NEW YORK STATE OF OPPORTUNITY. | NYSERDA

New York's Regional Greenhouse Gas Initiative-Funded Programs Status Report

Quarter Ending June 30, 2015

Final Report

January 2016

NYSERDA's Promise to New Yorkers:

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

Mission Statement:

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

Vision Statement:

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

NYSERDA Record of Revision

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Quarter Ending June 30, 2015

Final Report

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New York State Energy Research and Development Authority

January 2016

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Acronyms and Abbreviations

AHPwES	Assisted Home Performance with ENERGY STAR®
CBO	constituency-based organization
CGC	Cleaner, Greener Communities
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
EEPS	Energy Efficiency Portfolio Standard
EFC	New York State Environmental Facilities Corporation
EPA	U.S. Environmental Protection Agency
ERP	Energy Reduction Plan
GHG	greenhouse gas
GJGNY	Green Jobs - Green New York
HPwES	Home Performance with ENERGY STAR®
kW	kilowatt
kWh	kilowatt-hour
LIPA	Long Island Power Authority
MMBtu	million British thermal units
MPP	Multifamily Performance Program
MW	megawatt
MWh	megawatt-hour
NYPA	New York Power Authority
NYS or State	New York State
NYSDOL	New York State Department of Labor
NYSERDA	New York State Energy Research and Development Authority
OBR	On-Bill Recovery Financing Program
PON	Program Opportunity Notice
PV	photovoltaic (also known as solar electric)
RFP	request for proposals
RGGI	Regional Greenhouse Gas Initiative
RPS	Renewable Portfolio Standard
SBC	System Benefits Charge
WFD	Workforce Training and Development

1 Introduction

In New York State, the Regional Greenhouse Gas Initiative (RGGI) program has been implemented through two complementary regulations: the New York State (NYS or the State) Department of Environmental Conservation (DEC) established New York's Carbon Dioxide (CO_2) Budget Trading Program (6 NYCRR Part 242, 6 NYCRR Part 200, General Provisions), and the New York State Energy Research and Development Authority (NYSERDA) established the CO_2 Allowance Auction Program (21 NYCRR Part 507). This report is prepared pursuant to the New York's Regional Greenhouse Gas Initiative Investment Plan (2015 Operating Plan) and provides an update on the progress of programs through the quarter ending June 30, 2015. It contains an accounting of program spending; an estimate of program benefits; and a summary description of program activities, implementation, and evaluation. An amendment providing updated program descriptions and funding levels for the 2015 version of the Operating Plan was approved by NYSERDA's Board on June 18, 2015.

New York State invests RGGI proceeds to support comprehensive strategies that best achieve the RGGI CO_2 emission reduction goals. These strategies aim to reduce global climate change and pollution through energy efficiency, renewable energy, and carbon abatement technology. Deploying commercially available renewable energy and energy efficiency technologies helps to reduce greenhouse gas (GHG) emissions from both electricity and other energy sources in the short term. To move the State toward a more sustainable future, RGGI funds are used to empower communities to make decisions that prompt the use of cleaner and more energy efficient technologies that lead to lower carbon emissions as well as economic and societal co-benefits. RGGI helps to build capacity for long-term carbon reduction by training workers and partnering with industry. Using innovative financing, RGGI supports the pursuit of cleaner, more efficient energy systems and encourages investment to stimulate entrepreneurial growth of clean energy companies. All of these activities use funds in ways that accelerate the uptake of low-emitting technologies.

2 Summary of Portfolio and Program Benefits

An overview of the quantifiable benefits that are expected to be achieved with expended and encumbered funds through June 31, 2015 is presented in this section. These benefits include carbon dioxide equivalent (CO_2e) reductions, energy savings, and energy bill savings. For more information on the methodology used to calculate CO_2e reductions and energy bill savings, see Appendix A. Former program names are listed in Appendix B. Detailed benefits results are presented in Appendix C.

The estimated cumulative annualized and expected lifetime benefits as of June 30, 2015, at the portfolio and program levels, are shown in Table 1 and Table 2, respectively.[1] Investment benefits are further compared by fuel type in Figure 1. NYSERDA begins tracking program benefits once projects have been installed, and provides estimated benefits for projects under contract but not yet operational (pipeline benefits). These benefits are estimated based on the expected lifetime benefits from installed and pipeline savings. The metrics presented in this section are estimates and have not been evaluated. When evaluation results are available, they will be presented in future Evaluation and Status Reports, which will include these metrics along with macroeconomic indicators such as job creation resulting from program activity. The reporting of fund transfers may lag behind the installation date such that program benefits are reported prior to the financial reporting of funds spent. At this time, the program benefits include some projects that are also supported by other non-RGGI funding sources administered by NYSERDA.

Figure 1 shows energy savings, emission reductions, and participant energy bill savings realized through RGGI-funded projects by project fuel type as of June 30, 2015.

Key observations during this quarter:

- Energy efficiency comprised 40 percent of energy savings, 26 percent of emission reductions, and 40 percent of bill savings.
- #2 oil comprised 23 percent of energy savings, 40 percent of emission reductions, and 33 percent of bill savings.

[1] Cumulative annual benefits are reflective of the annual impacts from all currently operational projects installed, projects under a signed contract and projects with an application received that are not yet operational since program inception. Expected lifetime benefits are reflective of the total impacts over the entire lifecycle from all currently operational projects installed, projects under a signed contract and projects with an application received that are not yet operational since program inception. Please see Table A-4 in Appendix A for the measure-life assumptions.

- Natural gas comprised 17 percent of energy savings, 21 percent of emission reductions, and 6 percent of bill savings. #2 oil accounts for a much larger share of emission reductions and bill savings than natural gas because natural gas emits less carbon dioxide and costs less per unit of energy produced.
- Renewable generation comprised 19 percent of energy savings, 11 percent of emission reductions, and 20 percent of bill savings. Renewable generation and energy efficiency are responsible for a relatively small share of emission reductions in part because the average emissions factor for in-state electricity generation has diminished over the past decade with the retirement of coal generators and addition of new renewable energy sources.
- Other fuels (including propane, steam, wood, kerosene, coal, and #6 oil) comprised 2 percent of energy savings, 2 percent of emission reductions, and 1 percent of bill savings.

To highlight the diversity and effectiveness of the RGGI portfolio, this report includes success stories of projects that are advancing the previously stated strategies.

Table 1. Summary of Expected Cumulative Portfolio Benefits through June 30, 2015

Benefits through June 30, 2015[a]	Net Greenhouse Gas Emission Savings[b] (Tons CO_2e[c])	Total Net Fuel Savings (MMBtu)[f]	Net Efficiency Electricity Savings (MWh)	Net Renewable Energy Generation (MWh)	Total Net Electricity Savings/Generation (MWh)	Energy Bill Savings to Participating Customers ($ Million)[g]
Cumulative Annualized Installed Savings[d]	216,957	1,726,165	165,092	78,093	243,185	75.1
Cumulative Annualized Pipeline Savings[e]	99,023	829,898	71,346	45,814	117,160	34.2
Cumulative Annualized Committed Savings[f]	315,980	2,556,063	236,438	123,907	360,345	109.3
Expected Lifetime Total Savings[g]	6,099,400	51,080,140	3,974,797	3,069,303	7,044,100	2,273.4

[a] Cross-program overlap for projects that received any combination of a Green Jobs - Green New York (GJGNY) assessment, a GJGNY loan, or a RGGI-funded incentive through the Home Performance with ENERGY STAR® Program has been removed.

[b] These emission reductions are associated with both electric and fossil-fuel saving measures. Under a cap-and-trade system, the total number of emission allowances is determined by regulation. Regulated entities can purchase allowances and collectively emit up to the cap that is currently in place. Therefore, in the near term, electric efficiency projects may not decrease the overall amount of emissions going into the atmosphere. However, electric efficiency projects will reduce end-users' responsibility or footprint associated with emissions from electricity production.

[c] CO_2e stands for carbon dioxide equivalent and describes the amount of CO_2 that would have the same global warming potential as a given mixture of gases based on factors published by the Intergovernmental Panel on Climate Change.

[d] Inclusive of savings from all currently operational projects installed since program inception.

[e] Inclusive of savings from all projects under a signed contract and projects with an application received that are not yet operational.

[f] The sum of Installed Savings and Pipeline Savings.

[g] The expected benefits over the lifetime of all operational projects, projects under a signed contract, and projects with an application received that are not yet operational. See Table A-4 in Appendix A for the measure-life assumptions.

Table 2. Summary of Expected Cumulative Annualized Program Benefits through June 30, 2015

Program	Costs (millions of dollars)		Net Energy Savings (Annualized MMBtu)					Net Electricity Savings or Renewable Energy Generation (Annualized MWh)					Net Greenhouse Gas Emission Savings[a] (Annualized Tons CO_2e[b])				
	Total Incentives[c]	Total Associated Costs[d]	Installed Savings[e]	Pipeline Savings[f]	Total Committed Savings[g]	$/MMBtu Savings[h]	$/MMBtu EXPECTED LIFETIME Savings[i]	Installed Savings[e]	Pipeline Savings[f]	Total Committed Savings[g]	$/MWh Savings[h]	$/MWh EXPECTED LIFETIME Savings[i]	Installed Savings[e]	Pipeline Savings[f]	Total Committed Savings[g]	$/Ton CO2e Savings[h]	$/CO2e EXPECTED LIFETIME Savings[i]
Green Jobs - Green New York																	
One- to Four-Family Residential Buildings Program Assessments[j]	$21.2	$1.0	699,685	287,002	986,687	23	1	8,550	3,518	12,068	1,843	102	53,470	21,937	75,407	295	12
One-to Four-Family Residential Buildings Program Financing[j]	$54.7	$6.6	400,232	64,635	464,866	132	6	17,653	2,852	20,504	2,989	137	30,971	5,002	35,973	1,704	75
Multifamily Performance Program Assessments[j]	$3.4	$1.4	571,496	143,589	715,085	7	0.4	39,457	9,914	49,370	98	8	49,428	12,419	61,846	78	5
Small Commercial Energy Efficiency Program Financing[j]	$0.7	$0.6	3,919	2,000	5,919	212	10	456	387	844	1,491	115	374	249	623	2,018	115
Energy Efficiency																	
LIPA Energy Efficiency and Renewable Energy Initiative	$69.8	-	-	-	-	-	-	133,268	42,333	175,601	397	21	41,646	13,229	54,875	1,272	67
Multifamily Performance Program	$15.5	$1.9	236,832	293,392	530,224	33	2	5,380	6,665	12,045	1,445	111	20,324	25,178	45,503	382	25
Multifamily Carbon Emissions Reduction Program[k]	$6.0	$0.2	-	-	-	-	-	-	-	-	-	-	21,793	2,976	24,770	249	19
EmPower New York	$16.2	$1.0	85,776	105,525	191,301	90	4	-	-	-	-	-	6,477	8,246	14,723	1,170	49
Home Performance with ENERGY STAR®	$14.3	$1.4	232,724	8,420	241,144	65	3	1,304	56	1,360	11,524	640	19,338	680	20,018	783	33
Green Residential Building Program	$2.5	$0.3	36,548	-	36,548	75	3	1,573	-	1,573	1,748	97	2,663	-	2,663	1,032	45
Solar Thermal Incentive Program	$4.5	$0.1	3,920	11,467	15,386	296	15	-	-	-	-	-	288	856	1,144	3,989	199
Low-Rise Residential New Construction Program	$0.7	-	5,176	5,380	10,556	69	3	231	340	571	1,269	71	427	475	901	805	35
Renewable Energy																	
Renewable Heat New York	$6.9	$0.5	576	97,058	97,634	76	4	31	5,871	5,902	1,260	63	42	7,984	8,026	927	46
NY-Sun Initiative	$36.2	-	-	-	-	-	-	40,336	43,688	84,024	431	17	12,605	13,653	26,258	1,379	55
NYSERDA Solar Electric	$5.2	$0.1	-	-	-	-	-	2,064	153	2,217	2,400	96	645	48	693	7,679	307
Community Clean Energy																	
Regional Economic Development & GHG Reduction	$0.8	-	-	5,812	5,812	145	8	-	3,687	3,687	229	13	-	1,542	1,542	547	30
Cross-Program Overlap[l]	N/A	N/A	-550,718	-194,382	-745,100	N/A	N/A	-7,117	-2,304	-9,421	N/A	N/A	-43,535	-15,449	-58,984	N/A	N/A
TOTAL Annualized Cumulative Benefits	**$258.7**	**$15.0**	**1,726,165**	**829,898**	**2,556,063**	**107**	**N/A**	**243,185**	**117,160**	**360,345**	**760**	**N/A**	**216,957**	**99,023**	**315,980**	**866**	**N/A**
TOTAL Expected Lifetime Cumulative Benefits	**$258.7**	**$15.0**	**34,874,555**	**16,205,585**	**51,080,140**	**N/A**	**5**	**4,687,235**	**2,356,864**	**7,044,100**	**N/A**	**39**	**4,165,558**	**1,933,842**	**6,099,400**	**N/A**	**45**

Table notes are on the next page

Table 2 continued

[a] These emission reductions are associated with both electric and fossil-fuel saving measures. Under a cap-and-trade system, the total number of emission allowances is determined by regulation. Regulated entities can purchase allowances and collectively emit up to the cap that is currently in place. Therefore, in the near term, electric efficiency projects may not decrease the overall amount of emissions going into the atmosphere. However, electric efficiency projects will reduce end users' responsibility or footprint associated with emissions from electricity production.

[b] CO_2e stands for carbon dioxide equivalent and describes the amount of CO_2 that would have the same global warming potential as a given mixture of gases based on factors published by the Intergovernmental Panel on Climate Change.

[c] Inclusive of incentive dollars for expenditures, encumbrances, and contract pre-encumbrances.

[d] Inclusive of all non-incentive expenditures.

[e] Inclusive of savings from all currently operational projects installed since program inception.

[f] Inclusive of savings from all projects under a signed contract and projects with an application received that are not yet operational.

[g] The sum of Installed Savings and Pipeline Savings.

[h] The sum of Total Incentives and Total Associated Costs divided by Total Committed Savings.

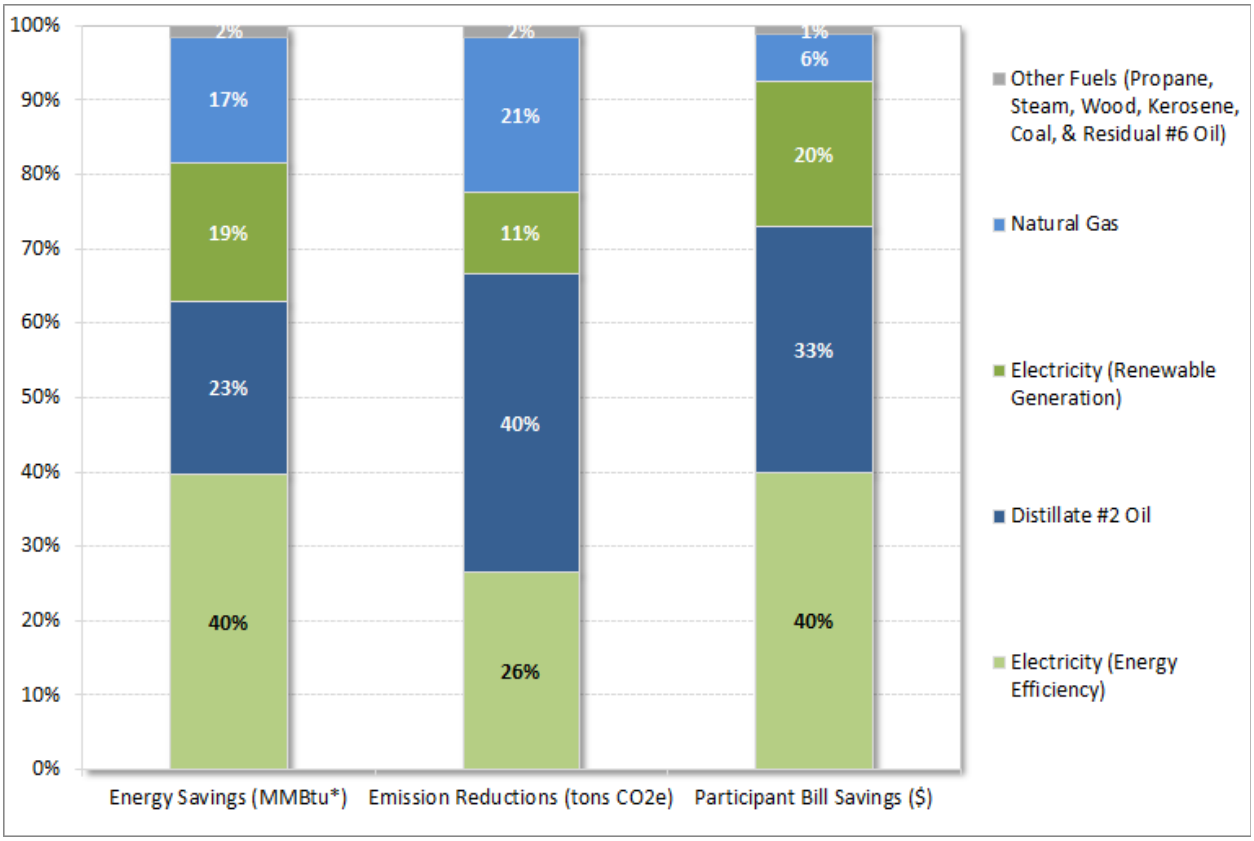
[i] The sum of Total Incentives and Total Associated Costs divided by the Expected Lifetime Total Committed Savings. Inclusive of cross-program overlap.

[j] The benefits for this program include some projects that have also been supported by other non-RGGI NYSERDA funding sources.

[k] The Multifamily Carbon Emissions Reduction Program is a fuel-switching program and does not claim any energy or bill savings.

[l] Cross-program overlap accounts for projects that received any combination of a GJGNY assessment, a GJGNY loan, or a RGGI-funded incentive through the Home Performance with ENERGY STAR® Program.

Figure 1. Percent Contribution by Fuel Type for Energy Savings, Emission Reductions, and Bill Savings through June 30, 2015



* To convert to source MMBtu, the kWh savings and generation for the electric measures were adjusted to account for savings at the source of generation. This approach enables an order of magnitude comparison between electric and fuel energy savings/generation. The source factor used is 9,860 Btu/kWh, which is based on a three-year rolling average (2009, 2010, and 2011) of the amount of fossil fuel energy generated to produce electricity over the three-year period, and includes a line loss factor of 7.2 percent.

3 Funds

3.1 Proceeds

As of June 30, 2015, New York State sold nearly 284.9 million CO_2 allowances and received nearly $792.7 million in auction proceeds. In addition, nearly $7.3 million in interest was earned on the RGGI portfolio and more than $1.8 million in interest was earned on the Green Jobs - Green New York (GJGNY) program. More than $5.9 million in interest earnings were allocated on the RGGI portfolio and nearly $1.8 million in interest earnings were allocated on the GJGNY program. The allocated interest earnings are re-invested for program implementation and are distributed across various RGGI programs. Detailed auction proceeds and total funds for NYS RGGI are presented in Appendix D and Appendix E, respectively. Total NYS RGGI funds are listed in Table 3, and detailed auction proceeds for NYS RGGI are visually displayed in Figure 2.

Table 3. New York State's RGGI Auction Results and Funds through June 30, 2015[a]

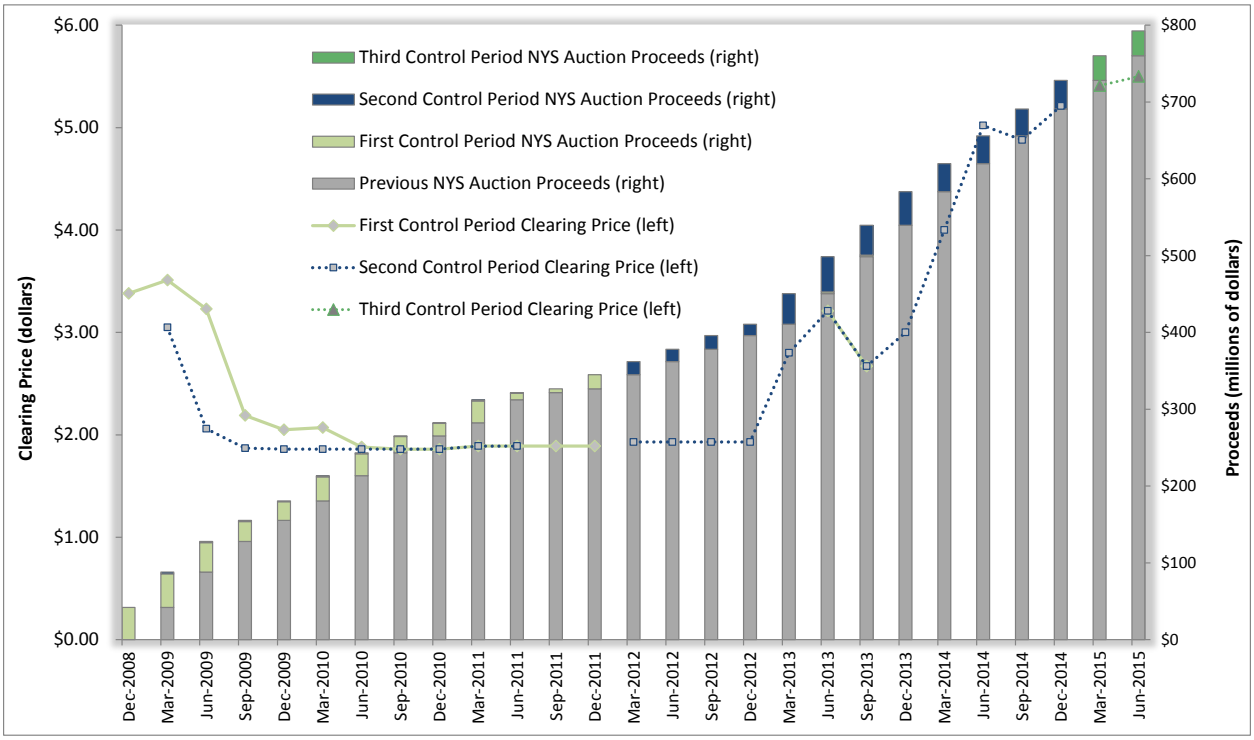
Source: RGGI, Inc. and NYSERDA

Fund Category	NYS Allowances Sold	Cumulative Funds
First Control Period Total	144,305,904	$336,282,535
Second Control Period Total	128,764,643	$391,950,232
Third Control Period Total	11,812,893	$64,439,331
RGGI Auction Proceeds	**284,883,440**	**$792,672,098**
RGGI Portfolio Interest Earnings		$7,296,792
GJGNY Program Interest Earnings		$1,813,325
TOTAL Funds		**$801,782,215**

[a] The first control period for fossil-fuel-fired electric generators took effect on January 1, 2009, and concluded on December 31, 2011. The second control period took effect on January 1, 2012, and concluded on December 31, 2014. The third control period took effect on January 1, 2015 and extends through December 31, 2018.

Figure 2. New York State's RGGI Auction Results through June 30, 2015

Source: RGGI, Inc.



3.2 Budget

Financial data for the approved RGGI programs through June 30, 2015, are presented in Table 4 through Table 6. Table 4 presents the current expended, encumbered, and committed funds for each program and reflects how the nearly $801.8 million of current funds are distributed across the six major program areas and other costs:

- Renewable Energy.
- Energy Efficiency.
- Innovation GHG Abatement Strategies.
- Community Clean Energy.
- Green Jobs – Green New York.
- NY Green Bank.

Table 5 and Table 6 present the financial data for the approved GJGNY program and NY Green Bank, respectively, through June 30, 2015.

Table 4. Available Funding and Financial Status through June 30, 2015 (millions of dollars)

Source: NYSERDA

	Budgeted Funds [a]	Expended Funds[b]	Open Encumbrances[c]	Pre-Encumbrances[d]	Committed Funds[e]	Remaining Balance[f]
Renewable Energy						
Renewable Heat NY	6.1	0.5	0.4	5.1	6.1	-
NY-Sun	63.3	21.1	9.4	10.1	40.6	22.7
NYSERDA Solar Electric Programs	5.3	5.3	0.03	-	5.3	-
NY Generation Attribute Tracking	1.5	-	-	1.5	1.5	-
Advanced Renewable Energy	2.9	2.8	0.02	-	2.8	0.1
Total Renewable Energy	**79.1**	**29.7**	**9.8**	**16.8**	**56.3**	**22.8**
Energy Efficiency						
LIPA Energy Efficiency and Renewable Energy	74.1	57.5	12.3	-	69.8	4.3
Residential Efficiency Services	75.3	46.7	11.1	7.4	65.3	10.0
Municipal Water and Wastewater	1.2	1.2	-	-	1.2	-
Total Energy Efficiency	**150.6**	**105.4**	**23.4**	**7.4**	**136.3**	**14.3**
Innovative GHG Abatement Strategies						
Industrial Innovations	13.8	5.2	7.0	0.9	13.0	0.8
Climate Research and Analysis	10.8	4.7	1.4	1.7	7.8	3.1
Clean Energy Business Development	25.8	8.1	4.2	13.5	25.8	-
Charge NY	4.8	-	-	-	-	4.8
Transportation Research	4.6	1.8	0.06	1.5	3.3	1.3
Carbon Capture and Sequestration	1.0	1.0	-	-	1.0	-
Advanced Buildings	4.6	1.0	0.5	3.1	4.6	-
Competitive Greenhouse Gas Reduction Pilot	14.5	-	-	14.5	14.5	-
Total Innovative GHG Abatement Strategies	**80.0**	**21.7**	**13.2**	**35.2**	**70.1**	**9.9**
Community Clean Energy						
Climate Smart Communities	6.4	3.7	0.7	-	4.4	2.1
Economic Development Growth Extension	7.5	3.9	0.9	0.3	5.1	2.4
Cleaner, Greener Communities	102.4	14.3	25.3	33.2	72.9	29.5
Regional Economic Development and Greenhouse Gas Reductions	10.4	6.7	3.6	-	10.3	0.1
Total Community Clean Energy	**126.8**	**28.6**	**30.5**	**33.5**	**92.7**	**34.1**
Other Costs [g]						
Deficit Reduction Plan (DRP) Transfer [h]	90.0	90.0	-	-	90.0	-
Con Edison Smart Grid Program [i]	19.8	19.8	-	-	19.8	-
Program Administration [j]	21.0	15.8	0.04	-	15.8	5.2
Metrics and Evaluation	11.4	2.5	3.3	-	5.8	5.6
RGGI Inc. Costs [k]	7.9	5.8	0.2	-	6.0	1.9
New York State Cost Recovery Fee	11.7	5.0	-	-	5.0	6.7
Allocation Surplus/(Deficit)	(0.1)	-	-	-	-	(0.1)
Environmental Tax Credit	10.3	-	-	-	-	10.3
Unallocated Interest Earnings	1.4	-	-	-	-	1.4
OTHER COSTS TOTAL	**173.3**	**138.8**	**3.6**	**-**	**142.4**	**30.9**
SUBTOTAL	**609.8**	**324.3**	**80.6**	**93.0**	**497.8**	**112.0**
Green Jobs - Green New York						
Green Jobs - Green New York	139.0	106.7	10.5	11.9	129.2	9.9
NY Green Bank						
NY Green Bank	52.9	1.4	-	-	1.4	51.6
TOTAL[l]	**801.8**	**432.4**	**91.1**	**104.9**	**628.3**	**173.4**

Table notes are on the next page

Table 4 continued

[a] Includes auction proceeds and allocated interest on the RGGI and GJGNY portfolios. The allocation is consistent with the three-year budget presented in the Operating Plan.

[b] Invoices processed for payment by NYSERDA.

[c] Remaining funding obligated under a contract, purchase order, or incentive award.

[d] Planned funding for contracts awarded and under negotiation; and planned funding under active development through open solicitations with upcoming proposal due dates, adjusted so that the sum of the project commitments does not exceed Budgeted Funds. NYSERDA's annual audited financial statements may reflect project commitments in excess of Budgeted Funds. These commitments are expected to decrease over time due to project attrition and differences in estimated versus actual costs.

[e] The sum of Expended, Encumbered, and Pre-Encumbered funds.

[f] The difference between Budgeted Funds and Committed Funds.

[g] The values for Program Administration, Metrics and Evaluation, and the New York State Cost Recovery Fee represent aggregate funds and commitments for RGGI-funded activities, NOT including GJGNY. For information on GJGNY finances, refer to Table 5.

[h] On December 4, 2009, New York State enacted numerous deficit reduction measures that included the transfer of $90 million in RGGI auction proceeds to the General Fund following the global financial crisis.

[i] On December 22, 2009, NYSERDA's Board approved a proposed consent decree that resolves the legal challenge to the State's RGGI program. In October 2010, State Supreme Court Judge Thomas J. McNamara signed a Stipulation and Order of Discontinuance signed by all the parties, thereby formally ending the litigation. The parties to the consent decree presently estimate that the total commensurate benefit for the calendar years 2009-2017 is $20.8 million and agreed to dedicate such funds for the development of smart grid technologies in the Con Edison territory. The budget reflects allocations that are intended to fund NYSERDA's estimated liability for each calendar year control period consistent with the timing of estimated cash payments due to Con Edison. NYSERDA is also responsible for certain additional costs that may be incurred through 2017. NYSERDA's annual audited financial statements show an amount expended of $18.0 million to reflect these additional estimated costs that were required to be recorded.

[j] Includes NYSERDA's upfront administrative expenses related to the development and implementation of the CO_2 Budget Trading Program, the CO_2 Allowance Auction program, and the Operating Plan.

[k] The first-year budget includes RGGI Inc. start-up costs and New York State's share of ongoing RGGI Inc. expenses. RGGI Inc. is a nonprofit corporation created to support development and implementation of the CO_2 Budget Trading Program.

[l] Totals may not sum exactly due to rounding.

Table 5. Green Jobs - Green New York Available Funding and Financial Status through June 30, 2015 (millions of dollars)

	Budgeted Funds [a]	Expended Funds[b]	Open Encumbrances[c]	Pre-Encumbrances[d]	Committed Funds[e]	Remaining Balance[f]
Workforce Development, Outreach and Marketing						
Workforce Development	7.3	5.9	1.1	-	6.9	0.4
Outreach and Marketing	14.9	11.7	1.8	0.1	13.6	1.3
Total Workforce Development, Outreach and Marketing	**22.3**	**17.6**	**2.9**	**0.1**	**20.6**	**1.7**
Residential						
Energy Assessment Incentive	23.0	19.2	-	2.0	21.2	1.7
Implementation Costs	1.0	1.0	-	-	1.0	0.05
Financing: Loans	53.1	101.8	-	9.1	110.9	
Financing: Loan Repayments	-	(10.2)	-	-	(10.2)	
Financing: Implementation Costs	-	5.5	0.2	-	5.6	
Financing: Bond Proceeds	-	(24.3)	-	-	(24.3)	
Financing: Bond Issue Costs	-	1.1	-	-	1.1	
Financing: Short Term Note	-	(30.0)	-	-	(30.0)	
Total Financing	**53.1**	**43.9**	**0.2**	**9.1**	**53.1**	**-**
Total Residential	**77.1**	**64.1**	**0.2**	**11.1**	**75.3**	**1.8**
Multifamily						
Energy Assessments	3.8	2.5	1.0	0.003	3.4	0.4
Implementation Costs	1.6	1.4	-	-	1.4	0.2
Financing: Loans	5.1	3.7	-	0.70	4.4	
Financing: Loan Repayments	-	(0.9)	-	-	(0.9)	
Financing: Implementation Costs	0.3	0.1	0.2	-	0.3	
Total Financing	**5.4**	**2.9**	**0.2**	**0.70**	**3.7**	**1.7**
Total Multifamily	**10.8**	**6.8**	**1.1**	**0.70**	**8.6**	**2.3**
Small Commercial						
Energy Assessments	8.6	4.7	4.0	-	8.6	0.0
Implementation Costs	1.0	0.6	0.4	-	1.0	0.0
Financing: Loans	1.5	0.8	-	-	0.8	
Financing: Loan Repayments	-	(0.1)	-	-	(0.1)	
Financing: Implementation Costs	0.3	0.2	0.3	-	0.5	
Total Financing	**1.8**	**0.9**	**0.3**	**-**	**1.1**	**0.6**
Total Small Commercial	**11.4**	**6.1**	**4.7**	**-**	**10.8**	**0.6**
SUBTOTAL	**121.6**	**94.6**	**8.8**	**11.9**	**115.3**	**6.3**
Other Costs						
Program Administration	9.9	8.0	-	-	8.0	1.9
Program Evaluation	5.6	2.6	1.7	-	4.3	1.3
New York State Cost Recovery Fee	1.9	1.6	-	-	1.6	0.3
Unallocated Interest Earnings	0.03	-	-	-	-	0.03
OTHER COSTS TOTAL	**17.4**	**12.2**	**1.7**	**-**	**13.9**	**3.5**
TOTAL[g]	**139.0**	**106.7**	**10.5**	**11.9**	**129.2**	**9.9**

[a] Includes auction proceeds and allocated interest on the Green Jobs - Green New York (GJGNY) funds. The allocation is consistent with the three-year budget presented in the 2013 RGGI Operating Plan.

[b] Invoices processed for payment by NYSERDA.

[c] Remaining funding obligated under a contract, purchase order, or incentive award.

[d] Planned funding for contracts awarded and under negotiation; and planned funding under active development through open solicitations with upcoming proposal due dates, adjusted so that the sum of the project commitments does not exceed Budgeted Funds. NYSERDA's annual audited financial statements may reflect project commitments in excess of Budgeted Funds. These commitments are expected to decrease over time due to project attrition and differences in estimated versus actual costs.

[e] The sum of Expended, Encumbered, and Pre-Encumbered funds.

[f] The difference between Budgeted Funds and Committed Funds.

[g] Totals may not sum exactly due to rounding.

Table 6. NY Green Bank Available Funding and Financial Status through June 30, 2015 (millions of dollars)

	Budgeted Funds [a]	Expended Funds[b]	Open Encumbrances[c]	Pre-Encumbrances[d]	Committed Funds[e]	Remaining Balance[f]
Program Costs						
NY Green Bank	48.6	-	-	-	-	48.6
SUBTOTAL	**48.6**	**-**	**-**	**-**	**-**	**48.6**
Other Costs						
Program Administration	4.2	1.3	-	-	1.3	2.9
Program Evaluation	-	-	-	-	-	-
New York State Cost Recovery Fee	0.1	0.03	-	-	0.03	0.1
OTHER COSTS TOTAL	**4.4**	**1.4**	**-**	**-**	**1.4**	**3.0**
TOTAL[g]	**52.9**	**1.4**	**-**	**-**	**1.4**	**51.6**

[a] Includes auction proceeds on NY Green Bank funds. The allocation is consistent with the three-year budget presented in the RGGI Operating Plan. NY Green Bank funding being reported here is only NY Green Bank funds that were transferred from RGGI. The actual NY Green Bank budget is higher.

[b] Invoices processed for payment by NYSERDA.

[c] Remaining funding obligated under a contract, purchase order, or incentive award.

[d] Planned funding for contracts awarded and under negotiation; and planned funding under active development through open solicitations with upcoming proposal due dates, adjusted so that the sum of the project commitments does not exceed Budgeted Funds. NYSERDA's annual audited financial statements may reflect project commitments in excess of Budgeted Funds. These commitments are expected to decrease over time due to project attrition and differences in estimated versus actual costs.

[e] The sum of Expended, Encumbered, and Pre-Encumbered funds.

[f] The difference between Budgeted Funds and Committed Funds.

[g] Totals may not sum exactly due to rounding.

4 Program Descriptions and Accomplishments

4.1 Renewable Energy

4.1.1 Renewable Heat NY

The Renewable Heat NY initiative is a long-term commitment to help the high efficiency, low-emission biomass heating industry reach scale. The long-term market development strategy for Renewable Heat NY includes the following objectives:

- Raise consumer awareness.
- Develop large-scale anchor customers to expand the wood pellet bulk delivery market.
- Promote supply chain development including workforce training and support for product development, manufacturing, laboratory and field testing, and equipment certification.
- Leverage NYSERDA's issuance of a report accelerate the use of biomass for heating using the most efficient low-emission technologies.
- Provide financial incentives to consumers for advanced efficiency and low-emission technologies to reduce upfront costs in the early years, which will phase down as the market achieves scale and upfront costs decrease.
- Provide support so that sustainable forestry practices are available and followed by small and large landowners.

In many respects, developing this market will inherently require capturing the benefits of scale, and particularly of local sale. Installation and pellet supply economics will demonstrate an economic service radius effect; workforce development and customer awareness will show gains from local density. Consequently, this initiative seeks to develop and expand clusters of activity, thereby meeting the overarching goal of helping the high-efficiency and low-emission biomass heating industry reach scale.

Renewable Heat NY is providing supply chain and service network development (i.e., workforce development, training, and research and development), along with consumer incentives and financing. These activities are not geared toward resource acquisition, but rather will position the market to takeoff and be sustainable over the long term. As the private market develops, investments of incentives and staff resources will be reduced.

Key accomplishments as of this quarter:

- Marketing efforts to inform customers include website updates, new branding for program materials, print advertisements in 50 local and regional publications reaching over 873,000 readers, direct email to over 21,000 people, and staffing at four public events with program information and marketing material.
- One in-person training session was held for qualifying installers and the course is now available online.
- Enrollment of qualified installers is ongoing.
- Five pellet stoves have been installed; 80 projects are in-process. One residential cordwood unit has been installed; one residential cordwood and two pellet boiler installations are near completion.
- Feasibility studies and reviews by technical consultants are ongoing in the development of large commercial projects expected to begin contracting in the next quarter.

Success Story 1: New York State helps Frost Valley YMCA significantly reduce greenhouse gas emissions with use of cleaner, more efficient wood-pellet boiler system

RGGI proceeds are helping Frost Valley YMCA in Sullivan County reduce its impact on the environment with the installation of a high-efficiency, clean-burning, wood-pellet boiler system that will eliminate approximately 350 tons of fossil fuel emissions. The system will heat the dining hall, which includes a full commercial kitchen. The project was partially supported by NYSERDA's Cleaner, Greener Communities Program, which encourages local communities across the State to become more sustainable and energy efficient. The wood pellet boilers and pellets at Frost Valley YMCA are all manufactured in New York State. The State is also using RGGI proceeds for the Renewable Heat NY initiative, which was specifically developed to reduce greenhouse gases while building a sustainable, high-efficiency, low-emissions wood heating sector in New York, and move the State closer to having a sustainable, self-sufficient solar industry that will continue to reduce the introduction of new greenhouse gas emissions.

4.1.2 NY-Sun

The NY-Sun initiative will drive growth of the solar industry and make solar technology more affordable for all New Yorkers. The initiative provides declining incentives for the installation of systems and works to reduce solar electric balance-of-system costs through technology advancements, streamlined processes, and customer aggregation models. The goal is to achieve a sustainable solar industry that does not depend on incentives.

Community Solar NY, a component of the NY-Sun initiative, seeks to empower community projects across New York State through aggregation, group purchasing, and other existing and emerging strategies to make solar more accessible and affordable. The program will support projects organized by school districts, municipalities, nonprofit organizations, and other community institutions. In coordination with the New York Power Authority (NYPA)and the New York State Education Department, K-Solar will offer targeted resources to help schools implement solar and act as hubs for community projects.

In August 2014, NY-Sun became a statewide program. RGGI funding enabled customers of LIPA, NYPA, and municipal power companies. NY-Sun supports end-use solar installations for commercial, industrial, and residential customers as well as electric utility applications to improve the performance of distribution circuits and reduce peak electric load in critical load pockets. These projects assist New York State communities that empower clean energy, healthy communities and empower economic development.

Key accomplishments as of this quarter:

- Community Solar NY Round 1: 2015 Solarize Campaigns completed their public outreach, with all activities to be completed in Q4 2015. The 26 campaigns reached over 4,000 interested solar customers. Results from the campaigns will be reported on in Q1 of 2016.
- The Community Solar NY Round 2: 2016 Solarize Campaign application was released with a November 16, 2015 due date. Campaign qualification will take place in Q4 of 2015, and be reported in Q1 of 2016.
- Continued coordination with NYPA, the New York State Education Department, and other K-Solar partners to encourage participation of schools in K-Solar and local community solar outreach projects.

- Launch of Affordable Solar added incentives for residential installations with low-income homeowners. The added incentive matches the current MW block incentive, and was launched at $0.20/watt for Long Island. The added incentive will continue after exhaustion of the Long Island MW block, until the added incentive funds are exhausted.
- A total of 5,081 solar electric systems have been installed through June 30, 2015 on Long Island through PON 2112 and the Solar Pioneer Programs.

Success Story 2: RGGI funds used to help capitalize Community Solar NY and make solar easier and more affordable through community-driven Solarize campaigns

RGGI funds are being used to help capitalize Community Solar NY in which communities across the State come together to bring clean, affordable solar power to their localities at a discounted cost. Solar-generated electricity helps reduce the use of fuels that produce greenhouse gases. A total of 26 Solarize campaigns are being launched in the first wave of the program. They bring together widespread community outreach and education, competitive installer selection and a limited-time offer to bring more customers to solar and provide significant cost savings. The program is a key component of the $1 billion NY-Sun initiative to advance the scale-up of solar and move the State closer to having a sustainable, self-sufficient solar industry that will continue to reduce the introduction of new greenhouse gas emissions.

4.1.3 NYSERDA's Solar Electric Program

NYSERDA's Solar Electric Program focuses on reducing GHG emissions in the long term by helping to establish a sustainable market for solar energy throughout New York State that includes targeted financial incentives. These RGGI funds supplement and do not supplant Renewable Portfolio Standard (RPS) funds, supporting installation of residential and small commercial systems in regions that do not pay into the RPS.

Key accomplishments as of this quarter:

- A total of 131 solar electric systems have been installed outside of Long Island using RGGI funds through June 30, 2015.

4.1.4 New York Generation Attribute Tracking (NYGATS)

NYSERDA is establishing NYGATS to record electricity generation attribute information within New York State, and processes generation attribute information from energy imported and consumed within the State, as a basis for creating tradable generation attribute certificates. Through the development of NYGATS, entities will be able to verify and substantiate ownership of renewable energy certificates (RECs) to either support regulatory compliance or to validate environmental attributes in trading markets. It will also characterize the attributes of electricity imports and exports, and have the capability to interface and exchange information with other certificate tracking systems. The system may also serve as an important building block for a potential future imports policy under RGGI. As previously ordered by the Public Service Commission, this project will also be supported by System Benefits Charge (SBC) environmental disclosure program funding.

Key accomplishments as of this quarter:

- As a result of RFP 3014, in June 2015, NYSERDA awarded a contract to APX, Inc. to design and maintain the New York Generation Attribute Tracking System for a period of five years.
- NYSERDA, with the New York DPS and the NYISO, and in consultation with APX, Inc., began drafting NYGATS Operating Rules.

4.1.5 Advanced Renewable Energy Program

The Advanced Renewable Energy Program supports projects that foster the market introduction of a broad range of promising new and advanced renewable energy technologies, including advanced biomass, tidal, and offshore wind technologies.

Key accomplishments as of this quarter:

- The Research Foundation for the State University of New York in Binghamton has developed a novel, silicon-based thin film thermoelectric material that shows promise for enabling waste heat-based energy scavenging with thermoelectric figures of merit greater than two. A final report was completed in November 2014. Several patent applications are being prepared and additional funding is being sought to continue progress in overcoming a problem with doping activation that has limited performance.
- Monolith Solar (Rensselaer, NY) began a project based on demonstrating mounting mechanisms on different roof types.
- Membership agreements with Atlas Material Testing Technology (Illinois) and Intertek (New York and California) are underway and expected to be finalized in 2015. Both companies will support the Indoor Accelerated Lifetime Testing (IALT) project.

4.2 Energy Efficiency

4.2.1 LIPA Energy Efficiency and Renewable Energy

These funds enhance the ability of LIPA to provide energy efficiency and renewable energy services to LIPA customers in accordance with the approved LIPA budget. As the LIPA Solar Pioneer and Solar Entrepreneur PV incentive programs transitioned to a statewide solar electric program in 2014 through NY-Sun, these RGGI funds will be used primarily for energy efficiency programs administered by PSEG Long Island, the system operator for the LIPA, that are consistent with PSEG-Long Island's clean energy programs and Reforming the Energy Vision (REV) plan. Funding and reporting requirements are established through a Memorandum of Understanding between NYSERDA and LIPA.

Key accomplishments as of this quarter:

- A total of 3,079 solar electric systems and commercial efficiency projects have been installed using RGGI funding through the LIPA Energy Efficiency and Renewable Energy Initiative programs from inception through June 30, 2015. The savings for these 2015 projects totaled more them 50 million net kWh.

4.2.2 Residential Efficiency Services

NYSERDA currently offers a suite of programs that provide comprehensive energy efficiency services for single and multifamily existing buildings and new construction, including low-income households. In addition to energy savings, these programs provide significant health and safety benefits through comprehensive testing and verification, improved air quality, and improved comfort. RGGI funds are used in combination with Energy Efficiency Portfolio Standard (EEPS) funds, which offer incentives to implement electric and gas efficiency measures, to supplement these resources to reach petroleum fuel opportunities. Coordination of these funding sources allows for efficiency contractors to provide comprehensive energy efficiency services to the home, expands the number of households served, and ensures that opportunities for carbon reduction measures are not lost.

4.2.2.1 Multifamily Performance Program

The Multifamily Performance Program (MPP) serves residential buildings with five or more units. Funds are targeted at efficiency measures that help to reduce on-site oil, non-firm natural gas, steam, and propane energy demand in multi-unit residential buildings. All buildings receive program support for energy assessments to determine cost effective measures, expected energy savings, and installation costs. Projects also receive implementation incentives to support the installation of measures identified by program supported assessments.

Key accomplishments as of this quarter:

- 77 energy efficiency projects have been completed through June 30, 2015.

4.2.2.2 Multifamily Carbon Emission Reduction Program

The Multifamily Carbon Emissions Reduction Program (MCERP) is currently providing financial assistance and technical support to owners of multifamily buildings converting their heating systems from #6 fuel oil to cleaner fuel alternatives. Less carbon-intensive fuels include ultralow sulfur #2 fuel oil, biodiesel and biodiesel blends, natural gas, and renewable energy (geothermal and solar thermal). Converting #6 fuel oil-heated buildings to cleaner fuels will reduce carbon emissions, improve air quality, and produce positive public health benefits. MCERP was positioned to encourage early adoption of New York City's phase-out of #6 oil and, as such, has contributed to an overall improvement in New York City's air quality. City-wide conversions have resulted in 69 percent and 23 percent reductions in airborne sulfur dioxide and soot concentrations, respectively. These benefits are concentrated in low-income areas of New York City, where poor air quality leads to higher rates of asthma and other respiratory illnesses, especially in children and the elderly.

Key accomplishments as of this quarter:

- In total, 140 multifamily buildings have converted through MCERP from burning #6 oil to cleaner alternatives, primarily natural gas or a blend of natural gas and ultralow sulfur #2 oil.

4.2.2.3 EmPower New York

NYSERDA's EmPower New York (EmPower) program offers no-cost energy efficiency services to low-income (i.e., HEAP-eligible) homeowners and renters. These services include electric reduction and home performance measures such as appliance replacement, energy-efficient lighting, insulation, and air-sealing. EmPower uses RGGI funding to serve low-income applicants that heat with oil and propane and are ineligible for EEPS funding. These energy efficiency measures aid in the reduction of GHG emissions and provide long-term carbon reductions. On-site energy education offers customers additional strategies for managing their energy costs. Services are provided by participating contractors that are accredited through the Building Performance Institute. Currently, 177 EmPower contractors are assisting in RGGI-funded projects.

Key accomplishments as of this quarter:

- 703 households across New York State were served during this quarter, bringing the total to 3,204 households served under EmPower New York to date with RGGI funding.

4.2.2.4 Home Performance with ENERGY STAR® (HPwES)

Home Performance with ENERGY STAR (HPwES) is a comprehensive energy efficiency services program for existing one- to four-family homes and low-rise[2] residential buildings. The program uses a network of Building Performance Institute (BPI) GoldStar contractors to perform diagnostic testing on the home, recommend improvements, determine the payback period for those improvements, and install improvements selected by the homeowner. Currently, 207 contractors are participating in HPwES. The program uses RGGI funds for cost-effective oil and propane efficiency measures, such as replacing inefficient oil and propane heating equipment and other measures that have a direct impact on reducing GHG emissions from oil and propane consumption. Income-qualified homeowners are eligible for higher incentive rates to make energy improvements. HPwES applicants may also qualify for GJGNY assessment and financing programs.

[2] HPwES low-rise buildings encompass buildings with three stories or less, with eight units or less, and are constructed using building techniques common to one- to four-family homes. They must be served by residential-scale heating equipment with a maximum rating of 300,000 Btu. Taller residential buildings that fit these criteria are also eligible. Examples include brownstones, row housing, and other urban-style buildings.

Key accomplishments as of this quarter:

- 436 energy efficiency projects were completed during this quarter at a contracted value of $4.5 million, bringing the total to 6,472 energy efficiency projects completed at a contracted value of $64.7 million. 32 percent of these projects were Assisted Home Performance with ENERGY STAR, which serves homeowners with incomes between 60-80% of State or area median income, whichever is greater.
- 27 percent of all HPwES projects in Q2 2015 were RGGI-funded.

4.2.2.5 Solar Thermal (Hot Water) Program

NYSERDA's Solar Thermal (Hot Water) Program incentivizes the installation of solar thermal technologies for the production of hot water that displaces electrically heated hot water systems. Nearly 100 contractors participate in this program. Accounting for funding from the RPS program to displace electrically heated domestic hot water, RGGI support for the Solar Thermal (Hot Water) Program is used to displace heating fuels other than electricity. GJGNY financing is also available for these projects.

Key accomplishments as of this quarter:

- Five new RGGI-funded solar thermal hot water systems were installed during this quarter, bringing the total to 124 system installations.
- 61,566 kWh saved in "Calculated Solar Hot Water Annual Savings" or 210.1 MMBtu.

4.2.2.6 Low-rise Residential New Construction Program

NYSERDA's Low-rise Residential New Construction Program[3] (LRNCP) includes the New York ENERGY STAR® Certified Homes Program and the New York Energy $mart designation for certain low-rise, multi-unit buildings and gut rehabilitation projects. Funded primarily through the Energy Efficiency Portfolio Standard, this program is designed and intended to encourage the construction of new single-family homes and low-rise residential dwelling units that operate more energy efficiently and reduce long-term GHG emissions, are more durable, and provide a healthier environment for their

[3] Low-rise residential new construction is defined as the ground-up new construction of dwelling unit(s) contained within residential buildings of not more than three (3) stories in height. Additionally, residential buildings which are more than three (3) stories in height and determined to be eligible to participate in the EPA's ENERGY STAR® Certified Homes program will be considered for eligibility on a case-by-case basis. Dwelling units which will be "gut-rehabbed" or fully rehabilitated will also be considered by NYSERDA for eligibility on a case-by-case basis.

occupants than would otherwise be achieved. Starting in July 2013, RGGI funds have been used to pay the MMBtu-savings component of the LRNCP incentive for projects using propane or oil as the primary heating fuel. Although more than 167 builders registered to participate in this program statewide, 13 builders have so far constructed homes eligible for RGGI incentives.

Key accomplishments as of this quarter:

- 5 new dwelling units were constructed, bringing the cumulative total of new dwelling units constructed to date to 121.
- $25,792 in private sector funds was leveraged, bringing the program total to date to $550,266.

4.3 Innovative GHG Abatement Strategies

4.3.1 Industrial Innovations Program

The Industrial Innovations program is a longer-term program that supports development and demonstration of technologies with substantial GHG reduction potential and technologies that are relevant to New York State manufacturing industries and building systems. Funded projects will focus mainly on innovations that reduce the use of fossil fuels, have high replication potential for New York State's manufacturing base, and are likely to be cost-effective. Projects will focus on technical innovations, including thermal-efficiency improvements for fossil-fuel based processes and alternative processes that eliminate the use of fossil fuels directly and indirectly for technologies that bring about thermal destruction of byproducts. Projects also may include changes in material input and development of advanced controls, provided that they directly bring about GHG reductions.

In 2014, two manufacturing innovations solicitations were issued, namely, PON 2858 (Ultraviolet Light and Electron Beam Process Innovation and Market Transformation [UV/EB]) and PON 2927 (Transformative Technologies for Energy-Efficient Manufacturing [TTEEM]). These solicitations sought to advance the materials, methods, and machine tools used to mass-produce cleantech products, and thus reduce the GHG footprint of factories producing cleantech products, as well as reduce the cost of goods sold as cleantech products so that their adoption will further result in a decrease of GHG emissions.

In late 2013, NYSERDA issued a solicitation for Innovations in Data Center, Information and Communications Technology Energy Efficiency (PON 2846) Industrial Innovations under the Advanced Buildings program. This solicitation sought proposals in three rounds for research, product development, and demonstration projects of energy efficiency innovations for data center and enterprise information

and communications technology (ICT). The objective of this solicitation was to overcome barriers and speed the technical/market readiness of promising early-stage technologies and techniques that can improve energy efficiency in data centers and ICT used by NYS businesses. The third proposal round was canceled in Q2 2015.

Key accomplishments as of this quarter:

- Proposals from PON 2846 Round 2 were evaluated in Q1 2015 and none were deemed meritorious.

4.3.2 Climate Research and Analysis

The Climate Research and Analysis Program supports research studies, demonstrations, policy research and analyses, and outreach and education efforts. Through these activities, the program addresses critical climate change related problems facing the State and the region, including the needs of environmental justice communities.

Key accomplishments as of this quarter:

- Contracting has progressed on the seven new projects initiated in response to a solicitation focused on Climate Change Adaptation Research and Strategies. A kickoff meeting was held for the project assessing the impacts of climate change on the NYS buildings sector. Other new projects proceeding to contract include impact of weather-related power outages on public health, shoreline resilience planning, and assessments of transportation infrastructure vulnerabilities.
- The beta version of the Climate Change Science Clearinghouse website is nearly complete, and the full site is scheduled to be ready for release in 2016. The team decided on a plan for beta testing with stakeholders, which will be initiated in early November. NESCAUM and the team have demonstrated the website to New England states; there is ongoing discussion to accommodate their participation as part of the effort to create a self-sustained website. Discussions with foundations and other interested supporters are ongoing, also in an effort to financially sustain the website.

- NYSERDA staff continued to participate in an interagency working group to coordinate efforts on the Community Risk and Resiliency Act (CRRA). NYSERDA will continue to engage with this group and offer suggestions and support when appropriate. It is expected that the recently updated and NYSERDA-supported climate projections for New York State will serve as the scientific foundation for the CRRA.
- NYSERDA staff attended meetings of the Interagency Climate Change Adaptation Workgroup. This group shares climate adaptation information and helps coordinate efforts between agencies.

4.3.3 Clean Energy Business Development

The Clean Energy Business Development program seeks to support emerging business opportunities in clean energy and environmental technologies while maintaining the goal of carbon mitigation. Key elements of the program include providing financial support to lever private investment in early-stage and expansion-stage clean-energy companies in New York State and accelerate the market introduction of innovative energy efficiency, renewable energy, or carbon abatement technologies; advancing the transition of clean-energy technologies or technologies that improve the energy efficiency of industrial processes from the development/demonstration stage to the launch of commercial-scale manufacturing or application; and developing and supporting a portfolio of programs designed to translate clean energy technology research into commercially viable business enterprises.

The Photovoltaic Manufacturing Consortium (PVMC) is a $5 million effort with more than 40 industrial collaborators as members or affiliates. Its goal is to accelerate the development, commercialization, manufacturing, field testing and deployment of next-generation solar electric and lightweight photovoltaic systems.

Key accomplishments as of this quarter:

- PVMC established the Prototype Demonstration Facility (PDF), located at SUNY Polytechnic Institute's Colleges of Nanoscale Science and Engineering's Solar Energy Development Center (CNSE SEDC) in Halfmoon, New York, that provides a platform for upstream and downstream PV industry to demonstrate the latest trends in PV installation technologies. The PDF has been significant in bringing together diverse stakeholders within the consortium, consisting of multinational corporations that contribute toward technology advancement in a collaborative fashion. In particular, PV manufacturers, roofing material providers, wire management providers, PV installers, and end users have collaborated to develop this new approach to lower the cost of installed PV systems.
- Akrion Solar, a wholly owned subsidiary of Akrion Systems, joined the PVMC and will provide advanced texturing and etching processes developed for solar cells from crystalline silicon wafers for the consortium.

4.3.4 ChargeNY

With RGGI funding for ChargeNY, NYSERDA will pursue two main strategies to promote plug-in electric vehicle (PEV) adoption. First, NYSERDA will implement an outreach and education campaign to build interest in PEVs among key audiences, such as employers, car dealers, and the general public. Forging connections between these groups and aligning their incentives is a critical element of greater PEV adoption that has been lacking in New York State and one that is essential to spur more private investment in PEV purchases and PEV charging stations. Second, NYSERDA will support the installation of PEV charging stations throughout the State by establishing a purchasing collaborative to help bring down the costs of charging stations through bulk purchasing. RGGI funds will be used for additional incentives for charging stations at targeted location types, such as workplaces, municipal lots, and multifamily buildings, that have been seen to be effective drivers for PEV adoption based on usage data reported from previous installations. RGGI funds may also be used to initiate the deployment of a network of DC fast charge stations across the State.

Key accomplishments as of this quarter:

- NYSERDA began developing its programs for expanding PEV infrastructure and engaging with employers, car dealers, the general public, and other key audiences. Solicitations are expected to be released in late 2015 or early 2016.

4.3.5 Transportation Research

The goal of the Transportation Research Program is to commercialize technologies, products, systems, and services that provide superior GHG reduction. Activities include product development, performance validation, field testing, policy development, and business assistance to help emerging technologies achieve successful commercialization.

Key accomplishments as of this quarter:

- LCE Bioenergy completed its final report on the feasibility of demonstrating dimethyl ether (DME) as a highway fuel in New York State. DME is a nontoxic potential fuel source for gasoline and diesel engines. Its handling properties are similar to propane, and it can be produced from the gasification of locally grown hybrid willow feedstock. The project identified the potential environmental and economic benefits of DME for the transportation sector, the blueprints for a pilot program, and a preliminary analysis of commercializing DME production in New York State.

- The Locomotive Idle Reduction Program (partially RGGI-funded) was designed to install U.S. Environmental Protection Agency (EPA) SmartWay-verified idle reduction equipment on locomotives. Locomotive engines use water as a coolant and must idle during cold weather months to prevent engine damage due to coolant freezing. Three short-line railroads chose to install auxiliary powered units (APUs) on each of 10 total locomotives to reduce operating cost, idle time, improve efficiency, cut fuel use, and reduce greenhouse gas emissions and emissions of other harmful pollutants. The program is expected to reduce fuel use by approximately 50,000 gallons of diesel fuel annually and reduce both air pollution and noise levels around rail yards. The anticipated return on investment of these units will range from one to two years depending on time of use cycles.
- NYSERDA made awards to six new RGGI-funded research projects in Q2. The contracting process is underway with projects investigating new electric truck and bus technologies, wireless electric vehicle charging, landfill biogas business models, anti-idling technologies, and business models for taxi sharing to reduce congestion at New York City's airports.

Success Story 3: New York State helps Try-It Distributing reduce greenhouse gas emissions with cleaner compressed natural gas-powered fleet of delivery trucks

RGGI funds are helping Try-It Distributing expand its clean energy infrastructure with the launch of 43 compressed natural gas (CNG) delivery trucks that are expected to reduce greenhouse gas emissions by 300 tons annually. Partnering with American Natural Gas, Try-It Distributing has also added an on-site, publically accessible CNG filling station. The fleet of trucks, which originally used diesel fuel, is one of the largest private CNG fleets in New York State. The project is expected to result in the estimated reduction of 120,000 gallons of diesel fuel consumption and save the company approximately $150,000 annually.

4.3.6 Carbon Capture, Recycling, and Sequestration

This program aims to build New York State's capacity for long-term GHG emissions reduction by researching strategies to prevent emissions from being released into the atmosphere. The program focuses on assessing and demonstrating carbon capture, reuse, compression, and transport technologies; characterizing and testing the State's geological sequestration potential; and supporting the development

of carbon capture and sequestration demonstration projects in New York State. Currently, the program's largest supported project is TriCarb, which is located in Rockland County, NY. TriCarb is leveraging NYSERDA funding with more than $8 million of U.S. Department of Energy funds to investigate the potential for geological sequestration in the Newark Basin.

Key accomplishments as of this quarter:

- All lab work and analysis for the TriCarb project has been completed. The project is continuing with the reporting phase.

4.3.7 Competitive Greenhouse Gas Reduction Pilot

This pilot program is designed to support market-ready projects that reduce GHG emissions at electric generating facilities in New York State. Projects will be selected based on a combination of requested dollar-per-ton GHG emission reduction, expected level of GHG emission reduction, and the technical merit/replication of the project across the power plant fleet in New York State. It is anticipated that projects could include, but will not be limited to, supply-side energy efficiency, and advanced controls that will result in cost-effective GHG emissions reductions.

Key accomplishments as of this quarter:

- The Competitive Greenhouse Gas Reduction Pilot Program (RFP 2857) opened for participation on December 30, 2014. Four proposals were received on March 5, 2015 requesting $6,444,467 of NYSERDA funding. A Technical Evaluation Panel (TEP) met on April 3, 2015 to review the submitted proposals.

4.4 Community Clean Energy

4.4.1 Climate Smart Communities

Established in 2009, the Climate Smart Communities (CSC) Program is comprised of a network of local governments across the State that have committed, by adopting the Climate Smart Communities Pledge, to reduce greenhouse gas (GHG) emissions and better prepare for unavoidable changes in climate. In addition to NYSERDA, the CSC program works in partnership with five other New York State agencies: the Department of Environmental Conservation (DEC), the Department of State (DOS), the Public Service Commission (PSC), the Department of Transportation (DOT), and the Department of Health (DOH).

In March 2011, NYSERDA issued a competitive solicitation to select contractors for a three-year CSC Regional Coordinators Pilot Program. The goal of this pilot program is to create and implement a strategic plan for engaging local governments in the CSC program, producing measurable results for climate protection and adaptation within each region, and developing important elements of guidance for local governments. The pilot program is now in its third and final year.

Key accomplishments as of this quarter:

- The number of Climate Smart Communities increased to 158 across the State. (Seven new communities recruited).
- The Mid-Hudson coordinator hosted a Street Lighting Roundtable in Sullivan County for municipalities to learn about ways to retrofit their street lights with energy-efficient LEDs.
- The Statewide coordinator developed a tool designed to help communities collect and organize their municipal energy use and greenhouse gas emissions data and associated costs, including buildings, transportation, and solid waste.

4.4.2 Economic Development Growth Extension Program (EDGE)

The Economic Development Growth Extension (EDGE) Program facilitated by Regional Outreach Contractors (ROCs) performs on-the-ground outreach, education, and marketing of NYSERDA program opportunities to residents, businesses, institutions, and local governments across the State to promote the value of energy efficiency, sustainable growth practices, clean energy technologies, and innovations using carefully constructed public-private partnerships. The program is aligned with Governor Cuomo's Regional Economic Development Council (REDC) initiative and provides direct support to advance the strategic priorities and regionally significant projects identified in each region. NYSERDA is providing a greater level of education and adoption of energy efficiency and renewable energy practices at the community level.

Key accomplishments as of this quarter:

- 39 new partnerships that may help to identify and assist in customer engagement were developed, bringing the total to 948 partnerships.
- 150 public outreach activities, such as events, presentations or other speaking engagements were conducted, bringing the total to 1125 public outreach activities.
- 225 projects were referred to various NYSERDA programs, bringing the total number of referrals to 3,557.
- 182 project referrals from partners were received, bringing the total to 2,971 project referrals.
- Outreach and program support was provided to the REDCs on 6 projects, bringing the total to 230.

4.4.3 Cleaner, Greener Communities

The Cleaner, Greener Communities (CGC) program was announced by Governor Cuomo in his 2011 State of the State address. In coordination with the Climate Smart Communities program, this program provides support for development and implementation of a variety of sustainability strategies to help ensure that the State's ongoing investments in infrastructure aid in moving communities and New York State as a whole toward a self-sustaining, more environmentally sound future. The program encourages communities to use public-private partnerships and develop regional sustainable growth strategies in areas such as energy efficiency, renewable energy, low-carbon transportation, and other carbon reductions. The program emphasizes activities associated with smart growth, creation of green jobs, building green infrastructure, investing in environmental justice communities, and strengthening environmental protection.

Key accomplishments as of this quarter:

- NYSERDA executed three additional contracts for CGC Round 1 awarded projects for a total of 40 executed contracts, which include comprehensive planning activities and large-scale sustainability projects.
- NYSERDA executed 2 contracts for CGC Round 2 awarded projects, which include comprehensive planning activities and large-scale sustainability projects.
- NYSERDA received 10 new applications for incentives to 10 municipalities for adoption of streamlined permitting processes for solar electric systems.

4.4.4 Regional Economic Development and Greenhouse Gas Reduction Program

The Regional Economic Development and Greenhouse Gas Reduction (REDGHG) Program supports projects that are identified as priority initiatives consistent with Governor Cuomo's Regional Economic Development Council (REDC) initiative, and which are not otherwise provided financial support by other NYSERDA programs or initiatives. REDGHG provides cost-share funding for energy efficiency, clean and renewable energy, and/or innovative carbon abatement projects that address the regional priorities of the REDCs, results in strategic investments, and builds the capacity within the region to participate in the State's clean energy economy. REDGHG focuses on several end uses, including transportation, manufacturing and industrial process, buildings, agriculture, municipal processes, renewable electric generation, and district energy.

Key accomplishments as of this quarter:

- 15 projects received awards from program inception through December 31, 2014.
- 12 projects are in progress.
- 3 projects have been completed.

4.4.5 Green Jobs – Green New York

GJGNY provides funding for energy assessments, low-cost financing for energy upgrades, and technical and financial support to develop a clean energy workforce. GJGNY is a statewide effort to strengthen communities through energy efficiency and uses constituency-based organizations (CBOs) to support program outreach in underserved communities. GJGNY enables New Yorkers to make a significant difference in homes, businesses, and neighborhoods—making them more comfortable, sustainable, and economically sound. GJGNY is administered by NYSERDA, and made available by the Green Jobs - Green New York Act of 2009. The GJGNY 2014 Annual Report was issued in September 2014.[4] The report presents financial data for the approved GJGNY programs through June 30, 2014.

Although NYSERDA had announced in December 2014 an intention to transition out of certain aspects of the GJGNY financing program, the enacted 2015-16 State Budget directs NYSERDA to continue providing such financing through March 31, 2016 to all customers that were eligible for the program at the end of 2014. As of March 31, 2015, the GJGNY program (originally funded with $112 million of RGGI funds as directed in the GJGNY Act, plus accumulated interest earnings and additional funding allocated from the March 2015 auction) had very limited uncommitted funds.

Based on current loan applications and loan origination volume, NYSERDA estimates that additional funding of $80 million will be required to continue GJGNY financing through March 31, 2016 (approximately $32 million for residential energy efficiency loans and $48 million for residential solar loans). NYSERDA will allocate $80 million from the 2015 anticipated revenues to fund these loans. NYSERDA anticipates financing a pool of energy efficiency loans during 2015 through bonds to be issued by the NYS Environmental Facilities Corporation through the Clean Water State Revolving Fund,

[4] NYSERDA. 2014. "Green Jobs - Green New York 2014 Annual Report." http://www.nyserda.ny.gov/About/Green-Jobs-Green-New-York/GJGNY-Advisory-Council-Reports.

and estimates that bond proceeds of approximately $19 million will be available (after paying a $30 million Short-Term Financing Note issued to EFC in 2014) to replenish the RGGI fund. NYSERDA is exploring a bond or note financing for residential solar loans and anticipates that proceeds of approximately $34 million will be available to replenish the RGGI fund.

4.4.5.1 Assessments

One- to Four-Family Residential Buildings Program Assessments

Home Performance with ENERGY STAR® (HPwES) is a comprehensive energy efficiency services program for existing one- to four-family homes. Participating Building Performance Institute (BPI) GoldStar contractors conduct comprehensive home energy assessments and upgrades. Free and reduced-cost home energy assessments have been made available to homeowners in New York State through GJGNY funding, which drives increased participation in this program and cuts additional GHG emissions.

Key accomplishments as of this quarter:

- 5,509 assessments were completed this quarter, bringing the total to 75,467 residential GJGNY assessments completed; 69,876 (93 percent) were provided at no cost to the customer.
- Of the program cumulative 21,420 completed residential units served through HPwES resulting from a GJGNY assessment and/or GJGNY financing, 7,029 (33 percent) units are associated with income-qualified Assisted HPwES customers.
- CBOs assisted with the completion of 1,570 units, or 7 percent of all completed GJGNY residential retrofits.

Multifamily Performance Program Assessments

Through GJGNY, the Multifamily Performance Program provides financing and co-funding for comprehensive energy assessments and the development of an Energy Reduction Plan (ERP), serving market-rate and low- to moderate-income residential buildings with five or more units to increase adoption of clean energy in New York State. The needs of the multifamily sector are addressed by working with developers, building owners, and their representatives to improve the energy efficiency, health, safety, and security of multifamily residential buildings, targeting potential participants who are

committed to the implementation of energy-related improvements. NYSERDA offers incentives to install eligible measures outlined within the ERP. Each incentive is subject to funding availability from the Energy Efficiency Portfolio Standard (EEPS) or RGGI. Per-unit incentives are available for projects predicted to achieve the 15 percent energy reduction threshold. Additional performance payments apply to eligible projects that predict and achieve savings of more than 20 percent.

Key accomplishments as of this quarter:

- A total of 334 assessments were completed through June 30, 2015; of these, 58 percent are associated with affordable housing.
- Of the program cumulative 31,696 residential units served with installed measures, 17,498 (55 percent) units are associated with affordable housing.
- A total of 33 projects are contracted to have measures installed; 58 percent of which are associated with affordable housing.

Small Commercial Energy Efficiency Program Assessments

The GJGNY Small Commercial Energy Efficiency Program offers energy assessments and technical assistance to help small businesses and not-for-profit organizations improve their energy efficiency and reduce their energy costs in support of the goal to increase adoption of clean energy projects in New York State. The program offers free energy assessments, along with technical assistance, to help identify economically viable improvements that may yield substantial annual energy savings. GJGNY energy assessments are offered to small businesses and nonprofits with an average electric demand of 100 kW or less and 10 employees or fewer. Assessments and technical assistance are provided by regional firms competitively selected by NYSERDA.

Key accomplishments as of this quarter:

- 150 new energy assessments were completed during this quarter, bringing the total number of completed assessment to 2,575.
- NYSERDA conservatively estimates that 20 percent of energy efficiency improvements recommended on energy assessments are implemented by small business and not-for-profit customers, resulting in an estimated total of 515 completed projects through June 30, 2015.

4.4.5.2 Financing

One- to Four-Family Residential Buildings Program Financing

GJGNY financing is available to participants in Home Performance with ENERGY STAR® (HPwES) to finance the installation of recommended energy efficiency improvements that may be repaid through energy savings. Net-metered technologies, including solar electric systems, and solar thermal systems are also eligible for GJGNY financing. The Smart Energy Loan and the innovative On-Bill Recovery (OBR) Loan are the two low-interest rate financing options available through GJGNY, which enable more projects resulting in greater reductions of GHG emissions than might otherwise have been achieved.

Key accomplishments as of this quarter:

- A total of 9,364 loans have been issued with a total loan value of $101.81 million.
- Of the 8,210 HPwES loans closed to date, 28.8 percent of the loans issued are associated with Assisted HPwES customers, representing 21.7 percent of the total loan funds.
- A total of 2,543 energy efficiency OBR Loans have closed, valued at approximately $28.3 million.
- Of the total 9,364 total loans closed, 1147 solar electric loans have closed, valued at $19.54 million.

Multifamily Performance Program Financing

Launched in 2011, financing through the Multifamily Performance Program under GJGNY includes programs and incentives for owners, facility managers, developers, and condo/co-op boards of multifamily buildings with five or more units in support of the goal to increase adoption of clean energy in New York State. These programs make it easier to assess, fund, implement, and measure energy efficiency upgrades that improve building performance and reduce costs. The program makes participation loans available in which a participating lender issues a loan to a multifamily building owner for a qualifying energy efficiency project, with NYSERDA participating in the funding of 50 percent of the loan (up to a maximum of $5,000 per unit or $500,000 per building) at zero percent interest, and the lender setting the interest rate on its share of the loan.

Key accomplishments as of this quarter:

- 16 loans have closed with a total value of $10.4 million. NYSERDA’s share of the total loan value is $3.3 million.

Small Commercial Energy Efficiency Program Financing

The GJGNY Small Commercial Energy Efficiency Program offers low-interest financing to help small businesses and not-for-profit organizations improve their energy efficiency and reduce their energy costs in support of the goal to increase adoption of clean energy in New York State. In June 2011, NYSERDA launched the Participation Loan product to small business and not-for-profit customers, in which NYSERDA provides 50 percent of the loan principal, up to $50,000, at two percent interest and the participating lender provides the remaining loan principal at its market interest rate. In June 2012, NYSERDA launched the OBR Loan for small business and not-for-profit customers, making available a NYSERDA loan of up to $50,000 at 2.5 percent interest to finance recommended energy efficiency improvements. Customers can then repay their loan through a charge on their utility bill. Fourteen lenders have agreed to offer either Participation Loans or OBR loans.

Key accomplishments as of this quarter:

- A total of eight OBR Loans have been closed with a total value of $202,205. NYSERDA's share of the total value is the full amount.
- A total of 16 Participation Loans have been closed with a total value of $ 1,206,360. NYSERDA's share of the total value is $ 547,213.

4.4.5.3 Workforce Development, Outreach, and Marketing

Workforce Development

The GJGNY Workforce Training and Development (WFD) initiative complements other NYSERDA and New York State Department of Labor (NYSDOL) programs targeted at preparing individuals for energy efficiency, solar thermal, and solar electric careers in New York State. WFD programs also help to build New York State's capacity for long-term carbon reduction and facilitate energy education programs that will help build the State's clean energy future. Specifically, WFD efforts under GJGNY seek 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 to bridge the gap between training and employment through on-the-job training incentives for businesses seeking to hire and train new workers while reaching out to low-income neighborhoods to expand training opportunities to these communities.

Key accomplishments as of this quarter:

- NYSERDA's GJGNY training partners have trained over 3,700 individuals in courses including solar thermal installation, introductory photovoltaic training, advanced air sealing, pressure diagnostics, BPI Basic Air Sealing and Insulation, oil heat technology, and thermography. Training partnerships include public and private educators, professional associations, and not-for-profits.
- The Community Power Network and Oilheat Associates Inc. were funded to develop and deliver new curricula for oil heat technicians. The training focused on a comprehensive approach to integrating Building Performance Institute (BPI) whole house concepts with design and installation skills required for National Oilheat Research Alliance certification. To date, 784 technicians have been trained statewide, and a NYSERDA-funded training trailer is used for hands-on technician training.
- Under PON 1817, the State University of New York (SUNY) at Stony Brook has developed specialized Small Commercial Energy Assessment training, in cooperation with the United States Green Buildings Council (USGBC) specific to building stock in New York City. Small Commercial Energy Assessment training developed under this initiative is based on existing American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) standards for Level 1 and Level 2 assessments. Stony Brook conducted three pilot training sessions in Long Island, Syracuse, and Buffalo, receiving more than 181 applications for 75 available openings in the classroom. A total of 63 individuals completed the training. The curriculum was well-received and adapted based upon the feedback from the group. Stony Brook is considering using components of the curriculum as stackable learning modules for employed contractors.

Outreach and Marketing

GJGNY provides for community-based outreach, enabling one-to-one assistance with the process of participating in the program to deliver services in underserved communities. GJGNY provides outreach services in targeted communities through CBOs, which locate residents, businesses, not-for-profits, multifamily building owners, and potential workforce candidates to participate in the program. This community-based approach, combined with statewide marketing, is expected to increase the reach of the program, particularly among disadvantaged populations and those not traditionally participating in energy efficiency programs. Participating in the programs empowers these communities in their transition toward sustainability, while producing lower carbon emissions.

Key accomplishments as of this quarter:

- Constituency-based organizations (CBOs) continue to assist customers to access the Home Performance with ENERGY STAR program (HPwES) offered through Green Jobs-Green New York. Through June 2015, CBOs are responsible for 5,270 completed assessments resulting in 1,528 completed retrofits. Approximately 52 percent of those retrofits were for Assisted HPwES customers who have a household income of up to 80 percent of the county median income.
- CBO outreach strategy presentations were provided by Lisa Tyson from Long Island Progressive Coalition (LIPC) and Michael D'Arcy from RUPCO at the April Downstate Convening where they discussed methods to discuss outreach techniques as well as outreach pitches used at events.
- In May and June, the Downstate CBOs attended full-day building science trainings at the Green Jobs Training Center where they received education about conducting comprehensive home assessments, heating system diagnostics, and principles of energy and lighting basics.
- During the May CBO webinar, Scott Oliver of Pathstone provided an overview of the Pathstone and Town of Canandaigua partnership to increase the efficacy of the GJGNY program. Additionally, Clarke Gocker of PUSH spoke about the PUSH Solarize aggregation model.
- In June, the GJGNY Outreach team held the first HPwES / CBO coordination meeting. The meeting agenda covered aggregation issues, contractor recommendations, CBO project tracking, a proposed RUPCO outreach pilot, NYSERDA EmPower program updates, and the upcoming Creating an Industry Working Group meeting.
- In Q2, NYSERDA's GJGNY Training and Implementation Contractor coordinated with the Green Jobs Training Center (GJTC) on Howard Beach, Long Island to provide once-per-month, full-day building science classroom and workshop training sessions to the downstate CBO staff. The TIC is working with the GJTC to continue to provide free technical trainings in areas of energy efficiency and home performance on a monthly basis.
- In addition, two contract extensions to June 2016 one contract have been executed for a total of three. The balance of the eight contracts will be executed by the end of the year.

4.5 NY Green Bank

NY Green Bank (NYGB), a division of NYSERDA, is a $1 billion initiative that was proposed by Governor Cuomo in his 2013 State of the State address. NY Green Bank is a central component of Governor Cuomo's strategic statewide vision to scale up clean energy markets, enhance New York State's competitiveness for clean energy businesses, and make the State's energy systems more resilient. NY Green Bank operates in the wholesale financing markets in partnership with private sector sources of capital. It fosters greater private sector investment in projects deploying proven energy, renewable energy, efficiency, and other clean technologies. NY Green Bank officially opened for business in February 2014.

Key accomplishments as of this quarter:

- Filed quarterly Metrics Report with the PSC on May 15, 2015.
- Filed updated annual Business Plan with the PSC on June 19, 2015.
- Preparation and finalization of NYGB's portion of the Clean Energy Fund Information Supplement filed with the PSC on June 25, 2015.
- Filed annual Metrics Report with the PSC on June 29, 2015.

4.6 Program Evaluation

Several RGGI evaluation studies are underway or in the planning stages as of Q2 of 2015. The study objectives and timing are discussed in the following sections. Other study plans are also in development and will be detailed in future quarterly reports. The following types of evaluation activities are being performed:

- **Impact Evaluation** measures the outcomes and benefits of a program, calculates the cost-effectiveness of the program, and compares the outcomes to the program goals.
- **Market Evaluation** develops an understanding of markets and market actors, provides information to support program design and delivery, and tracks changes in markets over time.
- **Process Evaluation** reviews oversight and operations, gauges customer satisfaction, and recommends process and efficiency improvements.
- **Logic Model Reports** inform evaluation work by documenting the relationships between program activities; activity outputs; and the short, medium, and long-term outcomes the program intends to induce.
- **Evaluation Readiness Reviews**[5] help identify whether a program has various factors or, when these will be in place, that will ensure an evaluation is justified, feasible, and likely to provide useful information.

In addition, two major baseline studies received support from RGGI evaluation funds and are described herein.

4.6.1 Evaluation of Energy Efficiency and Other Deployment Programs

Cleaner, Greener Communities (CGC) Program: A process evaluation of NYSERDA's Cleaner, Greener Communities (CGC) program is currently underway. After completing Wave 1 of this evaluation research in December 2014, NYSERDA engaged in a series of conversations with program staff about opportunities to revise the scope of the subsequent waves of research to be responsive to the Wave 1 findings and the initiative's ongoing needs. Building from the findings of the Wave 1 research,

[5] Formerly known as Evaluability Assessment.

conversations with program staff, and a review of program documents, Waves 2 and 3 are designed to document the evolution of Phase II program design and implementation and the reasons behind – and any ramifications of – changes in scope or direction, and document relationships (including those related to outreach and support) between NYSERDA and region stakeholders and explore opportunities for NYSERDA to build upon these relationships in service of CGC goals (e.g., reduce greenhouse gas emissions, support sustainability planning, spur economic development). In particular, this evaluation will explore opportunities for NYSERDA to engage municipalities that have not been involved in CGC. This evaluation is currently underway and NYSERDA will work toward providing results in Q2 of 2016.

GJGNY Small Commercial Energy Efficiency Program: NYSERDA is conducting an Impact Evaluation to quantify the measure adoption rate over time and the degree to which the audit program influenced participants' decision-making regarding recommended measures that they have installed. The study is expected to be completed in Q1 of 2016. Rather than conducting a Phase 2 Process/Market Evaluation study, it was deemed that program staff insight on the nonparticipant segment of the market was more useful for program planning and design.

Multifamily Performance Program: A major Impact Evaluation of the System Benefits Charge (SBC)/EEPS-funded MPP was conducted to assess the effects of RGGI fuel efficiency incentives. The work included measurement and verification of energy savings, and attribution analysis of projects completed from 2009 through 2011; and the finalized study is available on NYSERDA's website.[6] A major Process/Market Evaluation of the SBC/EEPS-funded MPP was undertaken to assess the RGGI fuel efficiency incentive activity and GJGNY assessment/loan activity. This study was finalized in Q3 of 2014 and published on the NYSERDA website.[7]

Multifamily Carbon Emission Reduction Program: NYSERDA is conducting an Impact Evaluation to measure and verify the energy and emission effects attributable to the program. The evaluation is expected to be completed in the second half of 2015.

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6 Multifamily Performance Program Impact Evaluation (2009-2011) http://www.nyserda.ny.gov/About/Publications/Program-Planning-Status-and-Evaluation-Reports/Evaluation-Contractor-Reports/2015-Reports

7 Multifamily Performance Program/Process Evaluation and Market Characterization (http://www.nyserda.ny.gov/-/media/Files/Publications/PPSER/Program-Evaluation/2014ContractorReports/2014-MPP-Process-Evaluation.pdf)

Home Performance with ENERGY STAR Program: An Impact Evaluation of the Green Jobs – Green New York "assessment only" participants is currently underway. This evaluation seeks to identify those who may have received a GJGNY-funded audit and installed measures on their own in the absence of incentives. NYSERDA is also undertaking an Impact Evaluation to measure and verify effects attributable to RGGI fuel incentives. These studies will leverage major, in-progress evaluation of the SBC/EEPS-funded HPwES program. The completion date for the Impact Evaluation work is planned for Q1 of 2016. A major Process/Market Evaluation of the SBC/EEPS-funded HPwES is also being used to assess the RGGI fuel efficiency incentive activity and GJGNY assessment/loan activity. The Process/Market Evaluation study is also expected to be completed in the first quarter of 2016. With the impact and process evaluations occurring at the same time, the evaluation teams are collaborating to use survey efforts to gain efficiencies and reduce survey fatigue.

GJGNY Constituency-Based Organization (CBO) Program: The assessment of CBO-related activities will be addressed as a part of the HPwES process evaluation and includes surveys with CBO-affiliated HPwES participants, partial participants (GJGNY audit recipients), and contractors. These CBO samples will be strata within the HPwES process evaluation, market characterization, and impact evaluation surveys. The data collection is complete and the analysis underway. The completion date for this evaluation effort is planned for Q4 of 2015.

Residential Non-Energy Impact Study: A study is currently underway to identify and begin to quantify measurable non-energy effects from residential programs, including possibly HPwES and now closed the Green Residential Building Program . This study is jointly supported with RGGI and other NYSERDA funds. The study is expected to be completed in Q1 of 2016 and is expected to help inform future non-energy impact analysis and reporting for RGGI programs.

4.6.2 Evaluation of Technology/Business Development and Research Programs

Advanced Transportation Research: A Logic Model report for this program is underway and expected to be completed in Q3 of 2015.

Industrial Innovations: Future evaluation plans for this program are under consideration at this time.

Clean Energy Business Development (CEBD): A Market Characterization of the clean energy industry is planned to be started in Q4 of 2015.

Community Solar NY: A Logic Model report for this program is underway and expected to be completed in Q3 of 2015.

Economic Development Growth Extension (EDGE): A Process Evaluation is underway for this program with an expected final report to be complete in Q3 of 2015.

Power Systems Program: Future evaluation plans for this program are under consideration at this time.

4.6.3 Baseline Studies

NYSERDA is also conducting two major baseline studies to assess residential and commercial markets across a broad range of customer segments and energy measures. The goals of these studies are: 1) to better understand building stock and associated energy use, including saturations of energy-consuming measures, penetrations of energy-efficient equipment, building characteristics and energy management practices; and 2) use this information to estimate the technical, economic and achievable energy efficiency opportunities in New York State in the next three and five years. Although these large studies are being supported by SBC funding, RGGI funds are supplementing the budget to allow for robust data collection on fuel measures.

The Residential Baseline study was completed in Q4 of 2014. The final report is posted to NYSERDA's website and the data set is available on Open NY.[8] The Commercial Baseline study request for proposals was released in Q4 of 2013, and proposals were received in Q4 of 2014. The Commercial Baseline began in mid-2015.

[8] https://data.ny.gov/en/browse?q=RSBS

Appendix A: Savings Calculations Methodology

This appendix describes the general methods and assumptions that are used to calculate the energy savings, emission reductions, bill savings, and cost-effectiveness metrics presented in the New York's Regional Greenhouse Gas Initiative Investment Plan (2013 Operating Plan).

A.1 Energy Savings

Annual energy savings values are based on the past performance of publicly funded energy efficiency programs and information obtained from various sources of technical literature.

A.2 CO_2 Reductions

Emissions factors are used to translate the energy savings data into annual GHG emissions reduction values. The GHGs evaluated in the report include carbon dioxide, methane, and nitrous oxide. Because each of these gases has a different global warming potential,[9] emissions for gases other than carbon dioxide are converted into carbon dioxide equivalent units (CO_2e) through multiplication with their appropriate Intergovernmental Panel on Climate Change (IPCC) global warming potential value,[10] shown in Table A-1.

Table A-1. Global Warming Potentials

These values represent a 100-year time horizon.

Source: Intergovernmental Panel on Climate Change. 1995. Second Assessment: Climate Change.

Gas	Global Warming Potential
Carbon dioxide (CO_2)	1
Methane (CH_4)	21
Nitrous oxide (N_2O)	310

9 A global warming potential is a measure that estimates how much a given mass of a GHG contributes to global warming. It is calculated over a specific time interval, which is 100 years for the IPCC Second Assessment Report values.

10 Intergovernmental Panel on Climate Change. 1995. Second Assessment: Climate Change 1995. According to EPA guidance, this inventory uses potentials from the IPCC Second Assessment report, rather than values from the more current Third Assessment: Climate Change 2001 report. New York DEC regulation Part 242 1.2 (49) uses the Third Assessment values. Reconciliation between these two methodologies will be investigated as part of the program implementation and evaluation process.

NYSERDA uses the emission factors shown in Table A-2 to calculate emissions from on-site fuel combustion, which are derived from U.S. Environmental Protection Agency (EPA) emission coefficients. The CO_2e values represent aggregate CO_2, CH_4, and N_2O emissions. If a program covers more than one sector, then the estimated reduction is based on a calculated average emission factor for the affected sectors.

Table A-2. Fuel Combustion Emission Factors by Sector

Sources: U.S. EPA State Climate Energy Program's State Inventory Tool (SIT) Modules, February 2013 release. City of New York, Inventory of New York City Greenhouse Gas Emissions, November 2014, by Cathy Pasion, Mikael Amar and Michael Delaney. Mayor's Office of Long-Term Planning and Sustainability, New York, 2014.

	Transport (lb CO_2e/MMBtu)	Residential (lb CO_2e/MMBtu)	Commercial (lb CO_2e/MMBtu)	Industrial (lb CO_2e/MMBtu)
Coal	N/A	224.8	211.4	203.7
Natural Gas	117.4	117.4	117.4	114.7
#2 Oil/Distillate/ Diesel	163.0	163.8	163.8	162.2
#6 Oil/Residual	N/A	N/A	166.3	166.0
Kerosene	N/A	162.1	162.1	161.8
Propane	136.1	136.9	136.9	136.9
Gasoline	155.0	N/A	N/A	N/A
Aviation Fuel	159.3	N/A	N/A	N/A
Wood	N/A	15.8	15.8	3.9
Steam	N/A	132.2	132.2	N/A

An average emission factor of 625 pounds of CO_2e/MWh is used to estimate emission reductions associated with electricity use reductions for all sectors. This value includes emissions from in-state electricity generation as well as emissions associated with net imports of electricity.[11] Although electricity savings may not lead to near-term emission reductions under the RGGI CO_2 cap, savings will potentially

[11] The emission factor for electricity is based on data from *Patterns & Trends - New York State Energy Profiles: 1997 – 2011* (NYSERDA 2013) and methodology from the *GHG Inventory and Forecast* prepared for the 2014 Draft New York State Energy Plan (April 2014).

reduce imports of electricity to New York State; the demand for CO_2 allowances, leading to a possible future reduction in the cap; and the carbon-footprint of end-users, as they will be responsible for a smaller percent of the emissions associated with electricity production.

A.3 Bill Savings

Annual bill savings values for each program are estimated by multiplying the energy savings by sector-specific fuel price data.

Table A-3 shows fuel prices by sector. Electricity and natural gas prices represent average values for six service territories weighted by the percentage of RGGI projects located in each utility area. Basic service charges have been excluded.

Table A-3. Fuel Prices by Sector[a]

Sector	Electricity ($/kWh)	Natural Gas ($/MMBtu)	Fuel Oil / Distillate ($/MMBtu)	Propane ($/MMBtu)
Residential	0.18	8.57	25.59	34.21
Commercial	0.16	5.09	24.51	26.04
Industrial	0.12	5.09	23.39	30.32
Transportation	0.05	N/A	27.58	N/A
C&I	0.14	5.09	23.95	28.18

Sector	Residual ($/MMBtu)	Kerosene ($/MMBtu)	Wood ($/Cord)	Coal ($/Ton)
Residential	N/A	28.13	7.83	N/A
Commercial	17.41	28.13	N/A	5.78
Industrial	17.41	24.56	N/A	4.74
Transportation	N/A	N/A	N/A	N/A
C&I	17.41	26.35	N/A	5.26

[a] For electricity and natural gas, prices are an average of July 2012 and January 2013 prices as reported by the NYS Department of Public Service billing data http://www3.dps.ny.gov/W/PSCWeb.nsf/All/C56A606DB183531F852576A50069A75D?OpenDocument For all other fuel types, prices reflect 2011 retail prices as reported in NYSERDA's *Patterns and Trends- New York State Energy Profiles: 1997-2011* (NYSERDA 2013)

Table A-4. Program Measure Life Assumptions

Average savings-weighted measure life, shown by program, is used to calculate expected lifetime benefits.

Program	Electricity Measure Life	Fuels Measure Life
GJGNY - Single-Family Residential Assessment Component	18	24
GJGNY - Single-Family Residential Loan Component	19	23
GJGNY - Multifamily Residential Assessment Component	13	15
GJGNY - Small Commercial Loan Component	13	21
RGGI - Multifamily Performance Program	13	15
RGGI - Multifamily Carbon Emissions Reduction Program	N/A	13
RGGI - EmPower New York	N/A	24
RGGI - Home Performance with ENERGY STAR®	18	24
RGGI - Green Residential Building Program	18	24
RGGI - Solar Thermal Incentive Program	N/A	20
RGGI - Low-rise Residential New Construction Program	18	24
RGGI - NYSERDA Solar Photovoltaic Initiative	25	N/A
RHNY - Boilers	20	20
RHNY - Pellet Stoves	20	20
LIPA Efficiency	18	NA
LIPA Photovoltaic and Efficiency Initiative	25	N/A
Regional Economic Development and GHG Reduction	18	18

Appendix B: Former Program Names

Table B-1. Former Program Names

Current Program Name	Formerly Known As
Residential Efficiency Services	Residential Space and Water Heating
Municipal Water and Wastewater	Water and Wastewater Efficiency; Water and Wastewater Energy Efficiency
Industrial Innovations	Industrial Process Improvements; Advanced Building Systems and Industrial Process Improvements
Transportation Research	Advanced Transportation Development
Clean Energy Business Development	Clean Technology and Industrial Development
Power Systems	Advanced Power Technology Program (APTP)

Appendix C: Summary of Portfolio Benefits

Table C-1. Summary of Portfolio Benefits

Quarter End Date	Quarter	Cumulative Annual MMBtu	Cumulative Annual MWh Saved	Cumulative Annual MWh Generated	Cumulative Annual Tons of CO_2e Mitigated	Cumulative Annual Bill Savings Realized by Participating Customers ($)
6/30/2010	Qrt 2	3,409	4,371	-	2,100	700,000
9/30/2010	Qrt 3	47,332	4,371	-	5,630	1,200,000
12/31/2010	Qrt 4	91,471	838	4,316	9,310	2,900,000
3/31/2011	Qrt 1	115,763	1,213	3,903	10,950	2,700,000
6/30/2011	Qrt 2	152,501	5,233	3,992	15,553	4,000,000
9/30/2011	Qrt 3	197,622	6,473	4,205	17,874	4,600,000
12/31/2011	Qrt 4	256,980	8,126	4,218	23,805	6,000,000
3/31/2012	Qrt 1	318,273	13,363	4,218	31,194	7,800,000
6/30/2012	Qrt 2	411,462	13,702	4,248	40,368	9,400,000
9/30/2012	Qrt 3	519,144	15,023	4,278	51,353	10,700,000
12/31/2012	Qrt 4	577,025	16,895	4,345	56,764	12,000,000
3/31/2013	Qrt 1	651,564	18,206	4,305	60,349	16,300,000
6/30/2013	Qrt 2	770,186	20,038	4,386	69,068	18,100,000
9/30/2013	Qrt 3	889,027	24,385	16,710	96,916	21,200,000
12/31/2013	Qrt 4	985,379	26,545	16,752	100,934	23,100,000
3/31/2014	Qrt 1	1,089,306	28,206	16,752	108,844	25,500,000
6/30/2014	Qrt 2	1,174,186	28,697	20,331	115,852	27,700,000
9/30/2014	Qrt 3	1,301,751	32,481	20,331	127,880	31,600,000
12/31/2014	Qrt 4	1,503,898	115,024	44,470	178,048	53,400,000
3/31/2015	Qrt 1	1,614,354	120,453	54,642	191,322	58,500,000

Table C-2. Summary of Fuel Savings by Type

Quarter End Date	Quarter	Fuel Type	Cumulative Annual (MMBtu)	Cumulative Annualized Pipeline (MMBtu)[a]
6/30/2010	Qrt 2	Diesel	-	
6/30/2010	Qrt 2	Gasoline	-	
6/30/2010	Qrt 2	Natural Gas	-	
6/30/2010	Qrt 2	Oil	3,409	
6/30/2010	Qrt 2	Propane	-	
9/30/2010	Qrt 3	Diesel	-	
9/30/2010	Qrt 3	Gasoline	-	
9/30/2010	Qrt 3	Natural Gas	-	
9/30/2010	Qrt 3	Oil	47,332	
9/30/2010	Qrt 3	Propane	-	
12/31/2010	Qrt 4	Diesel	-	
12/31/2010	Qrt 4	Gasoline	-	
12/31/2010	Qrt 4	Natural Gas	3,926	
12/31/2010	Qrt 4	Oil	74,691	
12/31/2010	Qrt 4	Propane	301	
12/31/2010	Qrt 4	Steam	12,553	
3/31/2011	Qrt 1	Diesel	-	
3/31/2011	Qrt 1	Gasoline	-	
3/31/2011	Qrt 1	Natural Gas	18,206	
3/31/2011	Qrt 1	Oil	85,998	
3/31/2011	Qrt 1	Propane	1,280	
3/31/2011	Qrt 1	Steam	10157	
3/31/2011	Qrt 1	Wood	122	
6/30/2011	Qrt 2	Diesel	-	
6/30/2011	Qrt 2	Gasoline	-	
6/30/2011	Qrt 2	Kerosene	27	
6/30/2011	Qrt 2	Natural Gas	20481	
6/30/2011	Qrt 2	Oil	118,963	
6/30/2011	Qrt 2	Propane	2,272	
6/30/2011	Qrt 2	Steam	10,557	
6/30/2011	Qrt 2	Wood	201	
9/30/2011	Qrt 3	Diesel	-	
9/30/2011	Qrt 3	Gasoline	-	
9/30/2011	Qrt 3	Kerosene	208	
9/30/2011	Qrt 3	Natural Gas	40,683	
9/30/2011	Qrt 3	Oil	140,917	
9/30/2011	Qrt 3	Propane	4,818	
9/30/2011	Qrt 3	Steam	10,557	
9/30/2011	Qrt 3	Wood	439	

Quarter End Date	Quarter	Fuel Type	Cumulative Annual (MMBtu)	Cumulative Annualized Pipeline (MMBtu)[a]
12/31/2011	Qrt 4	Diesel	-	
12/31/2011	Qrt 4	Gasoline	-	
12/31/2011	Qrt 4	Kerosene	285	
12/31/2011	Qrt 4	Natural Gas	88,439	
12/31/2011	Qrt 4	Oil	150,163	
12/31/2011	Qrt 4	Propane	7,344	
12/31/2011	Qrt 4	Steam	10,157	
12/31/2011	Qrt 4	Wood	592	
3/31/2012	Qrt 1	Diesel	-	
3/31/2012	Qrt 1	Gasoline	-	
3/31/2012	Qrt 1	Kerosene	285	
3/31/2012	Qrt 1	Natural Gas	108635	
3/31/2012	Qrt 1	Oil	186,637	
3/31/2012	Qrt 1	Propane	11,810	
3/31/2012	Qrt 1	Steam	10,157	
3/31/2012	Qrt 1	Wood	749	
6/30/2012	Qrt 2	Diesel	-	
6/30/2012	Qrt 2	Gasoline	-	
6/30/2012	Qrt 2	Kerosene	285	
6/30/2012	Qrt 2	Natural Gas	140,597	
6/30/2012	Qrt 2	Oil	246,477	
6/30/2012	Qrt 2	Propane	12,798	
6/30/2012	Qrt 2	Steam	10,157	
6/30/2012	Qrt 2	Wood	1,000	
6/30/2012	Qrt 2	Residual Oil	144	
9/30/2012	Qrt 3	Diesel	-	
9/30/2012	Qrt 3	Gasoline	-	
9/30/2012	Qrt 3	Kerosene	285	
9/30/2012	Qrt 3	Natural Gas	183,379	
9/30/2012	Qrt 3	Oil	303,649	
9/30/2012	Qrt 3	Propane	14,187	
9/30/2012	Qrt 3	Residual Oil	144	
9/30/2012	Qrt 3	Steam	15,901	
9/30/2012	Qrt 3	Wood	1,599	
12/31/2012	Qrt 4	Diesel	-	
12/31/2012	Qrt 4	Gasoline	-	
12/31/2012	Qrt 4	Kerosene	1,026	
12/31/2012	Qrt 4	Natural Gas	203,118	
12/31/2012	Qrt 4	Oil	337,096	
12/31/2012	Qrt 4	Propane	16,593	

Quarter End Date	Quarter	Fuel Type	Cumulative Annual (MMBtu)	Cumulative Annualized Pipeline (MMBtu)[a]
12/31/2012	Qrt 4	Residual Oil	144	
12/31/2012	Qrt 4	Steam	15,969	
12/31/2012	Qrt 4	Wood	3,079	
3/31/2013	Qrt 1	Diesel	-	-
3/31/2013	Qrt 1	Gasoline	-	-
3/31/2013	Qrt 1	Kerosene	1,359	353
3/31/2013	Qrt 1	Natural Gas	231,225	90,488
3/31/2013	Qrt 1	Oil	378,533	317,149
3/31/2013	Qrt 1	Propane	18,848	7,747
3/31/2013	Qrt 1	Steam	15,969	37,123
3/31/2013	Qrt 1	Wood	5,129	1,338
3/31/2013	Qrt 1	Residual Oil	144	27
3/31/2013	Qrt 1	Coal	357	-
6/30/2013	Qrt 2	Diesel	-	-
6/30/2013	Qrt 2	Gasoline	-	-
6/30/2013	Qrt 2	Kerosene	1,270	138
6/30/2013	Qrt 2	Natural Gas	313,287	76,148
6/30/2013	Qrt 2	Oil	411,518	262,809
6/30/2013	Qrt 2	Propane	21,051	7,341
6/30/2013	Qrt 2	Steam	15,969	30,232
6/30/2013	Qrt 2	Wood	6,550	935
6/30/2013	Qrt 2	Residual Oil	144	20
6/30/2013	Qrt 2	Coal	397	-
9/30/2013	Qrt 3	Diesel	-	-
9/30/2013	Qrt 3	Gasoline	-	-
9/30/2013	Qrt 3	Kerosene	1,365	356
9/30/2013	Qrt 3	Natural Gas	415,512	182,146
9/30/2013	Qrt 3	Oil	424,549	239,750
9/30/2013	Qrt 3	Propane	23,656	24,099
9/30/2013	Qrt 3	Steam	15,969	13,112
9/30/2013	Qrt 3	Wood	7,497	2,203
9/30/2013	Qrt 3	Residual Oil	144	-
9/30/2013	Qrt 3	Coal	335	-
12/31/2013	Qrt 4	Diesel	-	-
12/31/2013	Qrt 4	Gasoline	-	-
12/31/2013	Qrt 4	Kerosene	1,490	203
12/31/2013	Qrt 4	Natural Gas	466,754	128,549
12/31/2013	Qrt 4	Oil	466,125	236,933
12/31/2013	Qrt 4	Propane	25,403	5,491
12/31/2013	Qrt 4	Steam	15,969	15,977
12/31/2013	Qrt 4	Wood	8,981	1,111

Quarter End Date	Quarter	Fuel Type	Cumulative Annual (MMBtu)	Cumulative Annualized Pipeline (MMBtu)[a]
12/31/2013	Qrt 4	Residual Oil	144	-
12/31/2013	Qrt 1	Coal	514	-
3/31/2014	Qrt 1	Diesel	-	-
3/31/2014	Qrt 1	Gasoline	-	-
3/31/2014	Qrt 1	Kerosene	1,594	80
3/31/2014	Qrt 1	Natural Gas	509,205	130,012
3/31/2014	Qrt 1	Oil	523,876	228,057
3/31/2014	Qrt 1	Propane	27,788	5,869
3/31/2014	Qrt 1	Steam	15,969	14,733
3/31/2014	Qrt 1	Wood	10,270	580
3/31/2014	Qrt 1	Residual Oil	144	-
3/31/2014	Qrt 1	Coal	458	-
6/30/2014	Qrt 2	Diesel	-	-
6/30/2014	Qrt 2	Gasoline	-	-
6/30/2014	Qrt 2	Kerosene	1,715	56
6/30/2014	Qrt 2	Natural Gas	545,195	126,749
6/30/2014	Qrt 2	Oil	569,438	225,510
6/30/2014	Qrt 2	Propane	28,521	4,969
6/30/2014	Qrt 2	Steam	15,969	14,733
6/30/2014	Qrt 2	Wood	12,322	654
6/30/2014	Qrt 2	Residual Oil	144	-
6/30/2014	Qrt 2	Coal	882	-
9/30/2014	Qrt 3	Diesel	-	-
9/30/2014	Qrt 3	Gasoline	-	-
9/30/2014	Qrt 3	Kerosene	2,494	706
9/30/2014	Qrt 3	Natural Gas	526,170	184,391
9/30/2014	Qrt 3	Oil	723,190	381,324
9/30/2014	Qrt 3	Propane	17,860	28,153
9/30/2014	Qrt 3	Steam	15,969	18,269
9/30/2014	Qrt 3	Wood	14,952	4,079
9/30/2014	Qrt 3	Residual Oil	-	-
9/30/2014	Qrt 3	Coal	1,115	86
12/31/2014	Qrt 4	Diesel	-	-
12/31/2014	Qrt 4	Gasoline	-	-
12/31/2014	Qrt 4	Kerosene	2,602	669
12/31/2014	Qrt 4	Natural Gas	644,280	219,296
12/31/2014	Qrt 4	Oil	804,029	433,001
12/31/2014	Qrt 4	Propane	17,967	8,699
12/31/2014	Qrt 4	Steam	15,969	18,269
12/31/2014	Qrt 4	Wood	17,801	4,351
12/31/2014	Qrt 4	Residual Oil	-	-
12/31/2014	Qrt 4	Coal	1,249	313

Quarter End Date	Quarter	Fuel Type	Cumulative Annual (MMBtu)	Cumulative Annualized Pipeline (MMBtu)[a]
3/31/2015	Qrt 1	Diesel	-	-
3/31/2015	Qrt 1	Gasoline	-	-
3/31/2015	Qrt 1	Kerosene	3,104	792
3/31/2015	Qrt 1	Natural Gas	671,315	301,729
3/31/2015	Qrt 1	Oil	885,524	498,536
3/31/2015	Qrt 1	Propane	19,357	17,177
3/31/2015	Qrt 1	Steam	15,969	19,056
3/31/2015	Qrt 1	Wood	17,781	4,380
3/31/2015	Qrt 1	Residual Oil	-	-
3/31/2015	Qrt 1	Coal	1,305	315
6/30/2015	Qrt 2	Diesel	-	-
6/30/2015	Qrt 2	Gasoline	-	-
6/30/2015	Qrt 2	Kerosene	3,763	770
6/30/2015	Qrt 2	Natural Gas	694,322	220,988
6/30/2015	Qrt 2	Oil	955,804	501,564
6/30/2015	Qrt 2	Propane	22,091	67,535
6/30/2015	Qrt 2	Steam	15,969	16,372
6/30/2015	Qrt 2	Wood	20,558	20,411
6/30/2015	Qrt 2	Residual Oil	-	-
6/30/2015	Qrt 2	Coal	1,442	285

[a] Tracked beginning first quarter of 2013

Appendix D: NYS RGGI Auction Proceeds

Table D-1. NYS RGGI Auction Proceeds[a]

Auction Date	Control Period	Clearing Price	New York State Allowances Sold	New York State Auction Proceeds
12/17/2008	First	$3.38	12,422,161	$41,986,904
3/18/2009	First	$3.51	12,422,161	$43,601,785
3/18/2009	Second	$3.05	776,385	$2,367,974
6/17/2009	First	$3.23	11,861,849	$38,313,772
6/17/2009	Second	$2.06	776,385	$1,599,353
9/9/2009	First	$2.19	11,861,849	$25,977,449
9/9/2009	Second	$1.87	776,385	$1,451,840
12/2/2009	First	$2.05	11,861,850	$24,316,793
12/2/2009	Second	$1.86	571,423	$1,062,847
3/10/2010	First	$2.07	15,136,022	$31,331,566
3/10/2010	Second	$1.86	740,167	$1,376,711
6/9/2010	First	$1.88	15,136,022	$28,455,721
6/9/2010	Second	$1.86	756,801	$1,407,650
9/8/2010	First	$1.86	11,421,736	$21,244,429
9/8/2010	Second	$1.86	464,418	$863,817
12/1/2010	First	$1.86	8,678,724	$16,142,427
12/1/2010	Second	$1.86	414,863	$771,645
3/9/2011	First	$1.89	15,153,524	$28,640,160
3/9/2011	Second	$1.89	757,676	$1,432,008
6/8/2011	First	$1.89	4,519,648	$8,542,135
6/8/2011	Second	$1.89	383,114	$724,085
9/7/2011	First	$1.89	2,689,151	$5,082,495
12/7/2011	First	$1.89	9,621,954	$18,185,493
3/14/2012	Second	$1.93	8,895,733	$17,168,765
6/6/2012	Second	$1.93	8,265,426	$15,952,272
9/5/2012	Second	$1.93	9,315,659	$17,979,222
12/5/2012	Second	$1.93	7,568,550	$14,607,302
3/13/2013	Second	$2.80	14,252,818	$39,907,890
6/5/2013	First	$3.21	750,000	$2,407,500
6/5/2013	Second	$3.20	14,252,818	$45,751,546
9/4/2013	First	$3.21	769,253	$2,053,906
9/4/2013	Second	$3.20	14,578,296	$38,924,050
12/4/2013	Second	$3.00	14,578,295	$43,734,885
3/5/2014	Second	$4.00	9,119,837	$36,479,348
6/4/2014	Second	$5.02	7,173,198	$36,009,454
9/3/2014	Second	$4.88	7,173,198	$35,005,206
12/3/2014	Second	$5.21	7,173,198	$37,372,362
3/11/2015	Third	$5.41	5,906,447	$31,953,878
6/3/2015	Third	$5.50	5,906,446	$32,485,453
First Control Period Total			**144,305,904**	**$336,282,535**
Second Control Period Total			**128,764,643**	**$391,950,232**
Third Control Period Total			**11,812,893**	**$64,439,331**
TOTAL			**284,883,440**	**$792,672,098**

[a] New York did not offer allowances for sale in the RGGI auction held on December 25, 2008, where the clearing price for 2009 vintage allowances was $3.07. The first control period for fossil-fuel fired electric generators took effect on January 1, 2009 and concluded on December 31, 2011. The second control period took effect on January 1, 2012 and concluded on December 31, 2014. The third control period took effect on January 1, 2015 and extends through December 31, 2018.

Appendix E: Total NYS RGGI Funds

Table E-1. NYS RGGI Funds

Quarter End Date	Quarter	Fund Category	Cumulative Funds ($)
9/30/2010	Qrt 3	Interest Allocated to the RGGI Portfolio	$940,276
9/30/2010	Qrt 3	RGGI Auction Proceeds	$265,358,611
12/31/2010	Qrt 4	Interest Allocated to the RGGI Portfolio	$940,276
12/31/2010	Qrt 4	RGGI Auction Proceeds	$282,272,683
3/31/2011	Qrt 1	Interest Allocated to the RGGI Portfolio	$940,276
3/31/2011	Qrt 1	RGGI Auction Proceeds	$312,344,851
6/30/2011	Qrt 2	Interest Allocated to the RGGI Portfolio	$1,034,063
6/30/2011	Qrt 2	RGGI Auction Proceeds	$321,611,071
9/30/2011	Qrt 3	Interest Allocated to the RGGI Portfolio	$1,034,063
9/30/2011	Qrt 3	RGGI Auction Proceeds	$326,693,566
12/31/2011	Qrt 4	Interest Allocated to the RGGI Portfolio	$1,034,063
12/31/2011	Qrt 4	RGGI Auction Proceeds	$344,879,060
3/31/2012	Qrt 1	Interest Allocated to the RGGI Portfolio	$1,998,557
3/31/2012	Qrt 1	RGGI Auction Proceeds	$362,047,824
6/30/2012	Qrt 2	Interest Allocated to the RGGI Portfolio	$1,998,557
6/30/2012	Qrt 2	RGGI Auction Proceeds	$378,000,097
9/30/2012	Qrt 3	Interest Allocated to the RGGI Portfolio	$1,998,557
9/30/2012	Qrt 3	RGGI Auction Proceeds	$395,979,318
12/31/2012	Qrt 4	Interest Allocated to the RGGI Portfolio	$3,026,525
12/31/2012	Qrt 4	Interest Allocated to the GJGNY Program	$770,000
12/31/2012	Qrt 4	RGGI Auction Proceeds	$410,586,620
3/31/2013	Qrt 1	Interest Allocated to the RGGI Portfolio	$3,026,525
3/31/2013	Qrt 1	Interest Allocated to the GJGNY Program	$770,000
3/31/2013	Qrt 1	RGGI Auction Proceeds	$450,494,510
6/30/2013	Qrt 2	Interest Allocated to the RGGI Portfolio	$3,026,525
6/30/2013	Qrt 2	Interest Allocated to the GJGNY Program	$770,000
6/30/2013	Qrt 2	RGGI Auction Proceeds	$498,653,556
9/30/2013	Qrt 3	Interest Allocated to the RGGI Portfolio	$3,026,525
9/30/2013	Qrt 3	Interest Allocated to the GJGNY Program	$770,000
9/30/2013	Qrt 3	RGGI Auction Proceeds	$539,631,512
12/31/2013	Qrt 4	Interest Allocated to the RGGI Portfolio	$3,026,525
12/31/2013	Qrt 4	Interest Allocated to the GJGNY Program	$770,000
12/31/2013	Qrt 4	RGGI Auction Proceeds	$587,162,922
3/31/2014	Qrt 1	Interest Allocated to the RGGI Portfolio	$4,400,174

Table E-1 continued

Quarter End Date	Quarter	Fund Category	Cumulative Funds ($)
3/31/2014	Qrt 1	Interest Allocated to the GJGNY Program	$770,000
3/31/2014	Qrt 1	RGGI Auction Proceeds	$619,845,745
6/30/2014	Qrt 2	Interest Allocated to the RGGI Portfolio	$4,400,174
6/30/2014	Qrt 2	Interest Allocated to the GJGNY Program	$770,000
6/30/2014	Qrt 2	RGGI Auction Proceeds	$655,855,199
9/30/2014	Qrt 3	Interest Allocated to the RGGI Portfolio	$4,400,174
9/30/2014	Qrt 3	Interest Allocated to the GJGNY Program	$770,000
9/30/2014	Qrt 3	RGGI Auction Proceeds	$690,860,405
12/31/2014	Qrt 4	Interest Allocated to the RGGI Portfolio	$4,400,174
12/31/2014	Qrt 4	Interest Allocated to the GJGNY Program	$770,000
12/31/2014	Qrt 4	RGGI Auction Proceeds	$728,232,767
3/31/2015	Qrt 1	Interest Allocated to the RGGI Portfolio	$5,900,174
3/31/2015	Qrt 1	Interest Allocated to the GJGNY Program	$1,779,747
3/31/2015	Qrt 1	RGGI Auction Proceeds	$760,186,645
6/30/2015	Qrt 2	Interest Allocated to the RGGI Portfolio	$5,900,174
6/30/2015	Qrt 2	Interest Allocated to the GJGNY Program	$1,779,747
6/30/2015	Qrt 2	RGGI Auction Proceeds	$792,672,098

Appendix F: Closed RGGI-Funded Programs and Completed Evaluations

F.1 Closed Programs

F.1.1 Green Residential Buildings Program (GRBP)

The Green Residential Building Program (GRBP), established under Public Authorities Law 1872, was a market transformation initiative designed to change the building practices of the residential construction industry for single-family homes and multifamily homes with up to 11 dwelling units. The GRBP offered incentives to building owners who build and obtain certification that their newly constructed residences meet or exceed Leadership in Energy and Environmental Design (LEED®) or National Green Building Standard guidelines, as well as other GRBP program-specific energy efficiency and health and safety requirements. Buildings meeting GRBP requirements will help to reduce energy use and greenhouse gas emissions, save water and other natural resources, use sustainable building materials, reduce waste, and improve indoor air quality. Sixty-nine contractors participated in this program. Per the enabling law, applications had to be received by October 31, 2013; therefore, the program is now closed to new applications. The following data represent only those projects where the incentive was funded by RGGI, which represents 82 percent of the program activity.

Key accomplishments:

- 440 RGGI-funded projects were completed.

F.1.2 Wastewater Energy Efficiency Program

The Wastewater Energy Efficiency Program (WWEP) provided a unique opportunity to coordinate RGGI climate change goals and funding with American Recovery and Reinvestment Act (ARRA) and U.S. Environmental Protection Agency (EPA) goals and funding while installing infrastructure that will improve the environment and keep New York State waters clean and healthy. This program was co-managed by the New York State Environmental Facilities Corporation (EFC) and NYSERDA. EFC secured ARRA and Green Project Reserve Funds from EPA to bolster efforts to finance water and wastewater infrastructure via the Clean Water State Revolving Fund Program. Wastewater plants installed through the program are constructed energy efficiently, thus minimizing carbon emissions and improving their economic and environmental performance.

Selected projects received RGGI-funded technical analyses to identify costs and savings associated with energy efficiency, process improvement, and carbon abatement opportunities in support of EPA-funded grants and financing for plant upgrades. The program was selected as one of five national recipients of the States Stepping Forward Program Award for excellence by the American Council for an Energy-Efficient Economy.

Key accomplishments:

- Technical energy analyses were completed for projects in 59 communities.
- Projected annual savings are 46,546 MWh and 56,447 MMBtu, after all project installations are complete.
- To date, communities have reported installing systems resulting in annual savings of 34,942 MWh and 50,098 MMBtu.

F.2 Completed Evaluations

F.2.1 Green Jobs - Green New York Jobs Quantification Study

This study quantified the direct, indirect, and induced jobs created/retained from the GJGNY program, including those in disadvantaged communities. The study also examined changes in worker skill level and wages resulting from GJGNY. NYSERDA issued the final reports for both phases of the study in November 2013. Both Phase 1 and Phase 2 reports are posted on NYSERDA's website.[12]

[12] The GJGNY jobs quantification studies, Phase 1 and Phase 2, are on NYSERDA's website: http://www.nyserda.ny.gov/Publications/Program-Planning-Status-and-Evaluation-Reports/NYE$-Evaluation-Contractor-Reports/2013-Reports/NMR-Group.aspx.

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.

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