivered through successful existing programs. Free and reduced cost residential energy audits are provided by contractors participating in the Home Performance with ENERGY STAR® program,³ which offers one- to four-family homeowners in the State a comprehensive approach to improving energy efficiency and home comfort and provides income-eligible incentives. Through NYSERDA's Multifamily Performance Program (MPP), NYSERDA provides co-funding for comprehensive energy assessments and the development of a Savings Verification and Information Tool (SAV-IT).⁴ MPP is a comprehensive program that serves LMI projects using a common process and relies on a network of energy service contractors who have demonstrated their ability to provide building performance services to multifamily buildings. NYSERDA provides access to audits for small businesses and not-for-profit organizations on a cost-shared basis via NYSERDA's Flexible Technical Assistance (FlexTech) program. Financing may also be available to small businesses or not-for-profit organizations that receive an assessment from a utility or other source, if the assessment meets NYSERDA's standards. NYSERDA also recently launched the Energy Study Aggregation Program. This pilot program, an alternative to technical support provided through the FlexTech program, will test whether commonalities (for example, sector, technology, or building use) yield economies of scale when evaluating efficiency opportunities and reduce the cost to commercial customers of obtaining objective energy information.

2.1 Residential Sector

2.1.1 Target Audience

The primary target audience for GJGNY residential audits are owners of one- to four-family residential buildings. Building owners with incomes equal to or less than 80% of the State or area median income, considered LMI households, are of particular interest in GJGNY and may be eligible for a discount of 50% of the cost of the eligible work, up to \$4,000, or up to \$8,000,⁵ for buildings with two to four units through the assisted component of the HPwES program. Residents with incomes up to 60% of the State median income may be eligible for services (including audits) at no cost to the household.⁶

2.1.2 Implementation Approach

HPwES is a market transformation program that uses building science and a comprehensive approach for identifying and implementing energy efficiency improvements. The program is designed to reduce the energy use in existing one- to four-family homes while also addressing indoor air quality and other

energy-related health and safety issues. Improvements in building shells and heating systems typically result in significant cost-effective fuel savings. Energy efficiency improvements through this program include building shell measures, high-efficiency heating and cooling measures, and ENERGY STAR® appliances and lighting.

HPwES uses a network of Building Performance Institute (BPI) GoldStar contracting firms to complete comprehensive energy audits and to install energy-efficient improvements. The energy audits include taking an inventory of the current home energy systems and energy-related health and safety conditions, diagnostic testing of combustion appliances, blower-door testing for air-infiltration rates, and developing a work scope and a cost and energy-savings estimate for proposed improvements. The energy audit report is provided to the homeowner and allows the contractor to recommend and discuss options for improvements that maximize energy savings and meet the household budget considerations. In addition to the energy savings offered, the HPwES program addresses residential health and safety issues pertaining to indoor air pollutants, focusing on carbon monoxide and other pollutants associated with combustion appliances, ventilation, and moisture control. This effort increases the long-term durability of the State's housing stock by addressing the causes of problems such as ice damming, mold, and mildew.

The contractor tests the house when work is complete to ensure a safe and healthy environment after installation of energy efficiency measures. Participating households typically reduce their total energy use by 15 to 20% after work on the home is complete. Quality assurance inspections are performed on an average of 10 to 15% of projects to ensure contractor work meets program and BPI standards.

2.1.3 Energy Audit Fees

The fee for residential energy audits is waived for households with income that is 200% of the median county household income or less. In households with income greater than 200% and up to 400% of the median county household income, the applicant pays a pro rata percentage of the assessment fees. Only those households that have a county median income above 400% pay the full fee. The building owner's household income is used in determination of the audit fee amount, including in multi-unit buildings. HPwES makes payments directly to participating contractors. Table 2-1 outlines audit fees for residential buildings.

Table 2-1. Residential Assessment Fees

Household Income	Single unit under 3,500 square feet of above grade conditioned space		2-4 Units or Single Units over 3,500 square feet of above-grade conditioned space	
	Cost to Customer	Program Payment to Contractor	Cost to Customer	Program Payment to Contractor
≤200% Area Median Income (AMI)	\$0	\$250	\$0	\$400
>200 – 250% AMI	\$50	\$200	\$80	\$320
>250 – 300% AMI	\$100	\$150	\$160	\$240
>300 – 350% AMI	\$150	\$100	\$240	\$160
>350 – 400% AMI	\$200	\$50	\$320	\$80
>400% AMI	Market Rate	\$0	Market Rate	\$0

NYSERDA found that the conversion rate from audit to project through its HPwES program is approximately 30% since program inception; in the past 12 months, the audit to HPwES project conversion rate was approximately 36%. A 2012 NYSERDA evaluation indicated pieces of the recommended work proceeds outside the program, either with the benefit of utility rebates or by the homeowner on their own. Among individuals surveyed in the evaluation who had an audit application approved, or audit completed, but did not have work performed through HPwES, nearly 38% of respondents reported they installed program eligible energy-efficient measures outside of the program.⁷ This results in an overall conversion rate greater than 70%.

Since the launch of GJGNY, Assisted HPwES has continually grown as a percentage of NYSERDA’s total project completions. In Quarter 4 2010 (at the launch of the residential GJGNY audit program), Assisted customers accounted for 16% of all HPwES projects. In the past year, assisted customers accounted for 44% of all HPwES project. The increase may be attributed to a number of factors including free assessments, availability of GJGNY financing, community-based and contractor outreach, revised incentive structures, and an improved economy compared to 2010.

2.1.4 Implementation and Support Contracts

External contracts related to the implementation of the GJGNY Program in the residential sector during the reporting period are detailed in Table 2-2.

Table 2-2. Implementation and Support Contracts - Residential

Number	Contractor	Description
PO- 32323	Conservation Services Group	Energy Audit Implementation
PO- ST9940-1	Honeywell International Inc	Quality Assurance
53820	EnergySavvy	HPwES Program Management Software
121807	EnergySavvy	HPwES Program Management Software
107771	CLEARresult	Shared Services Provider
116844	CLEARresult	Implementation/Technical Services
113649	Honeywell International, Inc	Quality Assurance
113501	Institute for Building Technology and Safety	Quality Assurance

In addition, NYSERDA has a memorandum of understanding with LIPA, through which PSEG Long Island, LIPA's system operator, provides GJGNY free and reduced cost audits and services to their customers.

2.2 Multifamily Sector

NYSERDA offers a portfolio of programs and incentives for owners, facility managers, developers, and condo/co-op boards of multifamily buildings with five or more units in the State. NYSERDA's programs facilitate assessments, funding, and implementation of energy efficiency upgrades that improve building performance and save money. Implementation of the GJGNY Multifamily Buildings initiative began in the third quarter of 2010.

2.2.1 Target Audience

The needs of the multifamily residential sector are addressed by working with developers, building owners, and their representatives to improve the energy efficiency, health, safety, and security of multifamily buildings.⁸ The programs identify and target those potential participants⁹ who are committed to the implementation of energy-related improvements. As part of GJGNY marketing and outreach efforts, provisions have been made to encourage referrals through community-based outreach.

2.2.2 Implementation Approach

Through NYSERDA's Multifamily Performance Program (MPP), NYSERDA provides co-funding for comprehensive energy assessments and the development of a SAV-IT.¹⁰ MPP is a comprehensive program that serves LMI projects using a common process and relies on a network of energy service contractors who have demonstrated their ability to provide building performance services to multifamily buildings. These contractors are identified as MPP Providers and must be hired by MPP participants to complete specific building performance services, such as those outlined in the SAV-IT.

NYSERDA manages GJGNY-related services as a seamless part of the MPP process, regardless of whether participants intend to access MPP implementation incentives, utility program rebates, or other financial assistance, or whether participants intend to fund a portion or all of the energy-related improvements through GJGNY financing.

NYSERDA continues to look for areas of improvement for programs. For example, NYSERDA's multifamily team has worked to expedite the contracting process, reduce processing times, and promote customer service. The team continues to work on similar intervention strategies to eliminate consumer confusion and streamline participation.

2.2.3 NYSERDA Incentives

Co-funding of the energy assessment(s) and development of SAV-IT is offered to affordable buildings through the MPP. To be eligible as an affordable housing project, the applicant must document at least 25% of the residential dwelling units are occupied by families earning no more than 80% of the State or county median income, whichever is higher. NYSERDA allows reliance upon certain proxies to document compliance with this definition. Those proxies are specified in MPP documentation and currently include previously completed household income verification by housing regulators such as NYS Homes and Community Renewal (HCR), New York City's Housing Preservation and Development (HPD), the NYS Housing Finance Agency, and the U.S. Department of Housing and Urban Development (HUD).

The co-funding amounts offered for completion of the assessments are included as part of the MPP incentive and are listed in Table 2-3. One SAV-IT is developed per project; however, a single project may include multiple buildings. The participant must use an MPP Provider to complete the assessment.

NYSERDA’s MPP incentives are calculated based on the number of units in a building. The incentive payments are structured to support the installation of eligible measures outlined within the SAV-IT. Incentives are subject to funding availability from the Clean Energy Fund. Incentives are available for projects predicted to achieve the 20% energy reduction threshold. Additional performance payments may apply in the case of eligible projects predicting and achieving savings above the 20% energy reduction threshold. Incentives are paid at specified stages of a project’s completion and amounts are detailed in Table 2-3.

For building owners looking for deeper energy savings, MPP created a High-Performance Component with a minimum target of 40% source energy savings and an Energy Use Intensity (EUI) score of 100. The EUI expresses a building’s energy use as a function of its size or other characteristics. To help reach the EUI score, building owners are encouraged to tap into additional incentives available to integrate on-site generation, which includes solar, wind, and combined heat and power into their upgrade plans. The incentives for on-site generation may be combined with MPP incentives.

Table 2-3. Multifamily Energy Performance Incentive Schedule

Projected Energy Savings Target	Total Incentive (per unit)	Program Payment	Performance Payment
20%-24%	\$700	\$600	\$100
25%-29%	\$800	\$700	\$100
30% - 34%	\$1,000	\$800	\$200
35%+	\$1,500	\$1,000	\$500
High-Performance Component 40% + and EUI ≤ 100	\$3,500	\$3,000	\$500

2.2.4 Coordination with Other Program Administrators

NYSERDA coordinates with the federally funded Weatherization Assistance Program administered by HCR, HPD, HUD, and others to leverage additional funding, as appropriate.

NYSERDA continues to work with utility program administrators to address coordination issues and minimize confusion when multiple incentive opportunities are available to customers. If the multifamily building owner chooses not to participate in NYSERDA’s MPP, the owner may elect to take part in a utility rebate program. In this case, the GJGNY loan may be used in coordination with the utility rebate(s), provided a building assessment has been completed that meets MPP standards.¹¹ Although GJGNY loans may be combined with either NYSERDA or utility incentives, these incentives cannot be combined with each other to cover the same measure. The GJGNY loan amount is determined by netting out all applicable utility or NYSERDA incentives at the measure level from the total cost of the work.

2.2.5 Implementation and Support Contracts

External contracts related to the implementation of the GJGNY Program in the multifamily sector during the reporting period are detailed in Table 2-4.

Table 2-4. Implementation and Support Contracts - Multifamily

Identification Number	Contractor	Description
PO-18649	TRC	Implementation
PO-ST9941	Taitem	Quality Assurance

2.3 Small Commercial and Not-for-Profit Sector

NYSERDA’s Small Commercial/Not-for-Profit Energy Efficiency Program provides access to audits and financing to help small businesses and not-for-profit organizations improve their efficiency and reduce energy costs.

2.3.1 Target Audience

The target audience for the program is small businesses and not-for-profit organizations within State boundaries. Consistent with the Act, “small business” has the same meaning as that of Section 131 of the New York State Economic Development Law, which is “one which is resident in this state, independently owned and operated, not dominant in its field and employs one hundred or less persons; “not-for-profit” means a corporation defined in subdivision five of paragraph (a) of Section 102 of the New York State not-for-profit corporation law.

2.3.2 Implementation Approach

Loans are provided for qualified energy efficiency services based on recommendations contained in Qualified Energy Assessment or other audit meeting NYSERDA's standards.¹²

Applicants may be eligible¹³ to receive an energy audit on a cost-shared basis via NYSERDA's FlexTech program.¹⁴ Through the FlexTech program, small businesses and not-for-profit organizations may participate in the Energy Study Aggregation Program with a participating FlexTech Consultant.¹⁵ Additionally, NYSERDA is reviewing ways to provide recommended measure lists for specific building types that will include cost and payback information enabling customers to make informed decisions about common clean energy upgrades.

2.3.3 Implementation and Support Contracts

Contractors competitively selected to provide services through the FlexTech Program are located on NYSERDA's website at nysesda.ny.gov/Contractors/Find-a-Contractor/FlexTech-Consultants.

3 Financing

This section provides information related to various financing activities being undertaken that aide owners of one- to four-family residential buildings, multifamily buildings, and buildings occupied by small businesses and not-for-profit organizations to invest in energy efficiency improvements.

3.1 Revolving Loan Fund

NYSERDA established a Revolving Loan Fund to support energy efficiency financing for owners of one- to four-family residential buildings, multifamily buildings, and buildings occupied by small businesses or not-for-profit organizations. The GJGNY Act requires the initial balance of the residential account to be at least 50% of the total balance. Current allocation and funding status of the loan fund across sectors is represented in Table 3-1.

Table 3-1. Revolving Loan Fund Status by Sector as of June 30, 2018

Program Area	Funding Allocation	Loans Issued and Implementation Expenses	Loan Repayments and Bond Proceeds ¹	Encumbered	Committed	Balance*
One- to Four-Family Residential Buildings	\$130,051,564	\$290,112,064	(\$185,879,727)	\$809,560	\$22,546,571	\$2,463,096
Multifamily Performance	\$3,822,516	\$4,009,953	(\$2,947,377)	\$146,065	\$0	\$2,613,874
Small Commercial Energy Efficiency	\$4,083,235	\$2,706,751	(\$738,021)	\$281,557	\$45,744	\$1,787,204
TOTAL	\$137,957,315	\$296,828,768	(\$189,565,125)	\$1,237,182	\$22,592,315	\$6,864,174

* Balance is calculated as "Funding Allocation" less all other categories.

Pursuant to the GJGNY Act, loans were initially limited to \$13,000 per applicant for one- to four-family residential structures and \$26,000 per applicant for small business and not-for-profit structures. The Power NY Act of 2011 allows loans up to \$25,000 for residential structures and up to \$50,000 for small business and not-for-profit structures, provided that the project payback is 15 years or less. NYSERDA established programmatic limits for multifamily structures, not to exceed \$5,000 per unit and \$500,000 per building.

To pursue financing through the Revolving Loan Fund, a customer must have a qualified energy audit that identifies energy services to be undertaken. Subject to the loan caps, the amount eligible for financing will be the total project cost minus any NYSERDA, utility, or other available incentives, grants or rebates. The total cost of the project may include the removal of equipment or systems, the purchase and installation of new systems or equipment and any required ancillary equipment and related services, including necessary health and safety improvements, and the customer's expense for an energy audit.

3.2 Residential Financing

GJGNY offers two types of loans for one- to four-family residential energy improvements. An unsecured consumer loan financing product was launched on November 15, 2010. This loan, referred to as the Smart Energy Loan, requires the consumer to make monthly loan payments directly to NYSERDA's master loan servicer, Concord Servicing Corporation (Concord). On January 30, 2012, NYSERDA launched OBR Loans, as authorized by the Power NY Act of 2011. The OBR Loan allows consumers to repay through an installment charge on a bill from one of the involved electric or gas utilities (Central Hudson, Con Edison, Long Island Power Authority, National Grid - Upstate, New York State Electric and Gas Corporation, Rochester Gas and Electric Corporation, or Orange and Rockland Utilities). The utilities then remit repayments to Concord, who coordinates data communications with each utility.

The residential loans are originated statewide through Energy Finance Solutions (EFS), a not-for-profit energy efficiency lending organization competitively selected by NYSERDA to provide residential financing services. EFS reviews applications and originates loans pursuant to underwriting criteria established by NYSERDA. EFS closes on the loan, disburses proceeds to the contractor from a cash advance pool provided by NYSERDA to EFS, and then submits the loan to Concord. NYSERDA then replenishes the cash advance pool for the loan disbursement on a weekly basis. Concord is responsible for borrower billing and collections on the loan portfolio and also monitors the origination processes on a sample basis to ensure conformance to standards.

To qualify for GJGNY financing, a project must meet cost effectiveness requirements. In response to the record low natural gas prices and recognizing that energy projects provide non-energy benefits to the household, the cost effectiveness standard was adjusted in mid-2012 for Smart Energy Loans and provided customers with the ability to finance improvements when the estimated energy savings over

the anticipated life of the improvements are at least 80% of the total loan payments. However, OBR loans must meet the bill neutrality rules established pursuant to the Act. Pro forma tools (spreadsheets) have been developed to standardize the process of verifying cost-effectiveness of the projects seeking financing.

Projects seeking financing must also be based on recommendations contained in an energy audit. As described in section 2.1 Residential Sector, a comprehensive energy audit can be provided through the HPwES program. The NY-Sun program requires an analysis of the site to ensure proper sizing and installation of the PV system, but also requires a “clipboard” energy efficiency audit to make consumers aware of opportunities to reduce their energy consumption and demand. Likewise, a site assessment (audit) is required for other renewable energy system to be financed through a GJGNY loan. Though not required, households seeking to install a renewable energy system are encouraged to have a home energy assessment done through HPwES, as undertaking energy efficiency improvements prior to installing a renewable energy system may result in the installation of a smaller, lower cost renewable energy system. The reduction in energy bills associated with the energy efficiency project may offset some costs of the renewable energy system. Assuming the project meets cost-effectiveness requirements and can be installed within the loan cap amount, loans may be made available for a combination of energy efficiency and renewable energy work.

3.2.1 Loan Eligibility Requirements

3.2.1.1 Energy Efficiency

To be eligible for financing, HPwES projects must meet cost-effectiveness requirements as previously described. However, within certain defined parameters, many energy efficiency measures are prequalified for Smart Energy Loans,¹⁶ meaning they have been found to generally meet the cost-effectiveness test and require no additional screening for the Smart Energy Loan. Loans for systems that do not meet the parameters for prequalification can be screened for cost-effectiveness on an individual basis. In addition, 15% of the project cost, up to \$2,000, related to associated health and safety measures and qualified accessories can be ignored in the cost effectiveness screening for the Smart Energy Loans.

Provided the work performed to participate in a utility rebate program meets NYSERDA’s HPwES requirements and is completed by a participating HPwES contractor, the GJGNY loan may be used in coordination with the utility rebate, just as the GJGNY loan may be used in coordination with NYSERDA incentives.

3.2.1.2 Solar PV and Other Net Metered Technologies

The amendment to the GJGNY Act of 2009, dated October 22, 2013, made the installation of energy technologies eligible for net energy metering pursuant to Section 66-j or 66-l of the Public Service Law eligible for GJGNY financing. The only such technology likely to be installed at a residence is solar electric.

To be eligible for a GJGNY loan, Solar PV systems must be installed by a participating contractor in good standing with the NY-Sun program. The contractor must submit the project package to the NY-Sun program for approval, even if there is no NY-Sun incentive available for the project. At a minimum, the project package must include a project application form signed by the customer with a certification statement that the clipboard energy efficiency audit has been performed; site plan; site photos; one or three-line drawing; shading report and estimate of annual output; and cost-effectiveness pro forma.

Consumers purchasing solar electric systems may use the loan in addition to receiving federal and State tax incentives and incentives offered through the NY-Sun program where available.^{17,18} The loan may also be combined with NYSERDA's Affordable Solar incentive, which targets households with a total income of up to 80% of the State or county median income. Visit nysesda.ny.gov/All-Programs/Programs/NY-Sun for more information about NY-Sun.

3.2.1.3 Solar Thermal Systems

To be eligible for a GJGNY loan, the solar thermal project must be installed by a participating contractor in good standing with NYSERDA's Solar Thermal Program. The contractor is responsible for preparing and submitting the necessary project application to NYSERDA, even if there is no incentive available. Consumers purchasing a residential solar thermal system may use the loan in addition to receiving federal and State tax incentives and incentives offered through the Solar Thermal Incentive Program if available.¹⁹

3.2.1.4 Wood and Wood Pellet Heating Systems

Renewable Heat NY provides incentives toward the installed cost of high-efficiency, low-emission wood heating systems. In the residential sector, the program supports wood pellet stoves and boilers with thermal storage, and advanced cordwood boilers with thermal storage. To be eligible for a GJGNY loan, the system must be installed by a participating contractor in good standing with the Renewable Heat NY program.

Consumers purchasing eligible residential wood heating systems may use the loan in addition to receiving incentives offered through the Renewable Heat NY program where available.²⁰ The loan may also be combined with NYSERDA's income-eligible pellet stove incentive, which targets households with a total income up to 80% of the State or county median income. Visit nyserd.ny.gov/All-Programs/Programs/Renewable-Heat-NY to learn more about Renewable Heat NY.

3.2.1.5 Heat Pumps

In May 2018, NYSERDA launched financing for residential ground source heat pumps on a standalone basis. Within certain defined parameters, ground source heat pumps are prequalified for Smart Energy Loans, meaning they have been found to meet the cost-effectiveness test. Loans for systems that do not meet the parameters for prequalification can be screened for cost-effectiveness on an individual basis. To be eligible for a GJGNY loan, the system must be installed by a participating contractor in good standing with the Ground Source Heat Pump Incentive Program. Visit nyserd.ny.gov/All-Programs/Programs/Ground-Source-Heat-Pump-Rebate for further information about the program.

Loans for air source heat pumps are currently available when they are installed by a contractor participating in NYSERDA's HPwES program and when cost effectiveness criteria are met.

3.2.2 Residential Loan Fund Performance

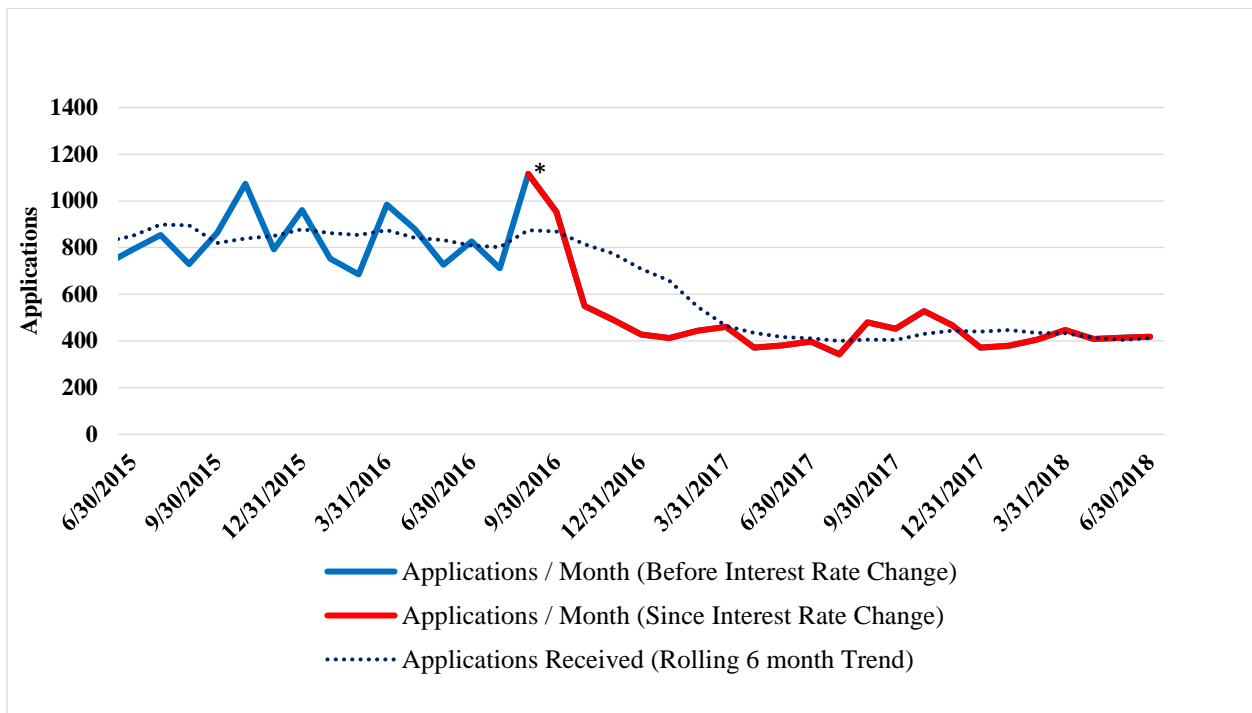
A significant volume of work is supported by the GJGNY financing options. From October 2010 through June 2018, 15,561 energy efficiency loans closed valued at more than \$148 million—an additional 533 loans are pending, valued at more than \$7.5 million. Approximately 44% of HPwES projects completed in the 12 months ending on June 30, 2018 included a GJGNY loan. From February 2014 through June 2018, 7,234 solar electric loans closed totaling more than \$121 million dollars, with another 225 loans pending completion valued at approximately \$5.3 million dollars. In addition, 81 loans closed for solar thermal, wood heating systems, and combination energy efficiency and renewable energy projects totaling more than \$1 million, with an additional three loans pending valued at more than \$23,000.

The Smart Energy Loan consistently represents the majority of loans closed on a monthly basis; over the last 12 months Smart Energy Loans represented 77.5% of loans closed.

On September 1, 2016, an interest rate change was implemented, which provides different rates based on household income and credit considerations. The new structure enabled NYSERDA to offset costs of administering the loan fund to households with higher income and high credit ratings who may have multiple financing options, while continuing to offer subsidized financing to households with few financing options in the market. As a result, many higher-income households are no longer using the GJGNY loan, but instead are using alternatives such as third-party lenders offered by their contractor or options offered through their local bank such as home equity loans.

Figures 3-1 and 3-2 illustrate the changes in financing applications submitted, and Smart Energy and OBR and loans issued over the past three years.

Figure 3-1. Financing Applications Received per Month



* Denotes deadline for applications that were submitted before tiered interest rate took effect

Figure 3-2. Smart Energy Loans and OBR Loans Issued by Financing Type

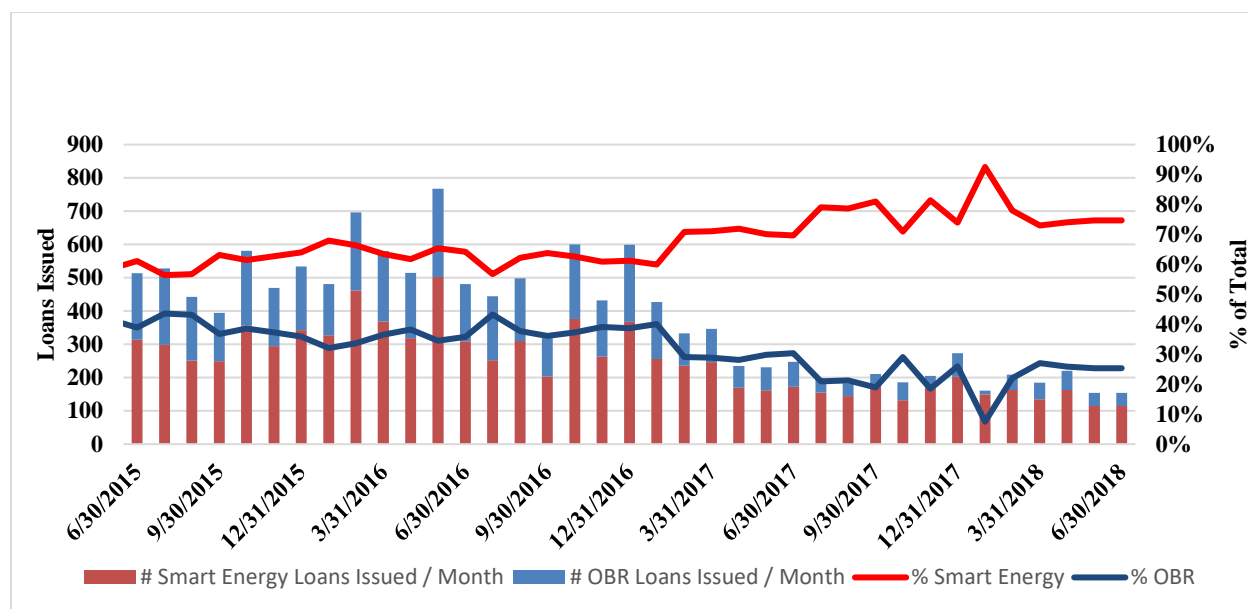


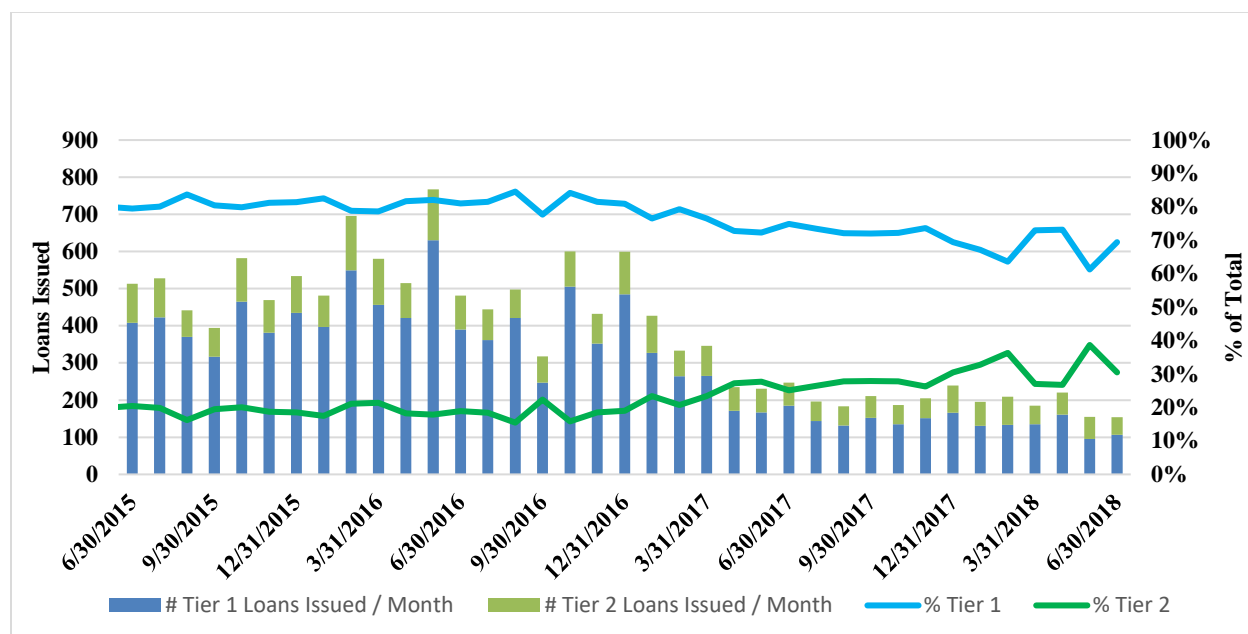
Table 3-2 summarizes loan underwriting standards used for both the Smart Energy and OBR Loans. NYSERDA modified loan underwriting standards seven times since the launch of the program in an effort to address loan application denials and responsibly improve the penetration of financing to consumers who would not qualify using traditional underwriting standards.

Tier 1 loans use standard underwriting criteria relying primarily on FICO scores and debt-to-income ratio. Tier 2 expands the number of people who can qualify by substituting mortgage payment history for FICO score as a primary qualifier. In addition, Tier 2 provides alternative debt-to-income ratio requirements in recognition that the households energy costs are reduced, addressing what is currently the most common cause of loan denials. Figure 3-3 illustrates the impact of modifying the Tier 2 standards, enabling more individuals to qualify for financing. Tier 2 loans now consistently make up 25-35% of loans issued on a monthly basis.

Table 3-2. GJGN Y Residential Loan Underwriting Standards as of June 30, 2018

LOAN UNDERWRITING STANDARDS		
Standard	Tier 1 Loans	Tier 2 Loans
Minimum FICO	640 (680 if self-employed for 2yrs+) (720 if self-employed < 2yrs)	540
Mortgage payment history	None	Current on all mortgage payments, if any (as reported on the credit report), for the past 12 months. No mortgage payments more than 60 days late during the past 24 months.
Max Debt-to-Income Ratio	Up to 50%	Up to 70% for FICO 540-599
		Up to 75% for FICO 600-679
		Up to 80% for FICO 680+
		Up to 100% for applicants who are qualified as owner-occupants for Assisted Home Performance with ENERGY STAR Subsidy for the subject property of the loan. (\$5000/50%)
Bankruptcy	No bankruptcy, foreclosure, or repossession within last seven years	No bankruptcy, foreclosure, or repossession within last two years
Judgments	No combined outstanding collections, judgments, charge-offs, or tax liens > \$2,500	

Figure 3-3. GJGNY Loans Issued by Tier



3.2.3 Bond Financing

On March 21, 2018 NYSERDA issued \$18.5 million in Residential Solar Financing Green Revenue Bonds (Federally Taxable, Climate Bond Certified), the fifth bond issuance used to capitalize the GJGNY residential revolving loan fund since August 2013. The Residential Solar Financing Green Revenue Bonds achieved an A rating by Kroll Bond Rating Agency and were purchased by five institutional investors who were focused on the “Green Bond” certification from the Climate Bond Initiative (CBI). The bonds were sold at an average coupon rate of 4.55% (federally taxable, NYS tax exempt) with an All-in True Interest Cost of 5.03%. The final maturity of the bonds is 2034 with an average life of 10.5 years. Under NYSERDA’s expected default/prepayment levels it is anticipated that the bonds will be paid off in a shorter timeframe.

The bond issuance had several unprecedented achievements. The bonds were NYSERDA’s first publicly offered bonds that were not guaranteed and were the first issued by a municipal bond issuer that were securitized by residential solar loans. The bonds were also the first Certified Business Intermediary (CBI) certified deal in the US Municipal market that was certified under the CBI’s Solar Eligibility Criteria and only the third bond deal in NYS that used CBI independent verification of compliance with CBI Green Bond standards, rather than self-certification.

Performance information about the GJGNY solar loan portfolio will be reported semi-annually through the Municipal Securities Rulemaking Board (MSRB) Electronic Municipal Market Access (EMMA) system, which provides information to municipal bond investors and to the public free of charge. Traditional asset-backed security bond issuers provide portfolio performance information to bond investors, but do not generally report the information to the public, or it requires users to have some kind of paid service to obtain access to this information.

3.2.4 Residential Loan Fund Subsidization

Although NYSERDA experienced success in using bonds to support the residential revolving loan fund, because of the subsidized interest rate offered on a rapidly growing number of GJGNY loans, the program required additional RGGI fund allocations to fund the loan originations not recovered through bond proceeds. As a result, the loan fund could not continue operating in a sustainable manner. Since solar electric loans became eligible, the value of issued loans quadrupled in only two years. The subsidized interest rate would result in significant losses to the loan fund, which were expected to nearly double from 2016 to 2017. Reduced RGGI auction proceeds and the need to balance the GJGNY program with other initiatives limit NYSERDA's ability to fully mitigate loan fund losses through RGGI allocations. The demand to address the unsustainability of the residential loan fund became critical in 2015. Therefore, NYSERDA continued its work with the GJGNY Advisory Council to identify a solution to the problem. Visit nyserda.ny.gov/About/Green-Jobs-Green-New-York/Advisory-Council/Meetings for details on the meetings with the Advisory Council.

Analysis of the loan fund demonstrated that most issued loans were to households with higher incomes and good credit. It was also known, from NYSERDA's market research, that a number of third-party financing options exist in the market for that sector. Working with the Advisory Council, a plan was developed to implement higher interest rates starting September 1, 2016, for consumers who have higher household incomes and who meet traditional market-based underwriting criteria. The interest rates offered to these customers was revised so that loans would not require additional RGGI funding, while limited RGGI funds could be used to continue to provide discounted rates to LMI households and those who lack access to traditional financing options. The interest rates are shown in Table 3-3.

Table 3-3. Residential Loan Fund Interest Rates as of September 1, 2016

Program Type	Energy Efficiency			Renewable Energy / Combined		
	Smart Energy - Pay by mail	Smart Energy - Auto Pay	On-Bill Recovery	Smart Energy - Pay by mail	Smart Energy - Auto Pay	On-Bill Recovery
Income Level						
Less than or equal to 80%	3.99%	3.49%	3.49%	3.99%	3.49%	3.49%
Greater than 80% up to 120%	5.49%	4.99%	4.99%	5.49%	4.99%	4.99%
Greater than 120%	6.49%* or 7.49%**	5.99%* or 6.99%**	5.99%* or 6.99%**	6.49%* or 8.49%**	5.99%* or 7.99%**	5.99%* or 7.99%**

* Primarily based upon a FICO score lower than 640; or a debt-to-income ratio above 50%; and no bankruptcies within the past two years.

** Primarily based upon a FICO score of 640 or greater; and a debt-to-income ratio of 50% or less; and no bankruptcies within the past seven years.

Since the interest rate change on September 1, 2016, indications are that participation in the residential loan fund reflects anticipated trends. As expected, many contractors and installers have established relationships with third-party lenders and offer their products to customers with higher incomes and good credit ratings. Lower-income households and those without access to reasonable credit options continue to take advantage of the GJGNY loans. As a result, it is anticipated that with the occasional addition of limited RGGI funds, the residential loan fund can be sustained.

3.3 Multifamily Building Financing

GJGNY Multifamily Financing is available to multifamily building owners with an approved assessment through a Participation Loan. Building owners may work with a commercial lender of their choice; NYSERDA contracts directly with the lender. NYSERDA provides 50% of the loan principal to support the improvements contained in the pre-approval document at 2% interest, not to exceed \$5,000 per apartment or \$500,000 per building. The lender provides the remaining principal of the loan at market rate, collects all loan payments, and remits to NYSERDA its share of the loan. The participating lender is responsible for loan underwriting pursuant to its standards, and NYSERDA and the lender share in a pro-rata basis on any loan defaults. By participating in the program, State lenders are able to offer blended interest rates at below market rate.

Eligible multifamily building owners are also allowed to finance the installation of the purchase of solar electric systems, as approved under NYSERDA's NY-Sun Incentive Program, and the purchase of solar thermal systems, pellet stoves, advanced cord wood boilers, and ground source heat pumps as approved under NYSERDA's Renewable Heat NY Program through lenders participating in the Participation Loan product.

3.4 Small Commercial/Not-for-Profit Financing

GJGNY offers two types of loans for energy efficiency improvements in small business and not-for-profit structures: a Participation Loan and an OBR Loan. Eligible small business and not-for-profit customers are allowed to finance the installation of energy efficiency upgrades, the purchase of solar electric systems under 200 kW, as approved under NYSERDA's NY-Sun Incentive Program, and the purchase of solar thermal systems, pellet stoves and advanced cord wood boilers as approved under NYSERDA's Renewable Heat NY Program through lenders participating in either the Participation Loan or OBR Loan product.

3.4.1 Participation Loans

Through Participation Loans, NYSERDA provides 50% of the loan principal, up to \$50,000 at a 2% interest rate for no more than 10 years. The lender provides the remaining principal of the loan at market rate. Participating lenders collect loan payments from the customer and remit to NYSERDA its share of the loan. NYSERDA will use these funds to continue further lending activities. By participating in the program, lenders can offer energy efficiency financing to small business and not-for-profit customers at a below-market interest rate. The Participation Loan Program is currently open to banks, credit unions, local development corporations, and community development financial institutions. As of June 30, 2018, 31 Participation Loans have been closed with a total value of \$2,106,204. These include 15 energy efficiency loans totaling \$848,311 and 16 solar electric loans totaling \$1,257,893.

3.4.2 On-Bill Recovery Loans

Participating lenders can also originate OBR Loans on NYSERDA's behalf. Through this loan product, NYSERDA offers eligible small business and not-for-profit customers up to \$50,000 at 2.5% interest for a maximum 10 years to finance the cost of their energy efficiency or solar electric system projects. Customers repay their OBR Loan through an installment charge on their utility bill. Currently, lenders earn a \$300 fee for each OBR Loan they originate on NYSERDA's behalf, though lenders are able to

3.6 Expenditures for Financing Implementation and Administration

NYSERDA continues to use competitively selected contractors to support the loan fund implementation, including loan origination, loan servicing; property title searches and declaration/satisfaction filings.

NYSERDA also continues to receive services from several other competitively selected organizations to assist with bond issuance, and to provide financial and legal advice. In addition, NYSERDA pays fees to utilities for the administration of the OBR program. Expenditures are detailed in Table 3-4.

Table 3-4. Expenditures for Financing Implementation and Administration

Purpose	Expenditures 1 Jul 2017 – 30 Jun 2018	Expenditures Program to Date
Loan Origination	\$ 462,359	\$7,553,924
Loan Servicing	1,231,009	4,292,140
Title Searches, Declaration and Satisfaction Filing (contractor services) and Filing Fees (counties)	360,443	3,159,651
Bond Issuance, Financial and Legal Advice and Support	314,736	4,858,787
Fees to Utilities	111,415	1,806,318
Total	\$2,479,962	\$21,670,820

4 Workforce Training and Development

The Workforce Training and Development (WFD) initiative was designed to build on existing NYSERDA and NYS Department of Labor (DOL) programs targeted at preparing individuals for energy efficiency and renewable energy careers in the State. Specifically, WFD efforts under GJGNY were designed to expand energy-specific content in New York State Registered Apprenticeship and third-party accredited building trades programs to increase access to technical training workshops for skills enhancement and certification and bridge the gap between training and employment through on-the-job training incentives for businesses seeking to hire and train new workers. Implementation of the GJGNY WFD initiative began in mid-2010; future contracts supporting GJGNY workforce development initiatives will be funded through the CEF.

While most GJGNY-funded training partnership agreements ended by December 2016, NYSERDA has an active GJGNY-funded training partnership agreement with Green City Force (GCF), a Brooklyn-based provider of training and job placement support to disadvantaged young adults. Through June 2018, a total of 72 students have graduated from the GCF training program: the first cohort of 35 graduated in June 2017, the second cohort of 18 graduated in February 2018, and the most recent cohort of 19 students graduated in June 2018.

Of the first cohort of 35 students, 32 have gained employment in the clean energy sector. Of special note is a graduate from Brownsville, Brooklyn who was recently hired as a site superintendent with Constellation New Energy based on his GCF training and internship experience on the Constellation project.

All 18 members of the second cohort are currently completing internships with the EmPower New York program. Of the third cohort, all 19 have transitioned to training in OSHA 10 and Urban Green Council's Green Professional (GPRO) course. After completion, they will be placed in internships with GCF's Social Enterprise Team, working on New York City Housing Authority's energy performance projects.

In addition, the NY-Sun PV Trainers Network conducted 38 trainings; 1,345 individuals participated in courses offered during the reporting period. Courses included solar electric training for code officials, first responders, municipal personnel, architects, and engineers. The PV Trainers Network initiative ended in May 2018.

The Building Performance Contractors Association (BPCA) also provided hands-on training for home performance professionals on infrared camera uses and proper installation techniques for dense-pack insulation.

4.1 Workforce Training Working Group

As an outcome of the work of the LMI Working Group, a Workforce Training Working Group was established in January 2016 to provide recommendations on workforce training initiatives moving forward. The Working Group addressed the following workforce opportunities and needs:

- Role of community-based organizations in future workforce training efforts
- Opportunities to coordinate with the NYS Department of Labor (DOL)
- Future directions for workforce training efforts, including career pathways, training consortia, apprenticeships, and direct entry
- Incorporating lessons learned both from within GJGNY programs and other jurisdictions
- Labor standards

Working group members included: Adele Ferranti (NYSERDA, Chair), Stephan Edel (Center for Working Families), Clarke Gocker (PUSH Buffalo), Ross Gould (Workforce Development Institute), Dave Hepinstall (Association for Energy Affordability), Tony Joseph (NYS Department of Labor), Jason Kuflik (Green Street Power), Marilyn Oppedisano (National Electrical Contractors Association), Ellen Redmond (International Brotherhood of Electrical Workers), Will Schweiger (Efficiency First New York), Paul Shatsoff (PS Consulting), and Hal Smith (Halco).

The group presented its initial recommendations to the GJGNY Advisory Council at its May 2017 meeting. The GJGNY Workforce Development Recommendations Report was further developed and posted on NYSERDA's website at nyserda.ny.gov/-/media/Files/EDPPP/GJGNY/Advisory-Council-Updates/GJGNY-Workforce-Development-Recommendations.pdf on April 30, 2018. Recommendations include the following:

- Provide on-the-job training incentives to mitigate business risks associated with hiring new clean energy workers.
 - Working Group members suggest a focus on energy efficiency workers (air sealing, insulation, weatherization) because those are the positions for which it is more difficult to recruit and retain talent
 - Classroom training should also be supported along with OJT funding to more closely align with the apprenticeship model
 - Employers would also like to have financial support for advancing incumbent workers

- Support New York State registered apprenticeships in clean energy fields.
 - Link community-based hiring halls and workforce training programs to registered apprenticeships
 - Expand pre-apprenticeship training programs with direct entry into Registered Apprenticeships
 - Explore a model that encourages partnerships between community
- Explore innovative, employer-driven approaches to bridging the gaps between training and employment.
 - Consider nontraditional ways to support disadvantaged workers such as hiring halls, where skilled and vetted workers are employed and insured by a host and can be hired out as required by need
 - This is one way to support “high-road standards” such as family-sustaining wages, fringe benefits, and overtime pay
 - Work with locally based organizations who are uniquely positioned to bridge gaps between workers and clean energy businesses seeking to hire

NYSERDA included recommendations from the report in workforce development training investments to be implemented through the CEF.

4.2 Workforce Training and Development Contracts

Training organizations receiving funding from NYSERDA during the reporting period are listed in Table 4-1.

Table 4-1. Workforce Training and Development Contracts

Identification Number	Contractor	Description	Contract Amount
39247	Meister Consulting	PV Trainers Network	\$324,999
97827	Green City Force	Career Pathway Training	\$60,000
669032 (Voucher ID)	BPCA NYS Inc.	Hands-on Training Workshop	\$2,000

5 Outreach and Marketing

GJGNY has provided community-based outreach to deliver services in underserved communities, enabling one-to-one assistance with the process of participating in the program. GJGNY provided these outreach services in targeted communities delivered by constituency-based organizations (CBOs), which located and encouraged residents, businesses, not-for-profits, multifamily building owners, and potential workforce candidates to participate in the program. Combined with statewide marketing, this approach is expected to increase the reach of the program in a more targeted manner. Although one-to-one assistance is generally a more expensive form of outreach, it enables households with limited incomes, who otherwise might not participate, to permanently reduce energy bills and assists with improving health, comfort, and home safety.

5.1 Outreach Services through Locally Based Organizations

CBOs have encouraged participation in energy efficiency programs, facilitated awareness of workforce training opportunities available through the GJGNY program, and assisted with enrollment in those efforts. CBOs also helped to identify additional funding sources to cover the cost of necessary non-energy improvements, or the cost-share needed for energy improvements. As the GJGNY program funding was expended, a new community-based engagement initiative was developed.

In addition to much stakeholder input, NYSERDA established a Community Outreach Discussion Working Group²¹ to make recommendations to the GJGNY Advisory Council for future locally based engagement efforts to support LMI communities and households, with the goal to increase participation in clean energy activities. As a result, the Working Group identified a need to clearly outline the goals for the future Community-Based Engagement Initiative that included:

- Addressing the energy affordability needs and reducing energy bills of households and businesses within communities.
- Increasing participation in energy efficiency and renewable energy solutions and programs for residential, multifamily, and small business customers by forming strong relationships with energy contractors that perform the work and leveraging multiple sources of funding for clean energy projects.
- Ensuring residential, multifamily and small business customers' awareness of, and access to, financing options for energy efficiency and renewable energy projects.
- Educating households and communities to achieve greater energy literacy and an understanding of the value proposition of clean energy solutions, enable informed energy decisions, facilitate action in completing clean energy projects, and decrease energy consumption.

Additional recommendations included expanding the program throughout the whole state to incorporate a regional approach, thus providing geographic alignment with other State efforts and full statewide coverage. Secondly, recommendations included the expansion of the definition of the potential contractor pool to include not only constituency-based organizations, but other locally based organizations (that may not meet the previous definition of CBO). Finally, although efforts will primarily target LMI communities and households, locally based engagement services will be expanded to include assistance to market-rate customers. This will assist with more effective outreach in mixed-income, neighborhood engagement settings.

Through the Community Energy Engagement Program Request for Proposals (RFP 3588), 10 competitively selected organizations were sought to provide engagement services in each of the 10 Economic Development Regions, as defined by Empire State Development. The regions are North Country, Capital District, Mid-Hudson, Long Island, New York City, Mohawk Valley, Southern Tier, Central New York, Finger Lakes, and Western New York. As part of the initial RFP process, NYSERDA did not receive fundable proposals for two of the regions (North Country and Mid-Hudson) so the RFP was reissued in Fall 2017.

In November of 2017, NYSERDA launched its Community Energy Engagement Program (CEEP), with new funding through the CEF and RGGI, to build awareness and increase uptake of local renewable and energy efficiency solutions. The selected organizations will deploy trusted, local Community Energy Advisers who engage directly with residents, small businesses, and multifamily building owners to help increase energy literacy and local understanding of the value of clean energy and reduced energy usage. Building on the success of the CBO program, through CEEP, trusted, local organizations will conduct energy awareness and education with an emphasis on increasing the amount of funding and financing leveraged for the completion of clean energy projects. Additionally, the initiative focuses on increasing deployment of distributed energy resources for community members of all income levels, with a focus on LMI households and communities.

During the contractor selection process, to ensure sufficient coverage for LMI constituents, NYSERDA provided contract extensions to 10 of the CBO contracts through July 31, 2017, as well as an extension through November 2017 to the CBO contractor in the Mid-Hudson. Of the 11 CBOs serving in the program at the beginning of the reporting period, four were chosen to continue as a result of the two solicitations. Organizations providing GJGNY outreach services as a CBO or a CEEP contractor are listed in Table 5-1.

Table 5-1. Organizations Under Contract to Provide GJGNY Outreach Services

July 1, 2017 – June 30, 2018

Program Name	Target Region	Contractor Name	Contract Amount
CBO Initiative	Statewide Implementation Contractor	Conservation Services Group (former name) CLEAResult (current name)	\$699,853 \$678,554
CBO Initiative	Bronx	Sustainable South Bronx (SSBx)	\$349,765.82
CBO Initiative	Richmond	Neighborhood Housing Services of Staten Island (NHSSI)	\$229,351
CBO Initiative	Kings	El Puente	\$363,555
CBO Initiative	Queens	Neighborhood Housing Services of Jamaica (NHSJ)	\$662,179
CBO Initiative	Capital	Affordable Housing Partnership of the Capital Region (AHP)	\$494,117
CBO Initiative	Finger Lakes	PathStone	\$648,005
CBO Initiative	Nassau & Suffolk	Long Island Progressive Coalition (LIPC)	\$1,389,984.94
CBO Initiative	Mid-Hudson and Westchester	Rural Ulster Preservation Corporation (RUPCO)	\$1,172,346.08
CBO Initiative	North Country	Adirondack North Country Association (ANCA)	\$313,383.21
CBO Initiative	Southern Tier	Public Policy and Education Fund of the Southern Tier (PPEF-ST)	\$361,474
CBO Initiative	Western New York	People United for Sustainable Housing (PUSH)	\$797,891
CEEP	Long Island	United Way of Long Island	\$420,000.00
CEEP	New York City	The Center for New York City Neighborhoods	\$824,970.00
CEEP	Mid-Hudson	Cornell Cooperative Extension Dutchess County	\$597,848.00
CEEP	Capital	Affordable Housing Partnership of the Capital Region Inc.	\$525,000.00
CEEP	North Country	Adirondack North Country Association	\$379,882.00
CEEP	Mohawk Valley	Mohawk Valley Economic Development District	\$390,000.00
CEEP	Southern Tier	Cornell Cooperative Extension Tompkins County (CCETC)	\$390,000.00
CEEP	Central New York	Home Headquarters	\$390,000.00
CEEP	Finger Lakes	PathStone	\$390,000.00
CEEP	Western New York	People United for Sustainable Housing, Inc (PUSH)	\$600,000.00

5.2 Outreach Contractor Accomplishments

Although most of the previously existing CBO initiative outreach contracts ended in July 2017, projects in single-family homes where the work was attributed to the assistance of the local GJGNY CBO continued to be completed and reported through December 2017.

Through the CEEP initiative, 10 regional outreach contracts were executed; contractors hired their outreach staff; and in-person training was held in May 2018. A data system was developed by NYSERDA to track customer engagement activities. The following highlights activities that were undertaken during the reporting period by the new CEEP contractors:

- Regional strategies were developed by the CEAs.
- Networking and collaboration began with partner organizations in their regions, including contractors, local nonprofits, utility service representatives, and local elected representatives.
- Outreach was conducted to more than 1,000 potential customers regarding clean energy opportunities, of which more than 200 expressed interest in applying for programs.
- Cornell Cooperative Extension Tompkins County trained 14 volunteer/peer energy educators (“Energy Navigators”) as a pilot project with the local utility, New York State Electric & Gas. Energy Navigators developed and began implementing their personalized outreach plans.

6 Evaluation

Since the introduction of GJGNY, NYSERDA engaged its third-party evaluation contractors to develop and implement evaluation plans for GJGNY programs. Each evaluation activity is designed to assess the effectiveness, progress, and outcomes related to each of the GJGNY program initiatives. This section describes evaluation activities planned and provides an update on evaluation activities related to GJGNY-funded initiatives from July 1, 2017 through June 30, 2018. Visit nyserda.ny.gov/About/Publications/GJGNY-Advisory-Council-Reports for a comprehensive list of completed GJGNY evaluation activities and links to evaluation reports found in the 2017 Green Jobs - Green New York Annual Report. Additionally, evaluation contractor reports are posted on NYSERDA's website for public use once completed.²²

6.1 Evaluation Activities

The GJGNY audit program was started in 2010 to provide homeowners in the State free or reduced cost energy audits and encourage installation of energy efficiency measures through the HPwES Program. Customers who choose to install measures suggested in the audit can elect to either use a NYSERDA Home Performance contractor through HPwES or install measures on their own. This second type of customer, a GJGNY audit-only recipient who installs measures outside of the HPwES Program, generates savings not captured or recorded as contributing toward the State's energy goals. NYSERDA will conduct an evaluation of GJGNY-funded audit-only projects for studies completed between 2014 and 2016 to estimate these savings. This evaluation is slated to begin in the fourth quarter of 2018 and results are expected in 2019. In addition, a billing analysis of HPwES GJGNY OBR projects is underway. As appropriate, results will be summarized in future reports.

6.2 Evaluation Contracts

External contracts related to the evaluation of the GJGNY Program during the reporting period are detailed in Table 6-1.

Table 6-1. Evaluation Contracts

Identification Number	Contractor	Description
104559 – TWO - 1	West Hill Energy and Computing, Inc.	NYSERDA Home Performance with ENERGY STAR On-Bill Recovery Impact Evaluation

Appendix A – Prequalified Measures for Home Performance with ENERGY STAR®

NY Home Performance with ENERGY STAR® Eligible Measures and Accessories

This is a general guide to eligible incentives and financing options available through NYSERDA’s Home Performance with ENERGY STAR (HPwES) Program. Eligibility may vary based on the energy efficiency requirements for each upgrade type, results of the comprehensive home assessment, fuel type, energy utility, and funding source availability.

Subject to the terms described on pages 2 and 3, the upgrades marked with an “✓” below on the “Prequalified List” are eligible for the 50% Assisted Subsidy for income-eligible households and contractor incentives for market rate and Assisted projects. NYSERDA also offers two financing options through Green Jobs – Green NY (GJGNY): a Smart Energy Loan and an On-Bill Recovery (OBR) Loan. A Smart Energy Loan project for up to \$13,000 that includes only the upgrades on the “Prequalified List” below requires no additional cost-effectiveness screening. If the project includes additional eligible upgrades below that are not on the Prequalified List, the loan is subject to cost-effectiveness standards as described on page 4. Items on this list without a checkmark are eligible for financing, subject to cost-effectiveness standards, but not eligible for the 50% Assisted Subsidy or contractor incentives.

Table 1. Eligible Measures – Prequalified List

	Eligible Measures	Minimum Efficiency Requirements	Prequalified
1, 6, 8 Primary Heating and Cooling System	Furnace ² – Natural Gas or LP	AFUE 95% (as long as not prohibited by local codes). Furnaces with ECM Motor allowed.	✓
	Furnace ² – Fuel Oil	AFUE 85%	✓
	Boiler – Gas Condensing	AFUE 90%	✓
	Boiler – Oil Condensing	AFUE 87%	✓
	Boiler – Non-Condensing ³	AFUE 85% (project must include boiler reset control)	✓
	Boiler – Steam	AFUE 82% (size must be matched to cumulative capacity of connected radiators, per Institute of Boilers & Radiator Mfrs (IBR) standards)	✓
	Boiler Reset Controls	Programmed properly per manufacturer’s specifications and site conditions. Maximum price of \$500.	✓
	Air Source Heat Pump (electric split systems) ²	14.5 SEER / 12 EER / 8.2 HSPF	
	Ground Source Heat Pump ²	ENERGY STAR Qualified (closed-loop, open-loop, or direct expansion). Requires submission of detailed engineering design work prior to approval.	
	Wood Stove ⁴	EPA certified for particulate matter output of 4.5 grams per hour or less	
	Pellet Stove/Pellet Stove Insert ⁵	EPA certified for particulate matter output of 2.0 grams per hour or less	
	Distribution Improvements in Natural Gas or Electrically Heated Homes ⁶	Installed in accordance with all applicable state and local codes	
	Distribution Improvements in Oil or Propane Heated Homes ⁶	Installed in accordance with all applicable state and local codes	✓
	Duct Sealing	UL 181B mastic or tape; use of “duct tape” is disallowed	✓
	Duct Insulation	Installed in accordance with all applicable state and local codes	✓
	Pipe Insulation	R-3	✓
Central Air Conditioner (split system) ^{7,9}	AHRI Certificate Required. 14.5 SEER / 12 EER.	✓	
Programmable Thermostat	5+2 day programmable thermostat including smart thermostat. Limited to one thermostat installed per zone.	✓	
Building Shell	Insulation (attic, wall, floor, band joist, basement, crawl space)	Refer to Insulation Program Policy for homes heated with natural gas or electricity. Must be accompanied by blower door assisted air sealing per BPI and program guidelines.	✓
	Air Sealing	Supervised by professional; blower door assisted per BPI and program guidelines.	✓
	Replacement Windows	ENERGY STAR for climate/region. May be subject to SHPO review.	
	Storm Windows and Doors	No minimum efficiency requirement. May be subject to SHPO review.	
	Movable Window Insulation	R-3	
Exterior Doors	ENERGY STAR for climate/region. May be subject to SHPO review.		

	Eligible Measures	Minimum Efficiency Requirements	Prequalified
Water Heater ⁸		Tank: 40-100 gallons, EF \geq 0.67, FHR \geq 67 gallons per hour, <75,000 BTU. ENERGY STAR Qualified	✓
	Natural Gas	On-Demand: EF \geq 0.82, GPM \geq 2.5 over a 77°F rise, <2 gallons storage, <200,000 BTU. ENERGY STAR Qualified. Must replace a conventional 40 or 50 gallon tank.	✓
	Electric	EF .93	
		Tank: 20-100 gallons, EF \geq 0.67, FHR \geq 67 gallons per hour, <75,000 BTU. ENERGY STAR Qualified	✓
	Propane	On-Demand: EF \geq 0.82, GPM \geq 2.5 over a 77°F rise, <2 gallons storage, <200,000 BTU. ENERGY STAR Qualified	✓
	Oil	Tank: 20-100 gallons, EF \geq 0.67	✓
	Indirect-Fired Tank	UL Approved	✓
	Heat Pump Water Heaters	50 gallon tank, EF \geq .2.2, ENERGY STAR Qualified. Must be installed in an unconditioned space.	✓
	Pipe Insulation	R-3	✓
	Hot Water Tank Insulation - Electric	R-10	
Conservation	Faucet Aerator	No minimum efficiency requirement	✓
	Low Flow Showerhead	Maximum flow rate of 1.5 gallons per minute. Aerating type showerheads not eligible.	✓
Appliances & Lighting ⁹	Refrigerator	CEE Tier 2 or 3	✓
	Freezer	ENERGY STAR Qualified	✓
	Dishwasher	ENERGY STAR Qualified	
	Clothes washer	ENERGY STAR Qualified	
	Dehumidifier	ENERGY STAR Qualified	✓
	Room Air Conditioner	ENERGY STAR Qualified	✓
	CFLs	ENERGY STAR Qualified. Refer to Lighting Guidelines in Contractor Resource Manual (CRM).	✓
	LEDs	ENERGY STAR Qualified. Refer to Lighting Guidelines in CRM.	✓
	Light Fixtures	ENERGY STAR Qualified for compact fluorescent, or electronic ballast for fluorescent tubes	

¹ Defined as the primary heating system for the space being conditioned. Addition/replacement of secondary heating systems is not eligible. The new unit must be the primary heat for the space being served.

² Duct systems for warm air furnaces, heat pumps and central air conditioners should be tested and sealed to reduce leakage. This will help ensure that the total system will operate efficiently.

³ In instances where venting conditions require the installation of a non-condensing boiler, boiler reset controls must be included in the project; tank-less coil DHW is not allowed.

⁴ Wood stoves must supply a primary portion of heat.

⁵ Visit www.nysersda.ny.gov/renewableheatny/pelletstoves for qualifications and available incentives. RHNy qualified pellet stoves and inserts are loan pre-qualified for up to \$13,000. See guidance under RHNy documents on the Contractor Support website regarding proper modeling.

⁶ In instances where an area of a home lacks adequate distribution, installation of new distribution to serve the area is eligible. The area lacking adequate distribution must be located within the pre-existing thermal boundary.

⁷ Not eligible for the Assisted Home Performance subsidy.

⁸ Refer to the Fuel Conversion Policy for eligibility of fuel switches

⁹ Measure is only eligible for incentive when there is a replacement of an existing appliance or existing cooling system. Maximum Assisted Subsidy for each appliance is: \$300 for refrigerators and freezers; \$75 for dehumidifiers; and \$50 for room air conditioners. Only the base price of the appliance plus applicable tax is eligible; delivery, set-up, warranties or appliance accessories, and any associated taxes on these items are not eligible for incentives.

Eligible Health & Safety Measures and Accessories

Non-prequalified measures and Health and Safety Measures and Accessories are not eligible for the 50% Assisted Subsidy or contractor incentives.

Smart Energy Loan:

Up to 15%, not to exceed \$2,000, in non-prequalified measures listed in Table 1 and eligible Health & Safety Measures and Accessories in Table 2 may be included in a Smart Energy Loan without additional cost-effectiveness screening.

On-Bill Recovery:

Up to 15%, not to exceed \$2,000, in eligible Health & Safety Measures and Accessories in Table 2 may be included in an On-Bill Recovery Loan subject to cost-effectiveness requirements.

Table 2. Eligible Health & Safety Measures and Accessories

Health and Safety	Asbestos abatement	Ventilation Fans (Whole house fans or similar attic exhaust fans are not eligible)
	Electrical service upgrade necessary when installing a new heating/cooling unit	Repairs/upgrades to heating and/or DHW systems (including power venting kits) to correct spillage, inadequate draft, carbon monoxide failures
	Upgrade of knob and tube wiring in order to install insulation	Measures to provide sufficient combustion air and prevent Combustion Appliance Zone (CAZ) depressurization, spillage or inadequate draft
	Radon and lead abatement work	Gas leak repair
	Cost of removing an oil tank or replacing a faulty oil tank when done in connection with a heating system replacement	Dryer vent repair
	Repairs to the home due to water damage, molds and mildew, ice dams or other symptoms of poor building performance, as long as the cause(s) of building performance-related damage are addressed	Heat/Energy Recovery Ventilator
Qualified Accessories	Attic soffit, gable, or ridge vents	Furnace humidifier
	Attic storage areas / mechanical access	Chimney liners and caps
	Attic pull-down stairs	Germicidal UV lights or HEPA filters
	Drywall as thermal barrier for spray foam or air sealing	AC coil when not installed with condenser
	Thermal barriers for spray foam	Fuel conversion accessory items
	Air Cleaners	Oil burner replacement
	Additional thermostats	Moisture barriers

All Health and Safety Measures and Accessories costs must be itemized for the purposes of determining incentive eligibility and loan cost effectiveness. These costs are eligible for incorporation into a Smart Energy Loan or On-Bill Recovery Loan, but are not eligible for the Assisted Subsidy or contractor incentives.

The costs associated with the installation of certain measures can be included in the related energy saving measure. Items such as high hat covers, kneewall wrap, weather stripping, and outlet gaskets can be included with air sealing. Baffles, insulation dams, and creating access to the attic can be included with attic insulation.

INCENTIVES

The Assisted HPwES Program offers income-qualified customers a 50% work scope subsidy of up to \$4,000 for a single-family homes and up to \$8,000 for 2 to 4-family homes. The balance of the project cost is eligible for financing through a Smart Energy or On-Bill Recovery Loan.

Incentive Eligibility

The 50% Assisted Subsidy and contractor incentives are available for customers in the following electric utility territories: Central Hudson, Con Edison, National Grid (NYC and Upstate), NYSEG, Orange & Rockland, and Rochester Gas and Electric. Limited Regional Greenhouse Gas Initiative (RGGI) funds are available for eligible measures for customers of municipal electric utilities and for PSEGLI customers.

The 50% Assisted Subsidy may not be combined with any other utility incentive.

FINANCING OPTIONS

Program Financing is available statewide for all eligible measures that meet the cost-effectiveness standards of the loan product.

The maximum loan amount for the Smart Energy and On-Bill Recovery Loans is \$13,000 per applicant; up to \$25,000 if the payback period is 15 years or less. The minimum loan is \$1,500.

The calculation of cost-effectiveness for the Smart Energy and On-Bill Recovery Loans is based on the amount borrowed by the consumer, net of any customer incentives, including the 50% Assisted Subsidy or utility incentives. Financing charges are included in the cost effectiveness calculation. Customers have the option to “buy down” the project cost so that the financed amount meets the cost effectiveness criteria. The loan terms are 5, 10, or 15 years, but the term may not exceed the average useful life of the financed measures.

Smart Energy Loan

The Smart Energy Loan is available with automatic (ACH) payment, and is repaid in installments to NYSERDA’s loan servicer.

Up to 15%, not to exceed \$2,000, in non-prequalified upgrades listed in Table 1 and eligible Health and Safety Measures and Accessories in Table 2 may be included in a Smart Energy Loan without additional cost-effectiveness screening. For those projects where more than 15% of the cost is for items other than those on the Prequalified List, a Savings to Investment Ratio (SIR) greater than .8 is required.

On-Bill Recovery Loan

The On-Bill Recovery Loan is repaid through an installment charge on the customer’s utility bill. Upgrades listed in Table 1 and Table 2 may be included in the loan, however the monthly loan installment payment may not exceed 1/12th of the estimated annual energy cost savings for the improvements over the loan term. Measures and accessories listed in Table 2 are capped at 15% of the total prequalified measure cost, not to exceed \$2,000.

Renewable Technologies

Solar thermal and solar photovoltaic (PV) systems may be included in a Smart Energy Loan or the On-Bill Recovery Loan, through the NYSERDA Solar Thermal Program or NY-Sun Programs, subject to cost-effectiveness requirements.

*Interest rates and loans terms are subject to change. Full details about all Program Financing are available at <http://www.nyserda.ny.gov/residential-financing> and in Section 4 of the Contractor Resource Manual.

Endnotes

- ¹ Visit nyserdera.ny.gov/Researchers-and-Policymakers/Green-Jobs-Green-New-York/GJGNY-LMI-Working-Group for details on the GJGNY LMI Working Group and to view the associated Working Group Recommendations Report.
- ² CEF, one of Reforming the Energy Vision's (REV) three strategic pillars, is designed to deliver on New York State's commitment to reduce ratepayer collections, drive economic development, and accelerate the use of clean energy and energy innovation. It will reshape the State's energy efficiency, clean energy, and energy innovation programs. Visit nyserdera.ny.gov/About/Clean-Energy-Fund for more details regarding CEF planning.
- ³ Residential audits were originally funded with an allocation of GJGNY funds. Effective March 1, 2016, audits in CEF territory have been funded with CEF funds. RGGI funds are used to fund audits in non-CEF territory. Beginning in January 2017, customers in PSEG Long Island electric utility service territory are served through PSEG Long Island's HPwES Program, funded in part by RGGI funds through a Memorandum of Understanding between NYSERDA and LIPA.
- ⁴ SAV-IT identifies the set of cost-effective energy-related improvements to be installed and provides information necessary to guide installation of those measures. SAV-IT includes a detailed description of the proposed work scope with the associated costs, projected energy saving, an outline for how costs will be financed, and a proposed schedule for construction.
- ⁵ These incentives are provided through the CEF or RGGI.
- ⁶ Income eligible households may receive services at no cost through NYSERDA's EmPower New York program, PSEG Long Island's low-income programs or the federally funded Weatherization Assistance Program (WAP) administered by NYS Homes and Community Renewal (HCR).
- ⁷ NYSERDA. 2012. "Process Evaluation and Market Characterization and Assessment: Green Jobs - Green New York Residential Program," nyserdera.ny.gov/-/media/Files/Publications/PPSER/Program-Evaluation/2012_ContractorReports/2012-GJGNY-MCA-Report.pdf
- ⁸ According to the GJGNY Act, a multifamily structure is defined as a multi-unit residential building with five or more dwelling units. A multifamily project may include a single multifamily structure or a group of multifamily structures.
- ⁹ Eligibility to apply and participate is limited to building owners and entities authorized by owners to contract for the provision of qualified energy efficiency services. Singular-dwelling unit residents or owners are not eligible to separately participate.
- ¹⁰ SAV-IT identifies the set of cost-effective energy-related improvements to be installed and provides information necessary to guide installation of those measures. The SAV-IT includes a detailed description of the proposed work scope with the associated costs, projected energy saving, and an outline for how costs will be financed. This plan includes a proposed schedule for construction.
- ¹¹ Assessment (audit) standards are included in the Multifamily Performance Program Guidelines and can be found on NYSERDA's website at nyserdera.ny.gov/-/media/Files/Programs/MPP-Existing-Buildings/MPP-Comprehensive-Option-Program-Guidelines.pdf.
- ¹² Visit nyserdera.ny.gov/-/media/Files/EERP/GJGNY/Small-Business/Energy-Assessment-Standards.pdf to view NYSERDA's Standards for Small Commercial/Not-for-Profit Energy Assessments found in the NYSERDA Small Commercial/Not-for-Profit Energy Efficiency Program Energy Assessment and Request for Financing Package.
- ¹³ Small businesses and not-for-profit corporations must pay a System Benefits Charge through their electric utility to be eligible for these NYSERDA programs.
- ¹⁴ Visit nyserdera.ny.gov/All-Programs/Programs/FlexTech-Program for information about NYSERA's FlexTech Program.
- ¹⁵ Visit nyserdera.ny.gov/All-Programs/Programs/Energy-Study-Aggregation-Program for information about NYSERDA's Energy Study Aggregation Program.
- ¹⁶ A list of pre-qualified measures for HPwES can be found in Appendix A.
- ¹⁷ Incentives for NY-Sun are provided through the Renewable Portfolio Standard, Regional Greenhouse Gas Initiative and the Clean Energy Fund.
- ¹⁸ Visit https://portal.nyserdera.ny.gov/CORE_Solicitation_Detail_Page?SolicitationId=a0rt0000000QnxFAAS for details about Program Opportunity Notice 2112, NY-Sun Residential/Nonresidential Incentive Program.

- ¹⁹ Incentives for the Solar Thermal Incentive Program, when available, have been provided through the Renewable Portfolio Standard and Regional Greenhouse Gas Initiative.
- ²⁰ Incentives for Renewable Heat NY are funded through the Regional Greenhouse Gas Initiative and the Clean Energy Fund.
- ²¹ The Community Outreach Discussion Working Group Recommendation Report can be found at nyseda.ny.gov/About/Publications/GJGNY-Advisory-Council-Reports
- ²² Visit nyseda.ny.gov/About/Publications/Program-Planning-Status-and-Evaluation-Reports/Evaluation-Contractor-Reports to view completed evaluation reports.

NYSERDA, a public benefit corporation, offers objective information and analysis, innovative programs, technical expertise, and support to help New Yorkers increase energy efficiency, save money, use renewable energy, and reduce reliance on fossil fuels. NYSERDA professionals work to protect the environment and create clean-energy jobs. NYSERDA has been developing partnerships to advance innovative energy solutions in New York State since 1975.

To learn more about NYSERDA's programs and funding opportunities, visit nyserda.ny.gov or follow us on Twitter, Facebook, YouTube, or Instagram.

**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



New York State Energy Research and Development Authority

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