New York State Energy Research and Development Authority

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

Quarter Ending December 31, 2013

Final Report
April 2014

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 and technology, transforming New York's economy, empowering people to choose clean and efficient energy as part of their everyday lives.

Core Values:

Objectivity, integrity, public service, partnership, and innovation.

Portfolios

NYSERDA programs are organized into five portfolios, each representing a complementary group of offerings with common areas of energy-related focus and objectives.

Energy Efficiency and Renewable Energy Deployment

Helping New York State to achieve its aggressive energy efficiency and renewable energy goals – including programs to motivate increased efficiency in energy consumption by consumers (residential, commercial, municipal, institutional, industrial, and transportation), to increase production by renewable power suppliers, to support market transformation, and to provide financing.

Energy Technology Innovation and Business Development

Helping to stimulate a vibrant innovation ecosystem and a clean-energy economy in New York State – including programs to support product research, development, and demonstrations; clean-energy business development; and the knowledge-based community at the Saratoga Technology + Energy Park® (STEP®).

Energy Education and Workforce Development

Helping to build a generation of New Yorkers ready to lead and work in a clean energy economy – including consumer behavior, youth education, workforce development, and training programs for existing and emerging technologies.

Energy and the Environment

Helping to assess and mitigate the environmental impacts of energy production and use in New York State – including environmental research and development, regional initiatives to improve environmental sustainability, and West Valley Site Management.

Energy Data, Planning, and Policy

Helping to ensure that New York State policymakers and consumers have objective and reliable information to make informed energy decisions – including State Energy Planning, policy analysis to support the Regional Greenhouse Gas Initiative and other energy initiatives, emergency preparedness, and a range of energy data reporting.

NYSERDA Record of Revision

Document Title
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Acronyms and Abbreviations

AHPwES	Assisted Home Performance with ENERGY STAR®
CBO	constituency-based organizations
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
GJGNY	Green Jobs – Green New York
HPwES	Home Performance with ENERGY STAR®
kWh	kilowatt-hour
MMBtu	million British thermal units
MPP	Multifamily Performance Program
MW	megawatt
MWh	megawatt-hour
NYSERDA	New York State Energy Research and Development Authority
OBR	On-Bill Recovery Financing Program
PV	photovoltaic
RGGI	Regional Greenhouse Gas Initiative
SBC	System Benefits Charge
ST	solar thermal

1 Introduction

To implement the Regional Greenhouse Gas Initiative (RGGI), New York State (NYS or the State) established its Carbon Dioxide (CO_2) Budget Trading Program through regulations promulgated by the Department of Environmental Conservation (DEC) and the CO_2 Allowance Auction Program through regulations promulgated by the New York State Energy Research and Development Authority (NYSERDA). This report is prepared pursuant to the New York's Regional Greenhouse Gas Initiative Investment Plan (2013 Operating Plan) and provides an update on the progress of programs through the quarter ending December 31, 2013. 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 2013 version of the Operating Plan was approved by NYSERDA's Board on June 17, 2013.

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 this quarter related to carbon dioxide equivalent (CO_2e) reductions, energy savings, and energy bill savings is presented in this section. 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 December 31, 2013, at the portfolio and program levels, are shown in Table 1and 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 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.

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

[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 Appendix A-4 for the measure-life assumptions.

Table 1. Summary of Expected Cumulative Portfolio Benefits through December 31, 2013

Benefits through December 31, 2013[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]	100,934	985,379	26,545	16,752	43,298	23.4
Cumulative Annualized Pipeline Savings[e]	45,904	388,264	19,423	16,642	36,065	11.7
Cumulative Annualized Committed Savings[f]	146,838	1,373,643	45,968	33,394	79,362	35.1
Expected Lifetime Total Savings[g]	2,653,226	26,342,536	673,729	834,852	1,508,581	727.5

[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 Appendix A-4 for the measure-life assumptions.

Table 2. Summary of Expected Cumulative Annualized Program Benefits through December 31, 2013

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]
Residential, Commercial, Industrial & Municipal Sectors																	
Green Jobs - Green New York																	
GJGNY - Single-Family Residential Assessment Component[j]	$13.8	$0.7	405,485	7,800	413,285	35	1	5,353	3,613	8,966	1,614	90	28,607	1,648	30,254	478	20
GJGNY - Single-Family Residential Loan Component[j]	$20.0	$3.8	219,425	24,738	244,163	97	4	3,372	380	3,752	6,342	334	15,683	1,767	17,450	1,364	60
GJGNY - Multifamily Residential Assessment Component[j]	$3.5	$1.4	274,226	156,299	430,524	11	1	15,038	8,571	23,609	208	16	22,356	12,742	35,098	140	9
Residential Efficiency Services																	
Multifamily Performance Program	$10.2	$1.5	193,178	223,475	416,653	28	2	3,811	4,409	8,221	1,420	109	16,601	19,205	35,807	326	21
Multifamily Carbon Emissions Reduction Program[k]	$6.2	$0.2	-	-	-	-	-	-	-	-	-	-	18,781	6,250	25,031	253	19
EmPower New York	$6.7	$0.5	41,891	13,225	55,116	130	5	-	-	-	-	-	3,239	1,033	4,273	1,681	70
Home Performance with ENERGY STAR®	$8.1	$0.7	112,828	17,349	130,177	68	3	663	117	780	11,288	627	9,587	1,384	10,971	803	34
Green Residential Building Program	$2.5	$0.3	36,548	-	36,548	75	3	1,573	-	1,573	1,741	97	2,663	-	2,663	1,029	45
Solar Thermal Incentive Program	$0.9	$0.1	2,784	328	3,111	310	15	-	-	-	-	-	201	27	228	4,224	210
Low-Rise Residential New Construction Program	$0.4	-	1,140	3,341	4,480	79	3	74	211	285	1,246	69	101	295	396	898	40
Power Supply & Delivery																	
NYSERDA Photovoltaic Initative	$5.2	$0.1	-	-	-	-	-	2,050	34	2,084	2,560	102	641	11	651	8,193	328
LIPA Photovoltaic and Efficiency Initiative	$40.2	-	-	-	-	-	-	14,702	16,608	31,310	1,284	51	4,594	5,190	9,784	4,109	164
Multi-Sector																	
Regional Economic Development & GHG Reduction	$11.3	$0.8	-	5,812	5,812	2,079	116	-	3,687	3,687	3,277	182	-	1,542	1,542	7,838	435
Cross-Program Overlap[l]	N/A	N/A	-302,125	-64,102	-366,227	N/A	N/A	-3,339	-1,566	-4,905	N/A	N/A	-22,121	-5,189	-27,310	N/A	N/A
TOTAL Annualized Cumulative Benefits	**$129.0**	**$9.9**	**985,379**	**388,264**	**1,373,643**	**101**	**N/A**	**43,298**	**36,065**	**79,362**	**1,750**	**N/A**	**100,934**	**45,904**	**146,838**	**946**	**N/A**
TOTAL Expected Lifetime Cumulative Benefits	**$129.0**	**$9.9**	**19,907,959**	**6,434,578**	**26,342,536**	**N/A**	**5**	**806,551**	**702,031**	**1,508,581**	**N/A**	**92**	**1,881,392**	**771,834**	**2,653,226**	**N/A**	**52**

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.

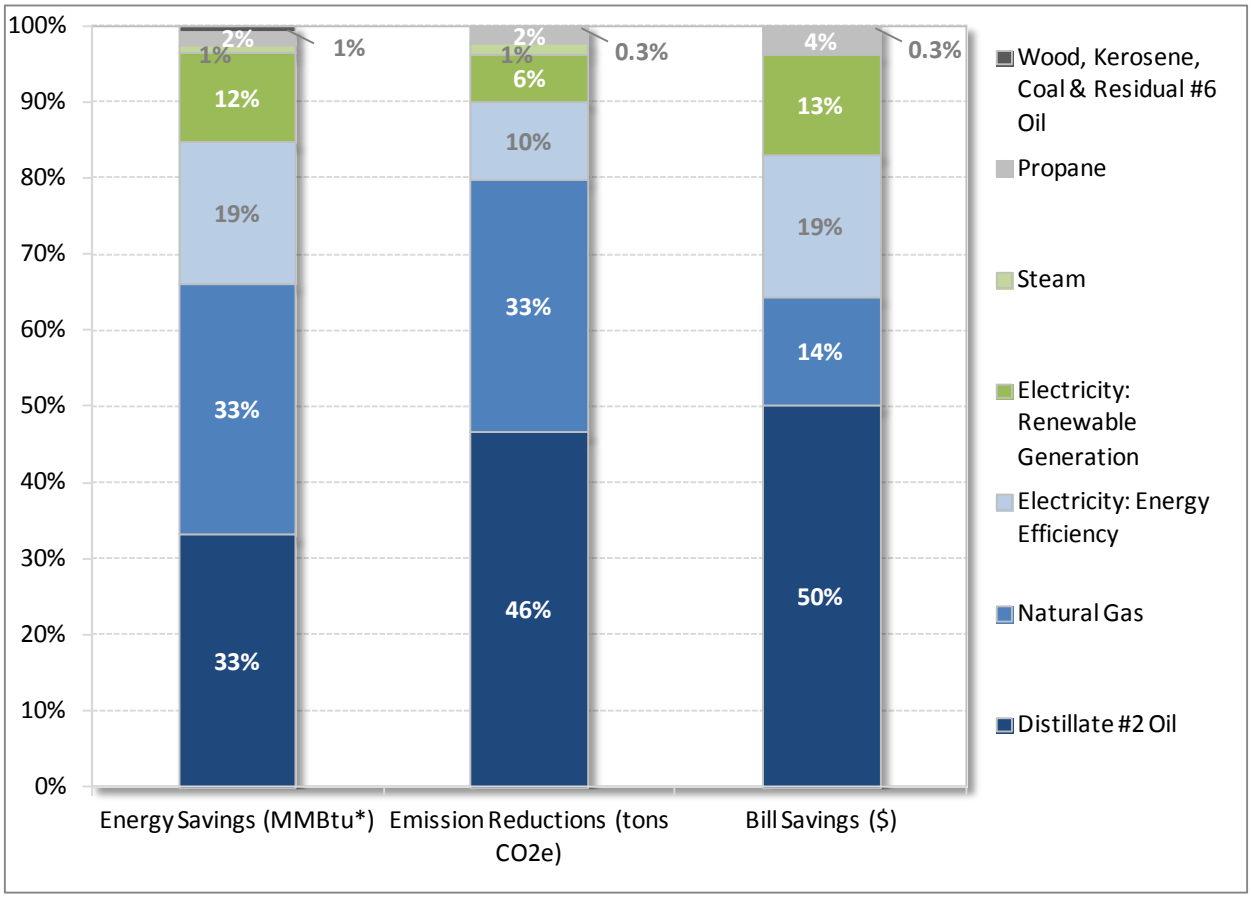
[i] The sum of Total Incentives and Total Associated Costs divided by the Expected Lifetime Total Committed Savings. Inclusive of cross-program overlap.

[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 December 31, 2013



* 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 December 31, 2013, New York State sold more than 242.4 million CO_2 allowances and received nearly $583.4 million in auction proceeds. In addition, more than $3.0 million in interest earnings were allocated on the RGGI portfolio and nearly $0.8 million in interest earnings were allocated on the Green Jobs – Green New York (GJGNY) program. These funds are reinvested for program implementation and are allocated to 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 December 31, 2013[a]

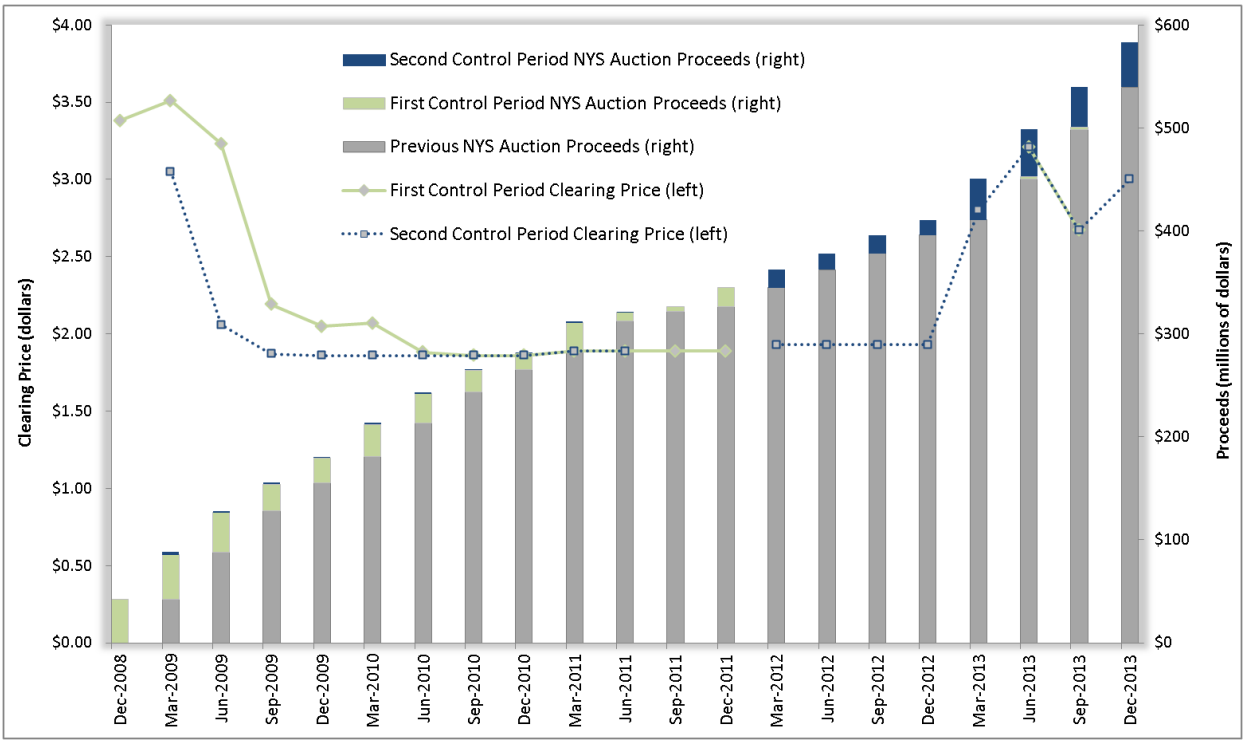
Source: RGGI, Inc. and NYSERDA

Fund Category	NYS Allowances Sold	Cumulative Funds
First Control Period Total	144,305,904	336,282,535
Second Control Period Total	98,125,212	247,083,862
RGGI Auction Proceeds	**242,431,116**	**583,366,397**
Interest Allocated to the RGGI Portfolio		$3,026,525
Interest Allocated to the GJGNY Program		$770,000
TOTAL Funds		**$587,162,922**

[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 extends through December 31, 2014.

Figure 2. New York State's RGGI Auction Results through December 31, 2013

Source: RGGI, Inc.



3.2 Budget

Table 4 through Table 6 present financial data for the approved RGGI programs through December 31, 2013. Table 4 presents the current expended, encumbered, and committed funds for each program and reflects how the nearly $587.2 million of current funds are allocated across the four major program areas:

- Residential/Commercial/Industrial/Municipal.
- Transportation.
- Power Supply and Delivery.
- Multi-Sector.

Table 5 and Table 6 present the financial data for the approved GJGNY and NY Green Bank programs, respectively, through December 31, 2013.

Table 4. Available Funding and Financial Status through December 31, 2013 (millions of dollars)

Source: NYSERDA

	Budgeted Funds [a]	Expended Funds[b]	Open Encumbrances[c]	Pre-Encumbrances[d]	Committed Funds[e]	Uncommitted Funds[f]
Residential/Commercial/Industrial/Municipal						
Residential Efficiency Services	43.8	26.9	7.7	4.3	39.0	4.9
Municipal Water and Wastewater	1.9	1.2	0.4	-	1.7	0.3
Advanced Buildings	4.6	0.9	0.2	3.6	4.6	-
Industrial Innovations	10.2	1.8	1.6	6.2	9.6	0.6
Total Residential/Commercial/Industrial/Municipal	**60.6**	**30.8**	**10.0**	**14.1**	**54.9**	**5.8**
Transportation						
Transportation Research	2.4	1.4	0.6	-	2.0	0.4
Total Transportation	**2.4**	**1.4**	**0.6**	**-**	**2.0**	**0.4**
Power Supply and Delivery						
NYSERDA Photovoltaic Initiative	5.3	5.3	0.05	-	5.3	-
LIPA Photovoltaic and Efficiency Initiative	42.7	20.6	5.0	14.6	40.2	2.5
Advanced Power Technology	3.9	3.6	0.2	-	3.8	0.1
Competitive Greenhouse Gas Reduction Pilot	14.5	-	-	-	-	14.5
Total Electric Power Supply and Delivery	**66.4**	**29.5**	**5.2**	**14.6**	**49.3**	**17.1**
Multi-Sector						
Climate Research and Analysis	8.4	2.8	3.0	0.3	6.1	2.4
Clean Energy Business Development	21.9	6.3	3.2	1.5	11.0	10.9
Regional Economic Development and Greenhouse Gas Reductions	10.4	1.8	7.8	0.8	10.3	0.1
Cleaner, Greener Communities	93.6	13.2	6.4	30.5	50.2	43.5
Total Multi-Sector	**134.3**	**24.0**	**20.4**	**33.1**	**77.5**	**56.9**
Other Costs [g]						
Deficit Reduction Plan (DRP) Transfer [h]	90.0	90.0	-	-	90.0	-
Con Edison Smart Grid Program [i]	14.8	14.8	-	-	14.8	-
Program Administration [j]	25.3	10.2	0.003	-	10.2	15.1
Metrics and Evaluation	15.5	0.5	2.8	1.0	4.3	11.2
RGGI Inc. Costs [k]	6.4	4.5	0.6	1.0	6.0	0.4
New York State Cost Recovery Fee	5.6	3.4	-	-	3.4	2.3
OTHER COSTS TOTAL	**157.7**	**123.4**	**3.4**	**2.0**	**128.7**	**29.0**
SUBTOTAL	**421.5**	**209.1**	**39.6**	**63.7**	**312.4**	**109.1**
Green Jobs - Green New York						
Green Jobs - Green New York	112.8	61.2	9.8	17.4	88.4	24.4
New York Green Bank						
New York Green Bank	52.9	0.2	-	-	0.2	52.7
TOTAL[l]	**587.2**	**270.5**	**49.4**	**81.1**	**401.0**	**186.2**

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.

[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. As of June 30, 2013, the parties to the consent decree estimate that the total commensurate benefit for the years 2009-2014 is $13.2 million and agreed to dedicate such funds for the development of smart grid technologies in the Con Edison territory. 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 $15.5 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 non-profit 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 December 31, 2013 (millions of dollars)

	Budgeted Funds [a]	Expended Funds[b]	Open Encumbrances[c]	Pre-Encumbrances[d]	Committed Funds[e]	Uncommitted Funds[f]
Workforce Development, Outreach and Marketing						
Workforce Development	8.0	4.0	2.5	0.05	6.6	1.4
Outreach and Marketing	15.5	8.3	1.9	4.3	14.5	1.0
Total Workforce Development, Outreach and Marketing	**23.5**	**12.3**	**4.4**	**4.4**	**21.2**	**2.4**
Residential						
Energy Assessment Incentive	14.6	11.8	-	1.9	13.8	0.8
Implementation Costs	1.0	0.7	0.2	-	0.9	0.1
Financing: Loans	26.7	43.6	-	5.2	48.8	
Financing: Loan Repayments	-	(4.5)	-	-	(4.5)	
Financing: Implementation Costs	-	2.7	0.8	0.1	3.6	
Financing: Bond Proceeds	-	(24.3)	-	-	(24.3)	
Financing: Bond Issue Costs	-	1.0	-	-	1.0	
Total Financing	**26.7**	**18.6**	**0.8**	**5.3**	**24.7**	**2.0**
Total Residential	**42.2**	**31.2**	**0.9**	**7.2**	**39.3**	**2.9**
Multifamily						
Energy Assessments	3.8	1.7	1.6	0.2	3.5	0.3
Implementation Costs	1.6	1.4	0.003	-	1.4	0.2
Financing: Loans	7.8	2.5	0.1	0.26	2.8	
Financing: Loan Repayments	-	(0.2)	-	-	(0.2)	
Financing: Implementation Costs	0.3	0.1	0.2	-	0.3	
Total Financing	**8.1**	**2.4**	**0.2**	**0.3**	**2.8**	**5.2**
Total Multifamily	**13.5**	**5.5**	**1.8**	**0.5**	**7.8**	**5.7**
Small Commercial						
Energy Assessments	8.7	3.0	0.9	4.8	8.7	-
Implementation Costs	2.3	0.4	0.1	0.5	1.0	1.3
Financing: Loans	6.9	0.2	-	-	0.2	
Financing: Loan Repayments	-	(0.03)	-	-	(0.03)	
Financing: Implementation Costs	0.3	0.2	0.3	-	0.5	
Total Financing	**7.2**	**0.3**	**0.3**	**-**	**0.6**	**6.6**
Total Small Commercial[g]	**18.2**	**3.7**	**1.3**	**5.3**	**10.3**	**7.8**
SUBTOTAL	**97.4**	**52.7**	**8.5**	**17.4**	**78.6**	**18.9**
Other Costs						
Program Administration	7.8	5.8	0.004	-	5.8	2.0
Program Evaluation	5.6	1.6	1.3	-	2.9	2.7
New York State Cost Recovery Fee	1.9	1.1	-	-	1.1	0.8
OTHER COSTS TOTAL	**15.3**	**8.5**	**1.3**	**-**	**9.8**	**5.5**
TOTAL[h]	**112.8**	**61.2**	**9.8**	**17.4**	**88.4**	**24.4**

[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] Actual Pre-Encumbrances towards the Solicitation for the contracting of implementation, quality assurance, and energy assessments contractors total $7.0 million. The total Pre-Encumbrances for the Small Commercial program presented in this table reflects additional funding from sources that include new funds, transfers, and funds disencumbered from current energy assessment contracts.

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

Table 6. Green Bank Available Funding and Financial Status through December 31, 2013 (millions of dollars)

	Budgeted Funds [a]	Expended Funds[b]	Open Encumbrances[c]	Pre-Encumbrances[d]	Committed Funds[e]	Uncommitted Funds[f]
Program Costs						
NY Green Bank	48.6	-	-	-	-	48.6
SUBTOTAL	**48.6**	**-**	**-**	**-**	**-**	**48.6**
Other Costs						
Program Administration	4.2	0.2	-	-	0.2	4.0
Program Evaluation	-	-	-	-	-	-
New York State Cost Recovery Fee	0.1	0.005	-	-	0.005	0.1
OTHER COSTS TOTAL	**4.4**	**0.2**	**-**	**-**	**0.2**	**4.2**
TOTAL[g]	**52.9**	**0.2**	**-**	**-**	**0.2**	**52.7**

[a] Includes auction proceeds on the Green Bank funds. The allocation is consistent with the 3-year budget presented in the Operating Plan. The Green Bank funding being reported here is only the Green Bank funds that were transferred from RGGI. The actual 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.

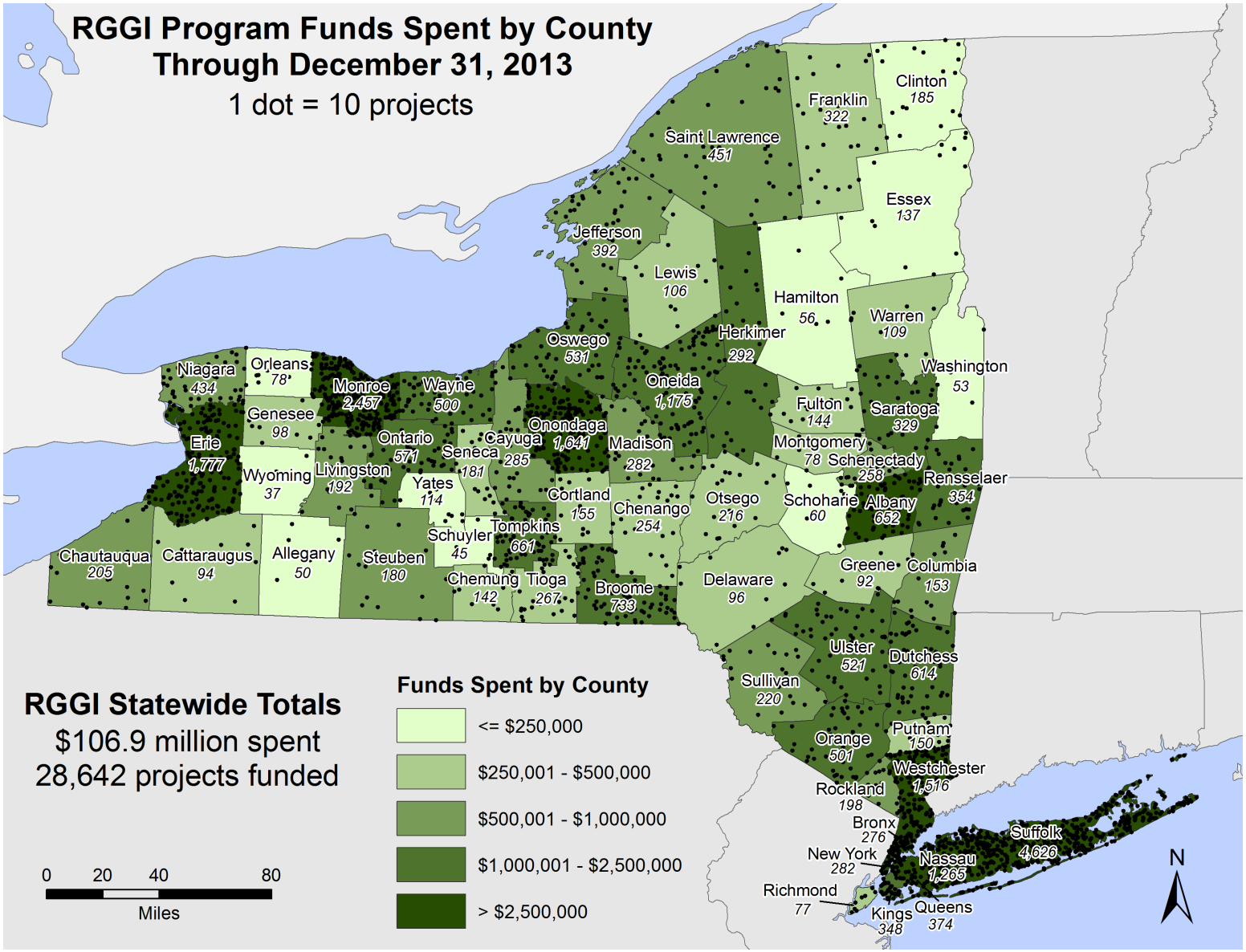
[e] The sum of Expended, Encumbered, and Pre-Encumbered funds.

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

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

As stated in the Operating Plan, geographic equity of expenditures is pursued across the portfolio of RGGI programs. Figure 3 shows the distribution of nearly $107 million in RGGI funds spent across New York State on nearly 29,000 projects that can be associated with a specific geographic area. Additional funds have been spent on activities that have statewide benefits, such as climate research and workforce development.

Figure 3. Geographic Distribution of RGGI Funds Spent



4 Program Descriptions and Accomplishments

4.1 Residential, Commercial, Industrial, and Municipal Sectors

4.1.1 Green Jobs – Green New York (GJGNY)

Green Jobs – Green New York 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, more sustainable, and more economically sound. GJGNY is administered by NYSERDA and made available by the Green Jobs – Green New York Act of 2009. The GJGNY 2013 Annual Report was issued on October 1, 2013.[2] The report presents financial data for the approved GJGNY programs through June 30, 2013.

4.1.1.1 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 and low-rise[3] residential buildings. Participating HPwES contractors accredited by the Building Performance Institute (BPI) 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 is driving increased participation in this program and cutting additional GHG emissions.

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2 NYSERDA. 2013. "Green Jobs – Green New York 2013 Annual Report." http://www.nyserda.ny.gov/Publications/Program-Planning-Status-and-Evaluation-Reports/-/media/Files/EDPPP/Planning/GJGNY/Annual-Report-GJGNY/2013-gjgny-annual-report.pdf

3 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 during this quarter:

- 4,765 assessments were completed this quarter, bringing the total to 46,217 residential GJGNY assessments
  completed; 42,880 (93 percent) were provided at no cost to the customer.
- 3,941 of the 12,831 completed residential units served through HPwES resulting from a GJGNY assessment and/or GJGNY financing, (31 percent) units are associated with income-qualified Assisted HPwES customers.
- CBOs assisted with the completion of 842 units, or 6 percent of all completed GJGNY projects.

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 15 percent.

Key accomplishments during this quarter:

- 90 assessment applications were received this quarter, bringing the total number of assessment applications received to 340; of these, 57 percent are associated with affordable housing.
- The total number of assessments completed through December 31, 2013 is 236; of these, 53 percent are associated with affordable housing.
- A total of 266 projects are contracted to have measures installed; of these, 59 percent 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 during this quarter:

- 151 new energy assessments were completed during this quarter, bringing the total number of completed assessment to 1,948.
- 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 389 completed projects through December 2013.

4.1.1.2 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. 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 during this quarter:

- 491 loans were issued this quarter, bringing the total to 4,502 loans issued with a total loan value of $43.6 million.
- 28 percent of the loans issued are associated with Assisted HPwES customers, representing 21 percent of the total loan funds.
- Through December 31, 2013, a total of 1,284 OBR Loans have closed, valued at approximately $13.7 million.

Case Study 1: RGGI-Funded Energy Assessment and Low-Interest Financing Help Homeowner Cut Energy Bills by $1,500 a Year

Wasted energy leads to unnecessary carbon emissions, so some RGGI proceeds in New York State are used for energy efficiency projects. Paul Giessler owns a home in Old Forge, NY that was drafty, too cool in winter, and too warm in summer. After a free, comprehensive home energy assessment paid for by RGGI proceeds through the Green Jobs – Green New York (GJGNY), he learned there was significant heat loss throughout the house. Then, he took a low-interest loan through RGGI-funded GJGNY and used an On-Bill Recovery Loan to pay for the recommended energy efficiency measures: wall, ceiling, attic, and cellar insulation plus a new, high-efficiency furnace. The On-Bill Recovery Loan allows eligible homeowners to finance qualifying energy-efficiency projects. They repay the loan through a charge that appears on their energy bill. New York is the largest state in the nation to offer this financing option. Giessler is wasting much less energy now, and he says he is saving $1,500 a year in energy costs.

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 during this quarter:

- One loan was closed this quarter, bringing the total to 10 closed loans with a total value of $8.4 million. NYSERDA's share of the total loan value is $2.5 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 zero percent interest and the participating lender provides the remaining loan principal at the 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. Six lenders have agreed to offer both participation loans and OBR loans.

Key accomplishments during this quarter:

- Six customer applications were approved this quarter, bringing the total to 26 approved customer applications for Participation Loans.
- Three loans were approved this quarter for the OBR Loan, bringing the total to 16 approved OBR loans.
- No new Participation Loans or OBR loans were issued this quarter, maintaining the total at eight loans issued with a total value of $342,668. NYSERDA's share of the total value is $164,054.

4.1.1.3 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 photovoltaic 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 during this quarter:

- NYSERDA has executed on-the-job training agreements with 41 businesses seeking to hire new employees or advance incumbent workers under GJGNY. As of December 31, 2013, 150 people have been hired from NYSDOL's One-Stop lists, and 12 incumbent workers have been advanced due to training. Approximately $1.32 million in wage and training subsidies has been awarded. The average wage of workers hired under the program is $16.38 per hour.
- Community Power Network (CPN) has trained 666 oilheat technicians at locations across the State. Course offerings include NORA Silver Certification Review, NORA Gold Certification Review, NORA Tank Installation, and Combustion Air and Venting. The courses are designed to improve the technical skills of service technicians, while integrating "whole house" concepts to provide increased home heating safety and efficiency. Spring training sessions are scheduled for the Capital Region, Hudson Valley, Central New York, Western New York, Long Island, New York City, and the North Country.

Outreach and Marketing

GJGNY provides for community-based outreach, enabling one-to-one assistance with the process of participating in the program in order to deliver services in underserved communities. The GJGNY program 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 during this quarter:

- Through December 2013, CBOs were responsible for 3,207 completed assessments, which resulted in 803 completed retrofits. Approximately 45 percent of those retrofits were for Assisted HPwES customers.
- NYSERDA continues to work with the CBOs selected through RFP 2773 Green Jobs – Green New York Outreach Program-Round 2 to finalize contracts. In addition to goals for HPwES and Assisted HPwES projects contracted, some CBOs will also have goals for multifamily projects, small business/not-for-profit projects, and workforce development, and address regional challenges such as working with Superstorm Sandy customers or increasing the number of participating HPwES and Assisted HPwES contractors in the region. NYSERDA will award up to 15 percent bonus payment to those CBOs that reach their retrofit goals during the two-year contract period.
- CBO monthly webinars continue as scheduled, covering a variety of topics essential for outreach and marketing success such as program updates, sales training, financing clarification, and web-based portal training.

4.1.2 Residential Efficiency Services

NYSERDA currently offers a suite of programs that provide comprehensive energy 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 as well as renewable energy 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.

4.1.2.1 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 during this quarter:

- The total number of completed energy efficiency projects completed through December 31, 2013 is 43.

4.1.2.2 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 #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 during this quarter:

- MCERP paid out more than $0.5 million in incentives to New York State building owners and service providers during this quarter, bringing the total paid incentive amount to $4.8 million.
- In total, 118 multifamily buildings have converted through MCERP from burning #6 oil to cleaner alternatives, such as primarily natural gas or a blend of natural gas and #2 oil.

4.1.2.3 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 utilizes the 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, 172 EmPower contractors are assisting in RGGI-funded projects.

Key accomplishments during this quarter:

- 251 households across New York State were served during this quarter, bringing the total to 1,461 households served to date with EmPower RGGI funding.

4.1.2.4 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 residential buildings. The program uses a network of service providers accredited by the Building Performance Institute (BPI) to perform diagnostic testing on the home, recommend improvements, determine the payback period for those improvements, and install improvements selected by the homeowner. Currently, 237 contractors are participating in the HPwES Program. The HPwES 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.

Key accomplishments during this quarter:

- 545 energy efficiency projects were completed during this quarter at a contracted value of $4.8 million, bringing the total to 3,526 energy efficiency projects completed at a contracted value of $33.2 million.
- 32 percent of RGGI-funded HPwES projects were eligible for Assisted Home Performance with
- ENERGY STAR®.
- 31 percent of all HPwES projects were RGGI-funded, which is an increase of 17 percent from 2012.

4.1.2.5 Green Residential Buildings Program (GRBP)

The Green Residential Building Program (GRBP), established under Public Authorities Law 1872, is 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 offers 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. In this program, 69 contractors participate. 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 during this quarter:

- 151 RGGI-funded projects were completed during this quarter, bringing the total number of completed projects to 440.

4.1.2.6 Solar Thermal Incentive Program

NYSERDA's Solar Thermal Incentive Program incentivizes the installation of solar thermal (ST) technologies for the production of hot water that displaces electrically heated hot water systems. System incentives are capped at $4,000 per site/meter for residential systems and $25,000 per site/meter for nonresidential applicants. In this program, 88 contractors participate. Accounting for funding from the Renewable Portfolio Standard (RPS) program to displace electrically heated domestic hot water, RGGI support for the Solar Thermal Incentive Program is used to displace heating fuels other than electricity. GJGNY financing is also available for these projects.

Key accomplishments during this quarter:

- 7 solar thermal hot water systems were installed during this quarter, bringing the total to 105 system installations.

4.1.2.7 Low-rise Residential New Construction Program

NYSERDA's Low-rise Residential New Construction Program[4] (LRNCP) includes the New York ENERGY STAR® Certified Homes Program and the former New York Energy $mart initiative for certain low-rise multiunit buildings and gut rehabilitation projects (market-rate and affordable components). These programs are 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 occupants than would otherwise be achieved. Five contractors are participating in this program. RGGI funds have been used, starting in July 2013, to pay the MMBtu savings component of the LRNCP incentive for projects using propane or oil as the primary heating fuel.

Key accomplishments during this quarter:

- 8 new homes were constructed, bringing the cumulative total of new homes constructed to date to 15.
- $165,528 in private sector funds were leveraged, making the program total to date to $357,192.

4.1.3 Municipal Water and Wastewater Program

The purpose of the Municipal Water and Wastewater program is to reduce energy use through energy efficiency and process improvement measures. The program offers coordinated assistance designed to achieve cost-effective CO_2 reductions by providing technical support and implementation assistance to existing facilities and new construction projects.

[4] 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.

4.1.3.1 Wastewater Energy Efficiency Program

The Wastewater Energy Efficiency Program (WWEP) provides a unique opportunity to coordinate RGGI climate change goals and funding with U.S. Environmental Protection Agency (EPA) goals as well as funding while installing infrastructure that will improve the environment and keep New York State waters clean and healthy. This program is co-managed by the New York State Environmental Facilities Corporation (EFC) and NYSERDA. EFC has secured Green Project Reserve Funds offered by EPA to bolster efforts to finance water and wastewater infrastructure via the Clean Water State Revolving Fund Program. Manufacturing plants financed with Green Project Reserve monies will be constructed energy efficiently, thus minimizing carbon emissions and improving their economic and environmental performance.

Selected projects receive RGGI-funded technical analysis to identify costs and savings associated with energy efficiency, process improvement, and carbon abatement opportunities, as well as Green Project Reserve grants to cost share plant upgrades. WWEP 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 during this quarter:

- 5 technical energy analyses were conducted during this quarter, bringing the total to 59 completed analyses.
- Projected annual savings are 46,290 MWh and 56,409 MMBtu, pending installation of currently recommended measures.

4.1.4 Industrial Innovations Program

The Industrial Innovations program is a longer-term initiative 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.

Key accomplishments during this quarter:

- Ener-G-Rotors installed the Organic Rankine Cycle Appliance (ORCA) beta unit at Harbec Plastics. This device captures low-temperature waste heat and converts it into electricity. Installation costs were consistent with expectations. The device was monitored and controlled remotely from Ener-G-Rotors' offices in Rotterdam, NY and was run for more than 500 hours. Reaching the 500 operating milestone also resulted in additional investment of $500,000 from their lead investor. Significant advancements were made in system design, operating and controlling remotely, and installation guidelines.

- $4.9 million of RGGI funds is leveraging $115 million of proposers' funds
- 2 competitively-selected projects were approved to receive awards this quarter

4.2 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 during this quarter:

- Final design and proof of concept was completed for a ferry docking system to reduce engine idling of ferries while at port. Current practice is for the vessel to push against the dock at full power to hold the vessel steady at the dock while loading and unloading passengers. Studies have shown that almost 50% of fuel consumption occurs while the vessel is at the dock. This project is developing a mechanical system that will hold ferry vessels in place while loading and unloading passengers, allowing engine power to be reduced. The device has been reviewed by various government agencies along with ferry companies. The project team intends to apply to NYSERDA for funding to demonstrate the technology in New York City.

4.3 Power Supply and Delivery

The objective of the two power supply and delivery (PSD) programs is to help reduce greenhouse gas (GHG) emissions from the electric power sector in New York State. The initiative has both near-term and long-term components that will support a portfolio of diverse projects relating to electric power generation, transmission, and distribution systems. These projects will reduce GHG emissions throughout the sector and include the implementation of an integrated strategy enabling smart-grid functionality and maintenance of a diverse portfolio of efficient generation resources. The PSD programs are designed to simultaneously maintain system reliability, safety, and security.

4.3.1 Photovoltaic Programs Across New York State

4.3.1.1 NYSERDA Photovoltaic Programs

NYSERDA's photovoltaic (PV) programs focus 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. The PV programs support 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 to transition to clean-energy, healthy communities and empower economic development. These funds supplement and do not supplant Renewable Portfolio Standard (RPS) funds, particularly in regions that do not pay into the RPS.

Key accomplishments during this quarter:

- No new PV systems were installed, keeping the total number of installed PV systems at 128.

4.3.1.2 LIPA Photovoltaic and Efficiency Initiative

RGGI funds are supporting LIPA's Solar Pioneer and Solar Entrepreneur programs, which incentivize residential and commercial photovoltaic (PV) systems. Residential PV systems up to 25 kW and non-residential PV systems up to 2 MW are eligible for an incentive based on expected system performance and customer sector. For residential systems, the program supports both customer-owned systems, as well as systems installed under third-party ownership arrangements (i.e., power purchase agreements or leases).

Key accomplishments during this quarter:

- A total of 1,588 PV systems have been installed from inception through December 31, 2013.

4.3.2 Power Systems

The Power Systems Program is designed to reduce GHG emissions in the long term. The program has two RGGI-funded focus areas: (1) advanced renewable energy, and (2) carbon capture, recycling, and sequestration.

4.3.2.1 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 during this quarter:

- 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 photovoltaic (PV) and lightweight photovoltaic systems. During this quarter, PVMC continued to make significant progress in business development, operations, and technical areas. Companies have been recruited to participate in the consortium, where there has been a targeted focus on reducing downstream balance-of-system (BOS) costs in conjunction with PV installers. Additionally, several Letters of Intent (LOIs), as well as, Memorandum of Understandings (MOUs) were signed by a market-leading roofing material manufacturer and roofing associations that will play an integral part in the newly launched Lightweight Photovoltaic (LPV) program. PVMC now boasts more than 40 industrial collaborators as members or affiliates.

- PVMC began operations of its solar PV manufacturing facility in Halfmoon, NY. The focus this quarter has been to develop manufacturing methods that can easily produce high-quality solar cells Steel and glass substrates have proven economical and highly repeatable in solar PV manufacturing. Pilot production runs have demonstrated efficiencies exceeding 17 percent on stainless steel and 18 percent on glass substrates.
- Phase 1 of the 10-megawatt production facility is complete, and has been commissioned by the College of Nanoscale Science and Engineering (CNSE) Environmental Health and Safety group. The production facility will test new manufacturing methods for solar PV cells, using new methods and tooling to increase the efficiency and lower the cost of solar cell production. New construction methods and materials use glass substrates that benefit both equipment manufacturers and upstream materials suppliers. In addition, a stainless steel, roll-to-roll technique is under development that will allow PV cells to be flexible, allowing for penetration into new markets.

4.3.2.2 Carbon Capture, Recycling, and Sequestration

This program area 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 dollars of U.S. Department of Energy funds to investigate the potential for geological sequestration in the Newark Basin.

Key accomplishments during this quarter:

- Well logging and geochemical experiments continued at two of the geological characterization wells drilled for the TriCarb project. The information gathered will help refine the geomechanical model being developed to simulate the injection of CO_2 into the basin rock formations.

4.3.3 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 during this quarter:

- Progress was made to develop the first solicitation for the CGGR Pilot Program.

4.4 Multi-Sector Programs

4.4.1 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 leverage 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.

Key accomplishments during this quarter:

- With the ability of clean tech firms recognized during the first round of the NYS Clean Tech 50 to raise capital, CB Insights is following this approach to again recognize early stage clean tech firms. The process involves the use of proprietary software tools to first identify NYS clean tech companies and then to assess the health of these companies. The software searches more than 100,000 sources for signals of momentum for each company: Hiring activity and hiring of key positions; executive turnover; press/media exposure, sentiment of exposure; new customer/partner signings; and, recent investment received/closed. It is expected that the next round of companies will be recognized during New York Energy Week in June 2014.

4.4.2 Climate Research and Analysis Program

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 this quarter:

- NYSERDA inaugurated the web-based New York Climate Change Science Clearinghouse project. Project partners include Northeast States for Coordinated Air Use Management (NESCAUM), Cornell University, SUNY College of Environmental Science and Forestry, and the National Oceanic and Atmospheric Administration. The Clearinghouse will help educate policymakers, provide practitioners the specific information that they need, help identify data gaps, and promote information-sharing across scientific/engineering disciplines. The website will leverage and improve upon the capabilities of existing climate related websites at State, regional and federal levels. A beta version of the web-based clearinghouse is planned for testing within a year.

- Collaboration among other State agencies (such as the Department of Environmental Conservation and New York State Department of Agriculture and Markets) as well as other NYSERDA programs (including Cleaner, Greener Communities) continues, supporting climate change research and issues development, and which supports better informed State policy and program approaches. Such activity also includes finalizing the updated Climate Research and Analysis Program research plan, with new solicitations targeting climate mitigation and adaptation research, to be issued in 2014.

4.4.3 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 Andrew M. 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 during this quarter:

- 17 projects received awards.
- 6 contracts were executed, bringing the total number of executed contracts to 14.
- 6 projects held events and/or ribbon cuttings, bringing the total number of events to 10.
- 3 projects have been completed.

4.4.4 Cleaner, Greener Communities

The Cleaner, Greener Communities (CGC) program was announced by Governor Cuomo in his 2011 State of the State address. It builds on the Climate Smart Communities program, providing enhanced support for development and implementation of regional sustainability plans to help ensure that the State's ongoing and substantial investments
in infrastructure help to move communities and New York State as a whole toward a more environmentally sustainable future. The programs encourage communities to use public-private partnerships and develop regional sustainable growth strategies in areas such as emission control, energy efficiency, renewable energy, low-carbon transportation, and other carbon reductions. The programs emphasize activities associated with smart growth, such as creating green jobs, building green infrastructure, investing in environmental justice communities, and strengthening environmental protection.

Key accomplishments during this quarter:

- 28 CGC grants ($4 million) were awarded to municipalities for comprehensive planning and zoning activities.
- 18 CGC grants ($26 million) were awarded for large scale sustainability projects.
- Four CGC applications were approved for streamlined permitting of photovoltaic systems.
- The number of Climate Smart Communities was increased to 120 across the State.
- An interactive CSC Land Use Toolkit was launched. The toolkit was designed to help guide community leaders toward specific practices that will help to reduce greenhouse gas emissions in the areas of land-use, transportation policy, green building, infrastructure investment, green infrastructure, and housing policy.

4.4.5 NY Green Bank

NY Green Bank, a division of NYSERDA, is a $1 billion initiative 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. It will foster greater private sector investment in projects deploying commercially-proven energy efficiency, renewable energy, and other clean technologies. It is expected to begin operations early in 2014.

Key accomplishments during this quarter:

- NYSERDA staff participated in the NYS Public Service Commission (PSC) Stakeholder Technical Conference on the NY Green Bank petition on October 15, 2013.
- NYSERDA Green Bank staff reviewed, processed, and replied to stakeholder comments on NYSERDA's petition on November 12, 2013.
- Alfred Griffin was hired as president of NY Green Bank on November 22, 2013.
- The NYS PSC approved NYSERDA's petition requesting $165 million to capitalize NY Green Bank on December 19, 2013.

Case Study 2: RGGI Funds Support NY Green Bank to Accelerate Projects that Reduce Carbon Emissions

Governor Andrew M. Cuomo announced in December 2013 that $45 million in RGGI proceeds were part of the $210 million initial funding for NY Green Bank, which will work to mobilize private sector capital and finance the transition to a more cost-effective, resilient and clean energy system in the state. NY Green Bank will leverage private sector financing for clean energy projects that reduce carbon emissions through energy efficiency, renewable energy and carbon abatement technology. NY Green Bank will support economically viable clean-energy projects that have difficulty accessing financing due to market barriers. Visit www.greenbank.ny.gov for more information about NY Green Bank.

4.4.6 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 (REDCs) initiative and provides direct support to advance the strategic priorities and regionally significant projects identified in each region. Through this new alignment with the REDCs, NYSERDA can provide a greater level of education and adoption of energy-efficiency and renewable energy practices at the community level.

Key accomplishments during this quarter:

- 117 new partnerships that may help to identify and assist in customer engagement were developed, bringing the total to 465 partnerships.
- 171 project referrals from partners were received, bringing the total to 948 project referrals.
- 123 public outreach activities, such as events, presentations or other speaking engagements were conducted, bringing the total to 333 public outreach activities.
- 280 projects were referred to various NYSERDA programs, bringing the total number of referrals to 1,199.
- Outreach and program support was provided to the REDCs on 15 projects, bringing the total to 78.

4.5 Program Evaluation

Several RGGI evaluation studies are underway or in the planning stages as of the fourth quarter of 2013. 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. Different types of evaluation activities being performed are:

- **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.

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

4.5.1 Evaluation of Energy Efficiency and Other Deployment Programs

- Cleaner, Greener Communities (CGC) Program: The CGC Process Evaluation will focus on Phase I activities. Through a series of in depth interviews, surveys, and secondary data collection, the Phase I evaluation will provide the CGC team with a deep, comparative understanding of the regional plans and actors involved in their development. The information will help NYSERDA to makes ongoing investments of monetary and nonmonetary resources in the State through the CGC initiative. This study will kick-off in May 2014, with a completion date of January 2015.
- GJGNY Small Business/Not-for-Profit Program: The objectives of this Process/Market Evaluation study are to examine program operations, characterize and understand small commercial and not-for-profit offerings in New York and other areas through benchmarking best practices, identify reasons for participation and measure implementation, and provide recommendations for program improvement. Phase 1 concluded in late 2013. The scope of Phase 2 is under development.
- Multifamily Performance Program: A major Impact Evaluation of the System Benefits Charge (SBC)/EEPS-funded MPP is being leveraged to assess the impacts of RGGI fuel efficiency incentives. The study includes measurement and verification of energy savings, and attribution analysis of projects completed from 2009 through 2011. The study is expected to be completed by mid-2014. A major Process/Market Evaluation of the SBC/EEPS-funded MPP is being leveraged to assess the RGGI fuel efficiency incentive activity and GJGNY assessment/loan activity. The study is expected to be completed in the mid-2014.
- Multifamily Carbon Emission Reduction Program: NYSERDA is beginning an Impact Evaluation to measure and verify the energy and emission impacts attributable to the program. The evaluation is expected to be completed in early 2015.
- Home Performance with ENERGY STAR Program: NYSERDA is beginning an Impact Evaluation of the Green Jobs – Green New York "assessment only" participants who may have installed measures on their own in the absence of incentives. NYSERDA will also undertake an Impact Evaluation to measure and verify impacts 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 to be determined. A major Process/Market Evaluation of the SBC/EEPS-funded HPwES is also being leveraged to assess the RGGI fuel efficiency incentive activity and GJGNY assessment/loan activity. The Process/Market Evaluation study is expected to be completed in late 2014. The impact and process evaluations will be occurring at the same time and the evaluation teams are collaborating to leverage survey efforts to gain efficiencies and reduce survey fatigue.
- GJGNY Constituency-Based Organization (CBO) Program: The CBO initiative evaluation is using case studies and in-depth interviews of CBOs to explore various program objectives and to understand the success and barriers experienced by CBOs. Preliminary results were reviewed with program staff in late 2013. In addition, CBO-related activities will be addressed as a part of the above HPwES process evaluation.
- Residential Non-Energy Impact Study: A study is currently underway to identify and begin to quantify measurable non-energy impacts from residential programs, including possibly HPwES and the Green Residential Building Program. This study is jointly supported with RGGI and other NYSERDA funds. The study is expected to be completed in early 2014 and is expected to help inform future non-energy impact analysis and reporting for RGGI programs.

- 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.[5]

4.5.2 Evaluation of Technology/Business Development and Research Programs

In September 2013, NYSERDA competitively selected Industrial Economics (IEc) to serve as the impact, process, and market evaluation contractor for technology/business development and research programs including the following five programs from the RGGI portfolio:

- Advanced Transportation Research.
- Industrial Innovations.
- Climate Research and Analysis.
- Clean Energy Business Development.
- Advanced Power Technology Program.

Evaluation kick-off meetings for each program were held between IEc and NYSERDA in the fourth quarter and will inform upcoming evaluation plans expected to be completed in early 2014.

4.5.3 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. Though 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 is currently well underway with primary data collection and is expected to conclude in late 2014. In the third quarter of 2013, NYSERDA Evaluation staff received management approval to issue a request for proposals to hire a contractor to conduct the Commercial Baseline Study. The request for proposals was released in the fourth quarter of 2013. Study planning and implementation for the Commercial Baseline Study is expected to begin in early 2014 after a contractor has been selected and an agreement finalized.

[5] The GJGNY jobs quantification studies, Phase 1 and Phase 2, can be found in the following location 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.

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,[6] 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,[7] 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

[6] 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.

[7] 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.

Table A-2 shows the emission factors used in the 2013 Operating Plan 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 in the 2013 Operating Plan covers more than one sector (e.g., the Commercial and Industrial Program), 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: EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 – 2006, Annexes 2 & 3 and EPA State Climate Energy Program's State Inventory Tools released on 1/3/2011

	Transport (lb CO_2e/MMBtu)	Residential (lb CO_2e/MMBtu)	Commercial (lb CO_2e/MMBtu)	Industrial (lb CO_2e/MMBtu)
Coal	N/A	224.89	211.43	207.58
Natural Gas	117.25	117.14	117.14	113.38
#2 Oil/Distillate/ Diesel	163.22	163.78	163.78	161.80
#6 Oil/Residual	N/A	N/A	166.28	174.20
Kerosene	N/A	162.10	162.10	159.89
Propane	140.51	136.94	136.94	139.45
Gasoline	159.09	N/A	N/A	N/A
Aviation Fuel	160.86	N/A	N/A	N/A
Wood	N/A	15.79	15.79	3.92
Steam	N/A	139.30	139.30	N/A

An average emission factor of 625 lb 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.[8] Although electricity savings may not lead to near-term emission reductions under the RGGI CO_2 cap, savings will potentially 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.

[8] 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).

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*

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	12
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 Photovoltaic Initiative	25	N/A
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	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 ($)
Qrt 2	3,409	4,371	-	2,100	700,000
Qrt 3	47,332	4,371	-	5,630	1,200,000
Qrt 4	91,471	838	4,316	9,310	2,900,000
Qrt 1	115,763	1,213	3,903	10,950	2,700,000
Qrt 2	152,501	5,233	3,992	15,553	4,000,000
Qrt 3	197,622	6,473	4,205	17,874	4,600,000
Qrt 4	256,980	8,126	4,218	23,805	6,000,000
Qrt 1	318,273	13,363	4,218	31,194	7,800,000
Qrt 2	411,462	13,702	4,248	40,368	9,400,000
Qrt 3	519,144	15,023	4,278	51,353	10,700,000
Qrt 4	577,025	16,895	4,345	56,764	12,000,000
Qrt 1	651,564	18,206	4,305	60,349	16,300,000
Qrt 2	770,186	20,038	4,386	69,068	18,100,000
Qrt 3	889,027	24,385	16,710	96,916	21,200,000
Qrt 4	985,379	26,545	16,752	100,934	23,056,606

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	-	

Table C-2 continued

Quarter End Date	Quarter	Fuel Type	Cumulative Annual (MMBtu)	Cumulative Annualized Pipeline (MMBtu)[a]
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	
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	-	

Table C-2 continued

Quarter End Date	Quarter	Fuel Type	Cumulative Annual (MMBtu)	Cumulative Annualized Pipeline (MMBtu)[a]
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	
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	-	-

Table C-2 continued

Quarter End Date	Quarter	Fuel Type	Cumulative Annual (MMBtu)	Cumulative Annualized Pipeline (MMBtu)[a]
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
12/31/2013	Qrt 4	Residual Oil	144	-
12/31/2013	Qrt 4	Coal	514	-

[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
First Control Period Total			**144,305,904**	**$336,282,535**
Second Control Period Total			**98,125,212**	**$247,083,862**
TOTAL			**242,431,116**	**$583,366,397**

[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 extends through December 31, 2014

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

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New York's Regional Greenhouse Gas Initiative-FundedPrograms Annual Report

Quarter Ending December 31, 2013

Final Report

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State of New York

Andrew M. Cuomo, Governor

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