

The Regional Greenhouse Gas Initiative

An Initiative of the Northeast and Mid-Atlantic States of the US

The Investment of RGGI Proceeds in 2015

Published October 2017

www.rggi.org

Table of Contents

Executive Summary	3
Introduction.....	4
2015 RGGI Investments.....	5
Energy Efficiency.....	6
Clean and Renewable Energy	9
GHG Abatement	11
Direct Bill Assistance.....	12
Cumulative Uses of Auction Proceeds.....	13
RGGI States	16
Connecticut.....	16
Delaware.....	19
Maine.....	22
Maryland	26
Massachusetts	29
New Hampshire	32
New York	35
Rhode Island	38
Vermont.....	41
Appendix.....	44
Glossary and Methodology	44
RGGI States Proceeds Contacts	47

© 2017 Regional Greenhouse Gas Initiative, Inc.

This report is the product of the Regional Greenhouse Gas Initiative, Inc. (RGGI, Inc.). For regulatory matters, consult the regulations of each state cited throughout this report. RGGI, Inc. is a 501(c)(3) non-profit corporation formed to provide technical and administrative services to the RGGI CO₂ Budget Trading Programs of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont.

Executive Summary

Proceeds from the Regional Greenhouse Gas Initiative (RGGI) have powered a major investment in the energy future of the New England and Mid-Atlantic states. This report reviews the benefits of programs funded in 2015 by RGGI investments, which have reduced harmful carbon dioxide (CO₂) pollution while spurring local economic growth and job creation. The lifetime effects of these RGGI investments are projected to save 28 million MMBtu of fossil fuel energy and 9 million MWh of electricity, avoiding the release of 5.3 million short tons of carbon pollution.

The benefits tracked in this report arise from RGGI investments in energy efficiency, clean and renewable energy, direct bill assistance, and greenhouse gas abatement. Any benefits associated with other types of funds (such as future committed funds or transfers to general funds) are outside the scope of this report.

As a whole, the RGGI states have reduced power sector CO₂ pollution over 45 percent since 2005, while the region's per-capita GDP has continued to grow. RGGI-funded programs also save consumers money and help support businesses. RGGI investments in 2015 are estimated to return \$2.31 billion in lifetime energy bill savings to more than 161,000 households and 6,000 businesses which participated in programs funded by RGGI investments, and to 1.5 million households and over 37,000 businesses which received direct bill assistance.

RGGI states have individual discretion as to how they invest RGGI proceeds. RGGI investments fall into four major categories:

Energy efficiency makes up 64 percent of 2015 RGGI investments and 60 percent of cumulative investments. Programs funded by these investments in 2015 are expected to return \$1.3 billion in lifetime energy bill savings to over 141,000 participating households and 5,700 businesses in the region.

Clean and renewable energy makes up 16 percent of 2015 RGGI investments and 14 percent of cumulative investments. RGGI investments in these technologies in 2015 are expected to return \$785.8 million in lifetime energy bill savings to 19,600 participating households and 122 businesses in the region.

Greenhouse gas abatement makes up 4 percent of 2015 RGGI investments and 7 percent of cumulative investments. RGGI investments in greenhouse gas (GHG) abatement in 2015 are expected to avoid the release of 636,000 short tons of harmful CO₂ pollution into the atmosphere.

Direct bill assistance makes up 10 percent of 2015 RGGI investments and 14 percent of cumulative investments. Direct bill assistance programs funded through RGGI in 2015 have returned \$40.4 million in bill credits and assistance to consumers.

These investments, in concert with the broader energy policies in each RGGI state, have enabled the region to continue to set a national example in reducing harmful GHG pollution and improving energy efficiency.

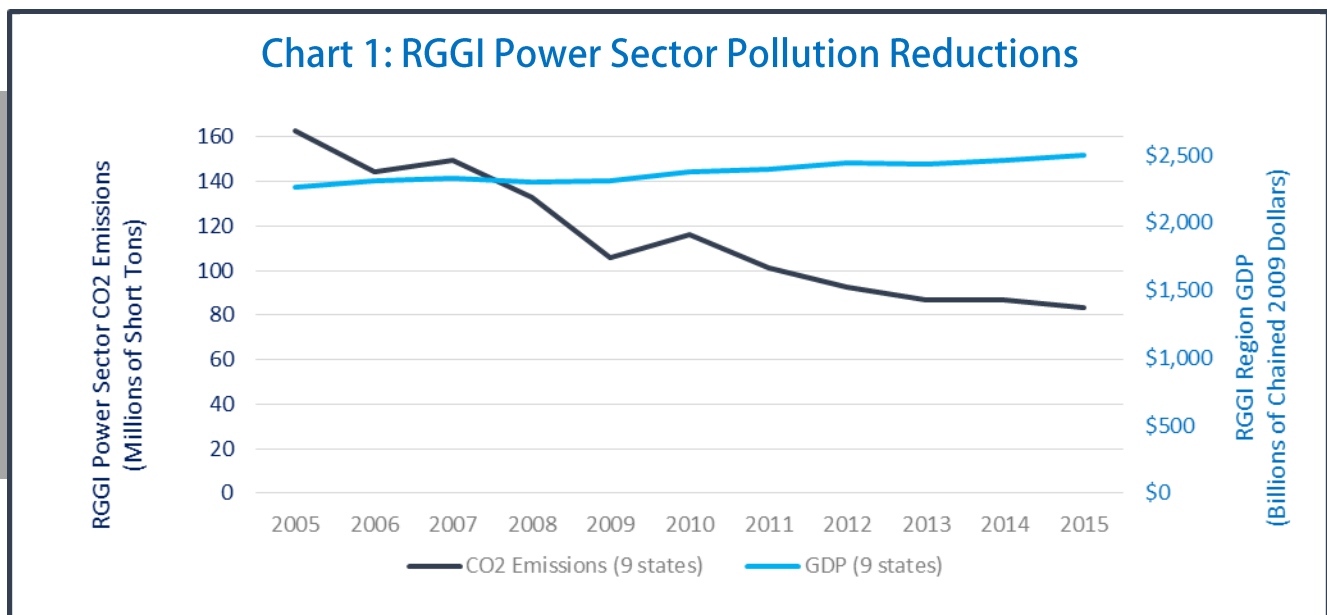
Introduction

The Regional Greenhouse Gas Initiative

RGGI is the nation's first mandatory multi-state program to reduce power sector CO₂ emissions. The RGGI states (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont) establish a regional cap on the amount of CO₂ pollution that power plants can emit, by issuing a limited number of tradable CO₂ allowances. Each allowance represents an authorization for a regulated power plant to emit one short ton of CO₂. Individual CO₂ budget trading programs in each RGGI state together create a regional market for CO₂ allowances. This allows market forces to determine the most cost-effective means of reducing emissions, and creates market certainty needed to drive long-term investments in clean energy. Each state's regulations are independent, and are based on the RGGI Model Rule.

The RGGI states have distributed approximately 90 percent of CO₂ allowances through quarterly regional auctions, generating proceeds for reinvestment. The remaining allowances are allocated to state set-aside accounts, from which allowances may be distributed according to state-specific regulations, or auctioned in future years. Each RGGI state has discretion over the investment of RGGI proceeds, and all programs funded through RGGI investments are independently administered and operated by the states.

The RGGI states have experienced a reduction of almost 80 million short tons of annual power sector carbon pollution since 2005, even as the regional economy has grown (see **Chart 1**). This represents a reduction in power sector carbon pollution of more than 45 percent.



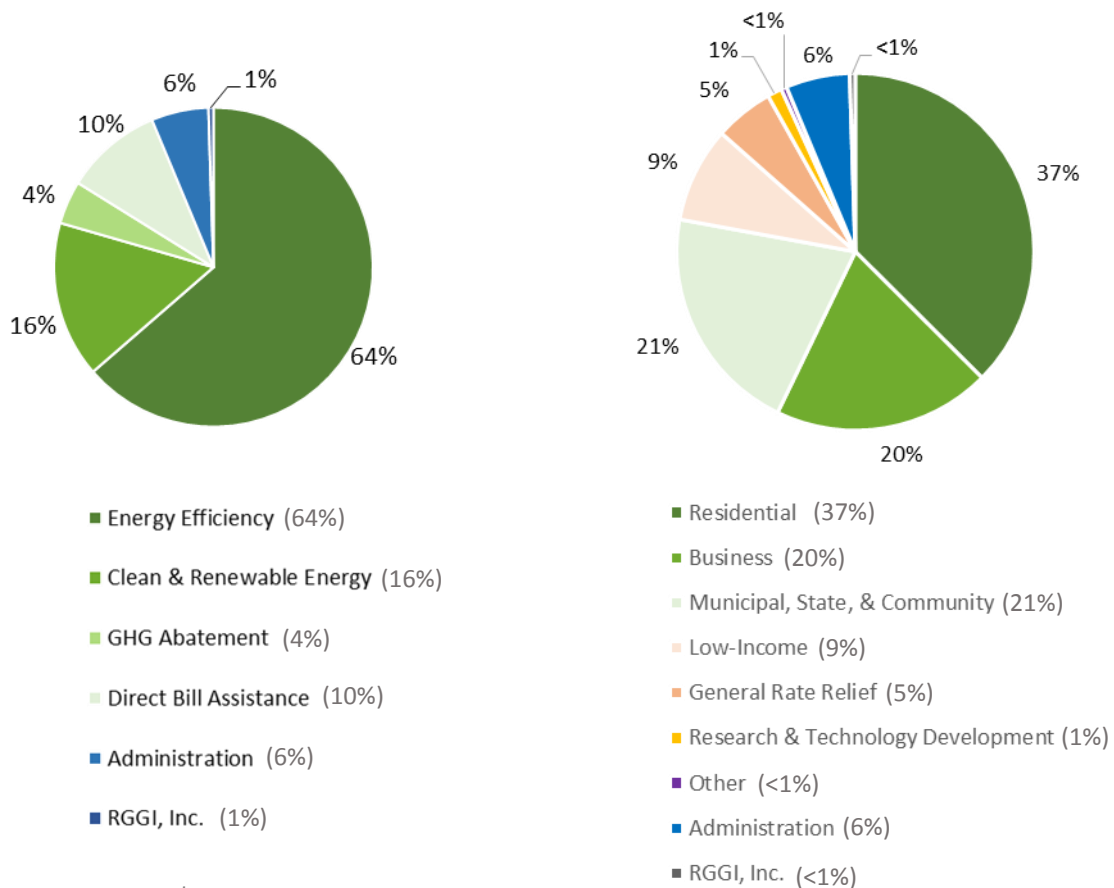
2015 RGGI Investments

This report estimates benefits (such as energy bill savings and short tons of CO₂ emissions avoided) which arise from RGGI investments. RGGI investments as defined within this report include investments in energy efficiency, clean and renewable energy, greenhouse gas abatement, and direct bill assistance, as well as administrative costs associated with these programs.

In an updated format from past reports, this report will primarily focus on 2015 annual investments before all-time cumulative investments. RGGI investments throughout the region cover a wide variety of programs. **Chart 2** shows how 2015 RGGI investments were divided between the major program categories.

Chart 3 illustrates the same 2015 funds divided in a different way, according to the type of end-user who benefits from the program or receives the funding. The energy efficiency and clean energy program categories mainly flow to residential, business, and municipal recipients, with some programs specifically serving low-income households. Likewise, direct bill assistance is split between assistance for low-income consumers, and general rate relief for all consumers.

Charts 2 and 3: 2015 RGGI Investments by Category and Recipient



The RGGI states invested \$410,158,329.31 in 2015.

Table 1: Benefits of 2015 RGGI Investments

Category		Annual Benefits of 2015 Investments	Lifetime Benefits of 2015 Investments
	Participating Households	161,805 (Programs)* 1.5 million (Bill Assistance)	N/A
	Participating Businesses	6,060 (Programs)* 37,396 (Bill Assistance)	N/A
	Workers Trained	552	N/A
	Short Tons CO ₂ Avoided	298,410	5.3 million
	Equiv. Cars Off Road	57,184	1.0 million
	Megawatt-Hours Saved	505,761 MWh	9.0 million MWh
	MMBtu Saved	1.5 million MMBtu	28.0 million MMBtu
	Energy Bill Savings	\$154.5 million	\$2.31 billion

*Participants in all programs other than direct bill assistance.

In 2015, over 161,000 households and 6,000 businesses participated in programs funded by RGGI investments, while 1.5 million households and 37,000 businesses received direct bill assistance. These investments have saved participants money on their energy bills, created jobs, and reduced pollution. Over their lifetime they will save participants an estimated \$2.31 billion on their energy bills, and avoid the use of over 9 million MWh of electricity and 28.0 million MMBtu of fossil fuel. For details see **Table 1**.

RGGI investments benefit more than just those who directly participate; for example, money not spent on energy by families and businesses can be used in other ways that boost the economy. Reduced demand for energy also keeps power prices lower for everyone, and avoids the need for additional investments in costly infrastructure to meet peak demand.

One of RGGI's strengths is the discretion offered to each state to independently invest RGGI auction proceeds according to state-specific goals. This can present challenges for data collection: a program offering discounts on efficient lightbulbs will collect quite different data from a program helping businesses to install large-scale equipment, or funding the installation of electric car charging stations.

The data in this report are compiled using the output of state-based and program-based estimates for actual and projected savings and benefits, the methods for which may differ between states and between programs, which are each unique. The appendix at the end of this report contains more details on how each metric is estimated for different types of programs.

States may also combine RGGI funds with funds from other sources; in these cases, benefits from RGGI investments are typically estimated based on the percentage of the program's funding which comes from RGGI.

Due to rounding, pie chart percentages may not always sum to 100 percent.

Energy Efficiency

Energy efficiency represents the largest portion of both 2015 and cumulative RGGI investments. Approximately 64 percent of 2015 RGGI investments have supported energy efficiency programs in the region. Over the lifetime of the installed measures, 2015 investments in energy efficiency funded through RGGI proceeds are projected to save participants \$1.3 billion on energy bills, providing benefits to more than 141,000 participating households and 5,000 participating businesses. They are also projected to avoid the release of 3.1 million short tons of CO₂ pollution (see **Table 2**).

Table 2: Benefits of 2015 RGGI Investments in Energy Efficiency

Category	Annual Benefits of 2015 Investments	Lifetime Benefits of 2015 Investments
 Participating Households	141,128	N/A
 Participating Businesses	5,745	N/A
 Workers Trained	552	N/A
 Short Tons CO ₂ Avoided	183,037	3.1 million
 Equiv. Cars Off Road	35,075	613,209
 Megawatt-Hours Saved	301,472 MWh	4.6 million MWh
 MMBtu Saved	898,687 MMBtu	18.5 million MMBtu
 Energy Bill Savings	\$65.9 million	\$1.30 billion

Energy efficiency improvements can be achieved cost-effectively by upgrading appliances and lighting, weatherizing and insulating buildings, upgrading HVAC at offices, and improving industrial processes. For example, occupancy sensors automatically turn lights off when a room or building is not in use, saving significant amounts of energy. These programs allow consumers and businesses to take full advantage of modern appliances, heating, and cooling, increasing the comfort of homes, offices, and businesses while using less energy and paying less on their energy bills.

Energy efficiency is also a job creator. Programs such as home retrofits directly spur employment gains in housing and construction, and lowered energy costs create numerous benefits across the economy as families are able to invest savings in other priorities and businesses are able to grow.

Ultimately, all electricity consumers, not only those who make upgrades, benefit from energy efficiency programs. Lower overall demand for electricity results in lower wholesale electricity rates, as power plants with the highest costs do not run as often, and expensive transmission upgrades can be deferred in some cases. A range of independent reports have affirmed these widespread benefits of energy efficiency, including work by the Analysis Group, Regulatory Assistance Project, and more.

RGGI-funded investments in energy efficiency, in concert with the broader energy policies in each RGGI state, have made an impact. Six RGGI states once again ranked among 2015's top ten states for energy efficiency, according to the American Council for an Energy Efficient Economy.

Clean and Renewable Energy

Approximately 16 percent of 2015 RGGI investments have funded clean and renewable energy programs in the region. Over the lifetime of the projects installed in 2015, these investments are projected to offset \$785.8 million in energy expenses for more than 19,000 participating households and 122 businesses. They are also projected to avoid the release of 1.5 million short tons of CO₂ pollution (see **Table 3**).

Table 3: Benefits of 2015 RGGI Investments in Clean Energy

Category	Annual Benefits of 2015 Investments	Lifetime Benefits of 2015 Investments
 Participating Households	19,668	N/A
 Participating Businesses	122	N/A
 Short Tons CO ₂ Avoided	72,643	1.5 million
 Equiv. Cars Off Road	13,920	287,442
 Megawatt-Hours Saved	204,289 MWh	4.4 million MWh
 MMBtu Saved	42,262 MMBtu	910,818 MMBtu
 Energy Bill Savings	\$36.0 million	\$785.8 million

Clean energy systems require labor to install, which directly creates jobs and boosts local economic activity. Energy expenditures that might otherwise be used to purchase out-of-state fossil fuel resources are kept within the region. As with energy efficiency, “behind-the-meter” programs also contribute to lowering wholesale electricity prices by effectively lowering the demand for electricity at the wholesale level. As demand for electricity decreases, the most expensive power plants run less often, driving long-term prices down for all consumers. Households and businesses both with and without clean energy systems save money on their bills.

While RGGI investments are just a small part of widespread clean and renewable energy investments in the region, together these actions are having measurable impact on the energy mix. Since 2005, RGGI states have increased their non-hydro renewable generation by 76 percent. In 2015 the RGGI states derived 50 percent of total generation from clean or renewable sources.

Clean Energy Success Story: New York Brings Solar to Communities

RGGI investments are supporting Community Solar NY, the program that administers *Solarize*, which makes solar easier and more affordable through community-driven initiatives.

Solarize campaigns are an important component of Governor Andrew M. Cuomo's Reforming the Energy Vision (REV) strategy to build a cleaner, more resilient and affordable energy system for all New Yorkers by stimulating investment in clean technologies. The Solarize projects are locally organized community outreach efforts aimed at getting a group of homes and businesses in one area to go solar. When groups of neighbors—including residents and businesses—learn about and pursue solar installations together, they can often get better pricing. Group members can also contribute their strengths and learn new skills.

In 2015, 26 community Solarize campaigns were completed, reaching more than 4,000 interested solar customers, resulting in 900 new solar installation contracts and saving participants a total of approximately \$1.4 million on upfront purchase costs for solar

These 26 solarize campaigns have already produced success. The eight campaigns in the Mid-Hudson region have resulted in 305 solar installations, an increase in the rate of installations in those communities of 30-35%. In Central New York, five Solarize campaigns resulted in 192 installations, an increase in the rate of installations of 46%.

Overall, the 900 solar installations are resulting in 8,347 kilowatts of solar capacity. This amount of solar power is equal to meeting the electricity requirements of 1,360 average-sized homes, and reduces the amount of greenhouse gas emissions by nearly 52 tons, equivalent to removing 1,100 cars from the road.

A second Solarize round was launched this year, and encourages participation from communities that aim to make solar more accessible for low- and moderate-income customers. Local governments, school districts and other community partners are eligible to participate in this effort.

GHG Abatement

GHG abatement programs promote the research and development of advanced energy technologies, the reduction of vehicle miles traveled, and the reduction of GHG emissions in multiple sectors. Approximately 4 percent of 2015 RGGI investments have funded GHG abatement programs in the region. Over their lifetime, the investments made in 2015 are expected to avoid the release of over 600,000 short tons of harmful CO₂ pollution into the atmosphere (see **Table 4**).

These programs vary according to local needs. Some examples have included research into new policies and plans to reduce greenhouse gases and adapt to the impacts of climate change. Others have included projects to reduce vehicle idling, or to provide incentives for the purchase of electric vehicles.

GHG abatement programs also vary in the types of benefits they provide. Some projects reduce electricity and fossil fuel use as part of their efforts to reduce overall emissions, generating economic benefits similar to those realized through energy efficiency and clean and renewable energy programs. Some projects, such as incentivizing electric car use, may actually increase electricity use while still decreasing overall emissions.

Still other projects in this category, such as resiliency planning, may not return immediately trackable benefits in the form of emissions reductions or avoided energy use, but still provide important long-term benefits in climate preparedness and mitigation.

Table 4: Benefits of 2015 RGGI Investments in GHG Abatement

Category		Annual Benefits of 2015 Investments	Lifetime Benefits of 2015 Investments
	Participating Households	1,009	N/A
	Participating Businesses	193	N/A
	Short Tons CO ₂ Avoided	42,730	636,405
	Equiv. Cars Off Road	8,188	121,953
	MMBtu Saved	575,053 MMBtu	8.6 million MMBtu
	Energy Bill Savings	\$12.2 million	\$183.7 million

Direct Bill Assistance

Direct bill assistance returns money to consumers as a rebate on their energy bills. Approximately 10 percent of 2015 RGGI investments have funded direct bill assistance. RGGI investments in direct bill assistance in 2015 have returned \$40.4 million in bill savings to 1.5 million participating households (see **Table 5**).

These programs provide rate relief to electricity consumers in the RGGI region. Many programs provide assistance specifically to low-income families, while other programs provide small on-bill credits to all consumers.

Direct bill assistance typically appears as a credit on a consumer's electricity bill. Direct bill assistance programs support economic activity by providing funds directly to consumers, who can then spend those funds on other priorities. Unlike energy efficiency or clean energy programs (which generate benefits for the lifetime of the installed measures), direct bill assistance programs provide benefits only for the length of the bill-assistance program. Direct bill assistance programs also do not reduce or affect wholesale electricity prices. Finally, direct bill assistance programs do not directly reduce or offset fossil-fueled electricity use. Because of this, they tend to have lower lifetime economic and environmental benefits than other programs.

RGGI proceeds provide only a small percentage of low-income direct bill assistance programs across the states. Other sources of funds come from on-bill system benefit charges, and federal funds in the case of LIHEAP programs.

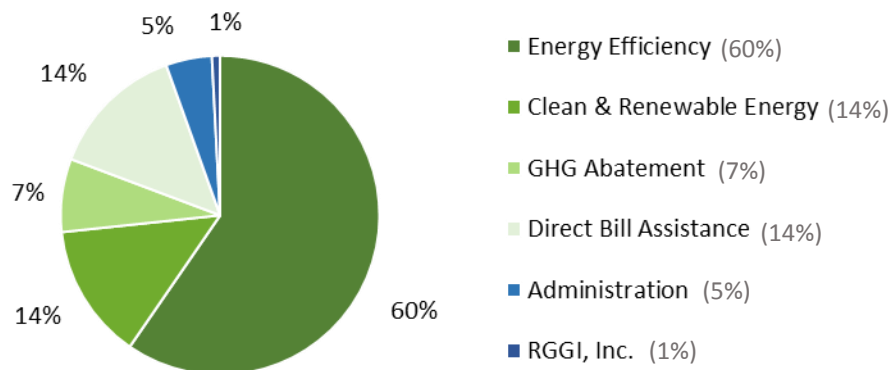
Table 5: 2015 RGGI Investments in Direct Bill Assistance

Category		Annual Benefits of 2015 Investments	Lifetime Benefits of 2015 Investments
	Participating Households	1.5 million	N/A
	Participating Businesses	37,396	N/A
	Energy Bill Savings	\$ 40.4 million	\$ 40.4 million

Cumulative Uses of Auction Proceeds

While this report’s focus is primarily on 2015 data, information on cumulative RGGI investments is still provided in this section for reference. **Chart 4**, below, shows the percentage of all-time RGGI investments directed into each of the major program categories.

Chart 4: Cumulative RGGI Investments by Category



The nine participating RGGI states invested \$1.77 billion during the period covered by this report. \$332.9 million remains to be invested 2016 and future programs. \$93.1 million was transferred to state general funds by acts of state legislatures.

This pie chart shows each program category as a percentage of all-time RGGI investments. RGGI investments are themselves a subset of total proceeds. Most RGGI proceeds through 2015 are defined as RGGI investments. Other uses of funds aside from than those defined as RGGI investments are outside the scope of this report. See **Chart 5** on the next page for more details on total RGGI proceeds.

RGGI investments: This report estimates benefits, such as energy bill savings and short tons of CO₂ emissions avoided, which arise from RGGI investments. RGGI investments as defined within this report include investments in energy efficiency, clean and renewable energy, greenhouse gas abatement, and direct bill assistance, as well as administrative costs associated with these programs.

Future committed funds: Auction proceeds generated in a given year may not always be invested during the same year. A portion of cumulative auction proceeds generated through 2015 not yet invested within the time period covered by this report. These funds are referred to as “future committed” funds. In many cases these funds are designated for specific programs, although in some cases they may be awaiting an investment plan.

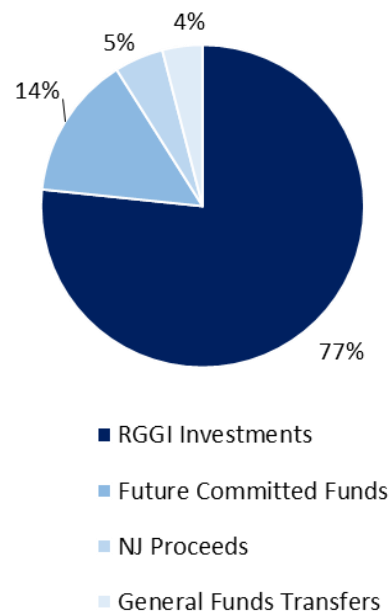
General fund transfers: In some cases auction proceeds have been transferred to state general funds by acts of state legislatures. Any benefits generated from the use of these proceeds are not within the scope of this report.

New Jersey proceeds: New Jersey participated in RGGI from 2009-2011. Any benefits generated from the use of RGGI proceeds in New Jersey are also not within the scope of this report.

Two states report program data according to the fiscal year (July 1 - June 30) rather than the calendar year. A fiscal year adjustment is used to compare numbers between fiscal-year and calendar-year states.

Chart 5: RGGI Investments as a Subset of Total Proceeds

Description	Funds
All Proceeds through Dec. 31, 2015	\$2,381,112,128.08
Adjustment for Fiscal Year Reporting	-\$70,232,321.50
New Jersey Proceeds	\$113,344,551.27
General Funds Transfers	\$93,100,000.00
Future Committed Funds	\$332,903,526.47
RGGI Investments	\$1,771,531,728.84



The pie chart shows four categories of funds, as a percentage of all proceeds **after** the fiscal year adjustment. The nine participating RGGI states invested \$1.77 billion in the period covered by this report. In 2009, \$90 million in NY proceeds were transferred to general funds as a deficit reduction measure. In 2010, \$3.1 million in NH proceeds were transferred to general funds. NJ received \$113.3 million in proceeds from 2009-2011. This leaves \$332.9 million in funds which are yet to be invested.

Table 5: All-Time Benefits of RGGI Investments

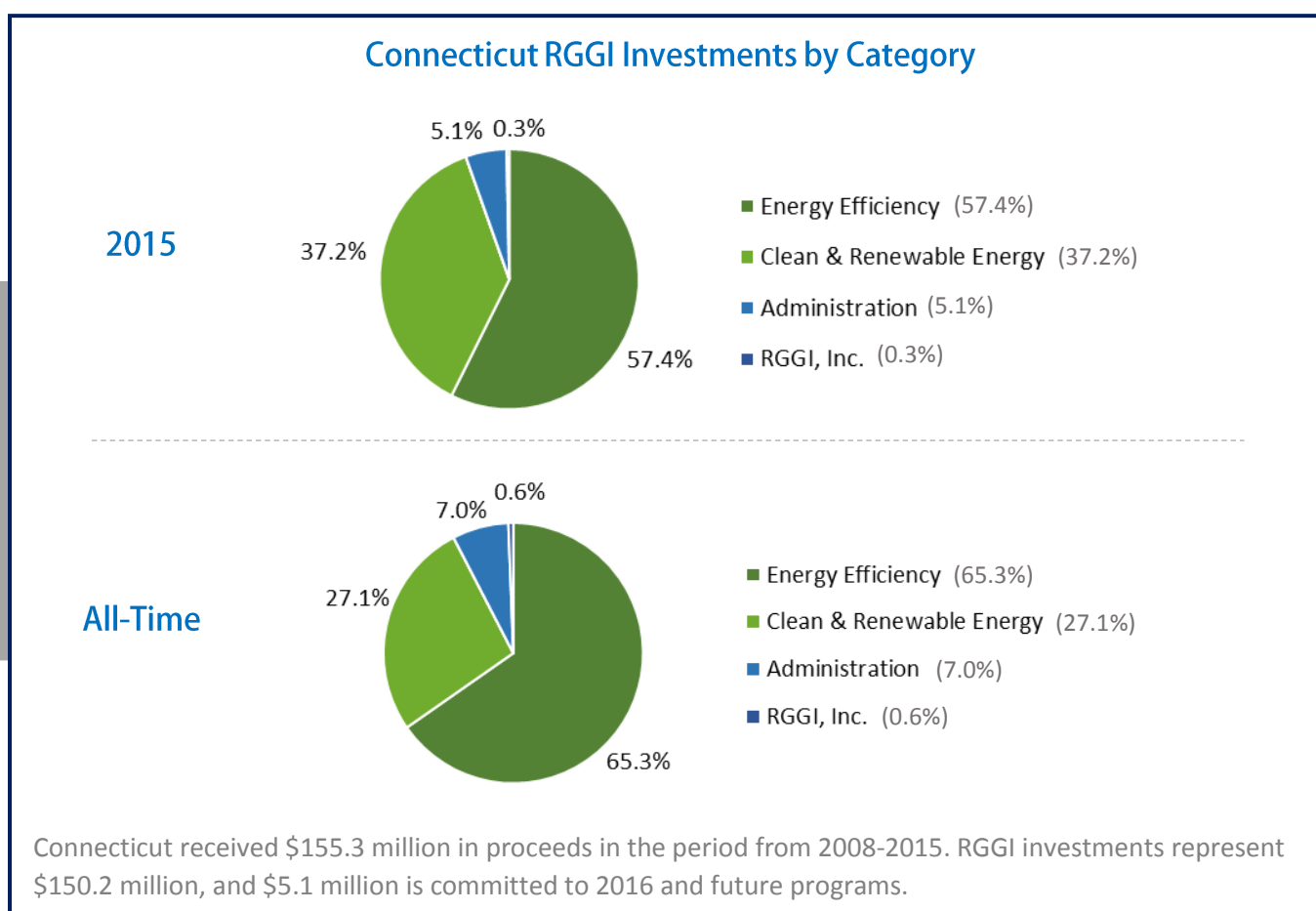
Category		Lifetime Benefits of All RGGI Investments
 Participating Households		1.1 million (Programs)
 Participating Businesses		27,484 (Programs)
 Workers Trained		7,780
 Short Tons CO ₂ Avoided		20.5 million
 Equiv. Cars off Road		3.9 million
 Megawatt-Hours Saved		30.3 million MWh
 MMBtu Saved		103.4 million MMBtu
 Energy Bill Savings		\$7.08 billion

Note that previously reported benefits plus 2015 benefits may not sum exactly to updated cumulative benefits. This is due to state revisions or corrections to benefits calculations over time, which improve consistency and accuracy.

Cumulative participating households and businesses are reported here for programs only, which excludes recipients of direct bill assistance. This avoids significant double-counting of households that are likely to have received bill assistance in multiple years. For household and business participation in direct bill assistance programs, refer to the annual 2015 tables.

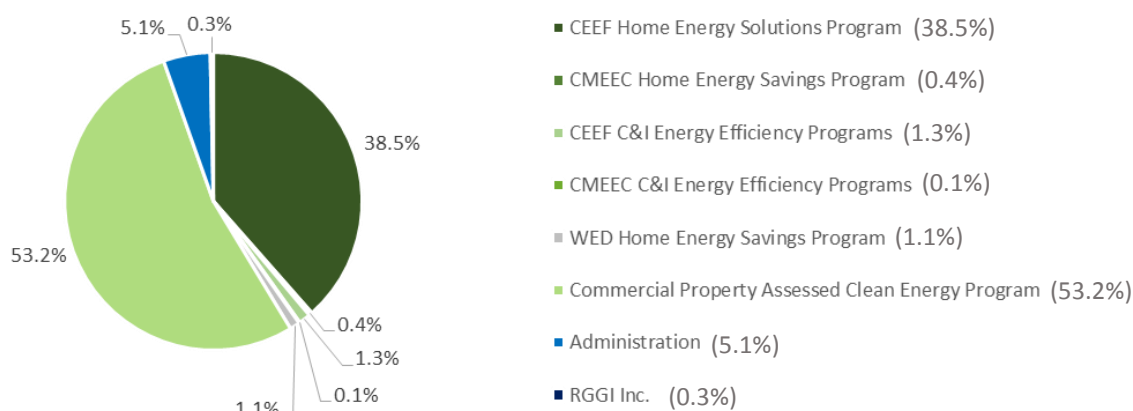
Connecticut

Connecticut continues to invest RGGI auction proceeds in programs and initiatives dedicated to the deployment of energy efficiency and renewable energy technologies. By statute, 69.5 percent of RGGI auction proceeds are distributed to the Connecticut Energy Efficiency Fund (CEEF), the Connecticut Municipal Energy Cooperative (CMEEC), and the Town of Wallingford – Electric Division (WED), 23 percent to the Connecticut Green Bank, and 7.5 percent is used for administrative purposes. 2015 RGGI auction proceeds supplemented the CEEF energy efficiency programs which are administered by the electric distribution companies (Eversource, and The United Illuminating Company) and local gas distribution companies (Connecticut Natural Gas Corporation, Southern Connecticut Gas Company, and Yankee Gas Services Company), and marketed under the statewide brand, Energize Connecticut^{SM, 1}



¹ Funded chiefly by mandated conservation charges collected from electric and natural gas ratepayers, the CEEF supports a robust program portfolio designed to promote, encourage and enable adoption of energy-efficient technologies and behavior.

2015 Connecticut RGGI Investments by Program



Connecticut RGGI investments represent \$41.2 million in 2015.

In 2015, CEEF programs provided energy audits under the Home Energy Solutions program, discounted lighting products under the Retail Lighting Products program, incentives for homes and businesses under the New Construction programs, financing options under the Small Business Energy Advantage program, and sustainability measures under the Business and Energy Sustainability program.

The six member municipal electric utilities of CMEEC used 2015 RGGI proceeds to conduct more than 210 home energy audits and implement lighting retrofit projects for four commercial and industrial facilities. WED utilized its proceeds to perform over 750 home energy audits. In the 2016 State Energy Efficiency Scorecard, the American Council for an Energy-Efficient Economy (ACEEE) ranked Connecticut 5th in the nation (in a tie with New York) for the state's continuing commitment and progress in energy efficiency programs during 2015.

The Connecticut Green Bank continues to utilize its share of RGGI proceeds to enable low interest, no-money-down financing for clean and renewable projects under its nationally recognized Commercial Property Assessed Clean Energy (C-PACE) program.

Program Highlight: Multifamily Initiative

The Multifamily Initiative program, made possible through Energize ConnecticutSM and funded in part by RGGI monies, enables customized energy efficiency solutions for multi-unit dwellings that include:

- A comprehensive assessment of the property's energy-saving opportunities;
- Improvements and/or upgrades to tenant dwelling units for air sealing, LED light bulbs, and water saving measures;
- Helpful strategies to identify and install cost-effective energy efficiency improvements and renewable energy strategies;

- Assistance with energy upgrade projects the property owner or manager has already planned;
- Information about applicable rebates, incentives and financing options.

Connecticut's privately-owned electric distribution companies (Eversource and United Illuminating Company) and natural gas local distribution companies (Eversource, Southern Connecticut Gas Company and Connecticut Natural Gas Corporation) target owners and managers of multifamily buildings or complexes of five or more units for participation in the Multifamily Initiative. Participating owners and managers of multifamily properties succeed in making their properties more energy-efficient, comfortable and environmentally friendly for their tenants and themselves.

Success Story: Holly House Project, Litchfield, CT

Taymil Partners is a privately held real estate investment and property management company that specializes in the acquisition, operation and long-term ownership of multifamily properties. During 2015, Taymil Partners participated in the Multifamily Initiative program through Eversource to realize energy-efficient improvements at Holly House, a fuel oil-heated property with 22 dwelling units, at 23 Holly House Court, Litchfield, Connecticut.



Holly House. Source: Connecticut DEEP

The Holly House project involved electrical upgrades in light fixtures and bulbs for the dwelling units and for the property's exterior and common areas, and the installation of more energy-efficient hot water circulator pumps with electronically commutated motor (ECM) technology. These upgrades are estimated to result in electric savings of 9,489 kWh annually and 131,052 kWh over the lifetime of these measures, at cost savings of \$1,613 and \$22,279, respectively. Additionally, the Holly House project received attic insulation, domestic hot water savings measures, and weatherization/air sealing measures. These measures would result in estimated fuel oil savings of 2,711 gallons per year and 61,141 gallons over the lifetime of these measures, at cost savings of \$5,422 and \$122,282, respectively. The combined energy efficiency effort for the Holly House project will avoid an estimated 110 tons of CO₂ emissions annually and 1,527 tons on a lifetime basis.

"This program is a benefit to property owners and tenants. The energy-efficient improvements have been beneficial to our bottom line, with reduced utility costs. The program has also positively impacted our resident's utility costs, with the installation of energy-efficient interior fixtures. I would recommend this program to property owners and managers."

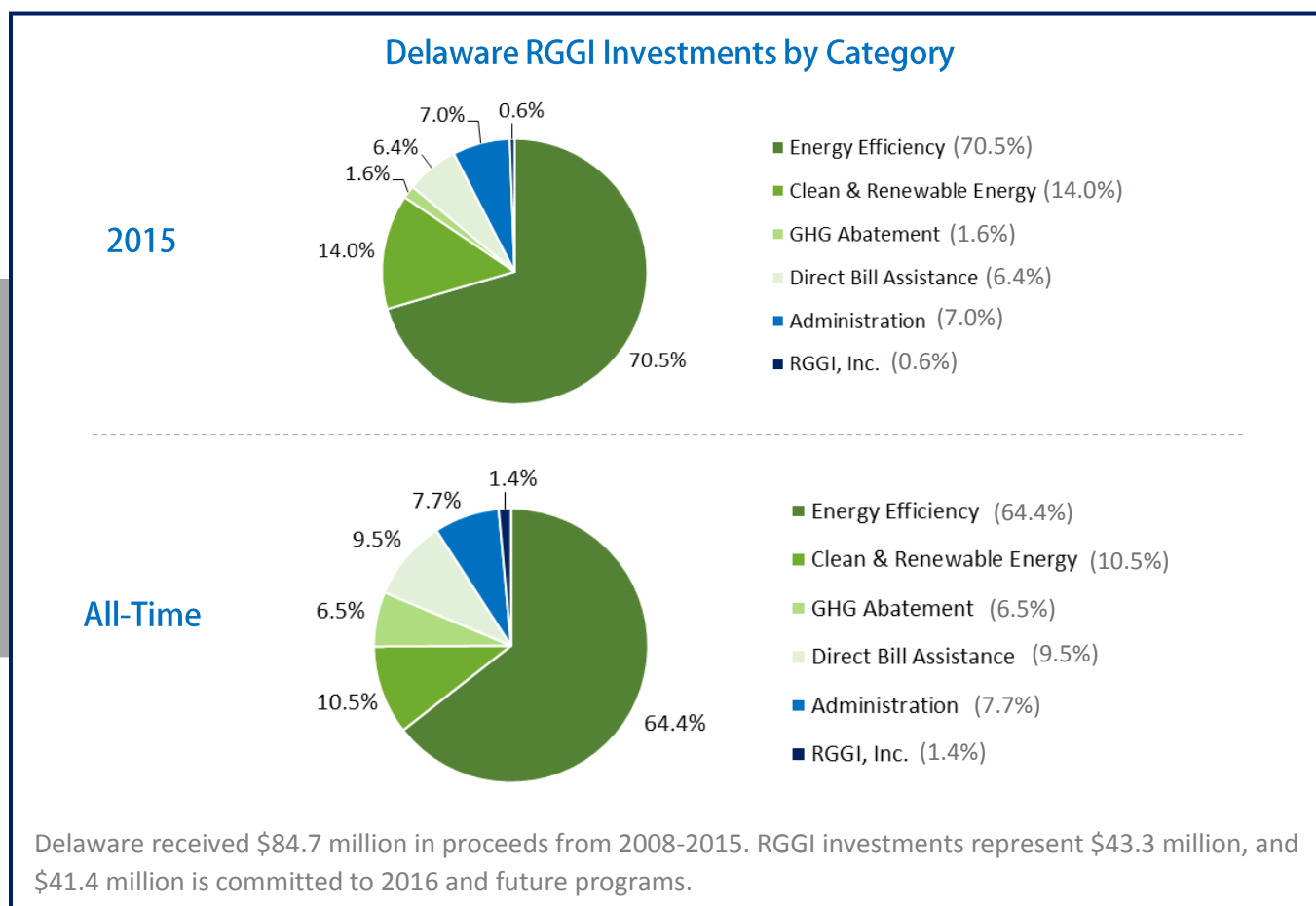
- Donna Lucerino, Regional Property Manager, Taymil Partners, LLC.

Resources:

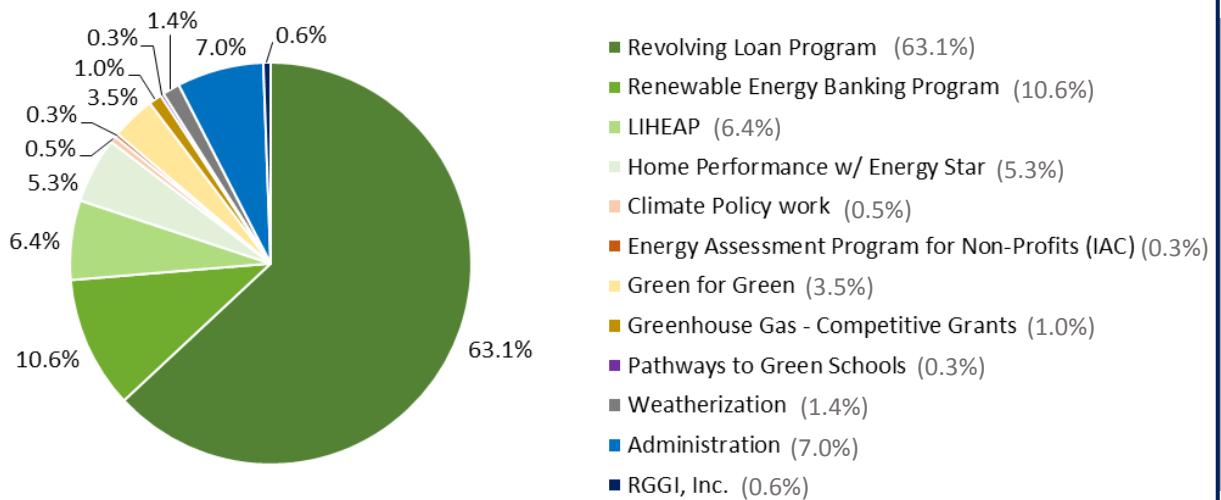
- [Connecticut Energy Efficiency Fund 2015 Report](#)
- [Energize Connecticut](#)
- [Multifamily Initiative](#)

Delaware

The Delaware Sustainable Energy Utility is the recipient of the majority of Delaware's Regional Greenhouse Gas Initiative proceeds. The Delaware Sustainable Energy Utility is a non-profit organization that offers Delawareans and Delaware-based businesses funding for energy efficiency and clean energy projects and improvements. The Delaware Department of Natural Resources (DNREC) is also a recipient of RGGI proceeds. DNREC directs funds into projects that reduce greenhouse gas emissions, support climate change adaptation projects and the Delaware Low-Income Weatherization Assistance Program. Lastly, the Low-Income Heating Assistance Program or LIHEAP, which is administered by the Delaware Department of Health and Social Services, receives approximately 5% of the RGGI proceeds annually. These funds provide direct bill assistance to offset heating costs for low-income Delawareans. All programs supported by RGGI are designed to increase energy efficiency and the deployment of clean energy, to help Delawareans save money, to reduce greenhouse gas emissions and to support job growth throughout the state.



2015 Delaware RGGI Investments by Program



Delaware RGGI investments represent \$16.2 million in 2015.

Program Highlight: The Energize Delaware Home Performance with EnergyStar Program

The Energize Delaware Home Performance with ENERGY STAR® program is a whole-house approach to improving comfort and safety in the home, providing homeowners with significant savings on their utility costs. Delaware homeowners learn ways to improve the energy efficiency of their homes through completion of a subsidized, comprehensive home energy audit performed by certified contractors. During the appointment, the certified contractors also provide “direct install measures” which include the installation of high efficiency light bulbs, low flow shower heads, advanced powerstrips, as well as other measures to save energy and water.



Homeowners participating in the Home Performance with Energy Star program.
Credit: Delaware SEU

After the audit, homeowners can make energy-saving improvements and take advantage of rebates that make the energy improvements more affordable. In 2015, the Home Performance with Energy Star program avoided 570 MWh of energy for over 900 Delaware homeowners. Over the lifetime of the program residents can expect to see over \$1.8 million in energy bill savings.

Success Story: The Delaware Clean Transportation Incentive Program

The Delaware Clean Transportation Incentive Program is designed to reduce tailpipe emissions from the transportation sector by providing a multi-pronged approach for the deployment of alternative fueled vehicles and the necessary infrastructure. The program provides rebates to offset the additional technology costs of electric, propane and natural gas vehicles. In addition, the program provides rebates for electric vehicle chargers and a competitive grant program for DC (direct current) fast chargers, propane and natural gas fueling infrastructure. The highly successful program launched in July of 2015 and continues today.

From launch of the program in July to December 2015, the program provided 72 Delawareans a \$170,000 in rebates for the purchase of low- or zero-emission vehicles. The Delaware Division of Energy and Climate worked closely with the Delaware Automobile and Truck Dealers' Association to develop a point-of-sale transaction component to the program. This feature of the program allows vehicle purchasers to roll the rebate into the financing of the vehicle therefore saving money on their monthly payments. This partnership and collaboration has allowed more Delawareans to take advantage of the program. In 2015, the program avoided over 600,000 pounds of carbon dioxide from being released into the atmosphere by Delaware drivers.



DNREC Secretary David Small attends the launch of the Delaware Clean Transportation Program.
Source: Delaware DNREC

The program also launched a competitive infrastructure program in 2015 that helped fund \$1 million in alternative fueling infrastructure including DC electric vehicle fast chargers, propane fueling stations for three Delaware based school bus fleets, and one new fast fill compressed natural gas station. The infrastructure is currently being built and all are expected to be online by the close of 2018.

Resources:

- [Delaware SEU](#)
- [Weatherization](#)
- [Delaware Clean Transportation Incentive Program](#)

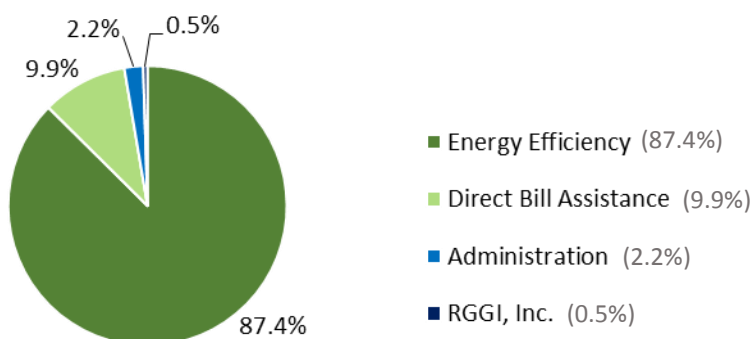
Maine

The Efficiency Maine Trust (Efficiency Maine) is the independent, third-party administrator for energy efficiency programs in Maine. The organization's purposes include the following:

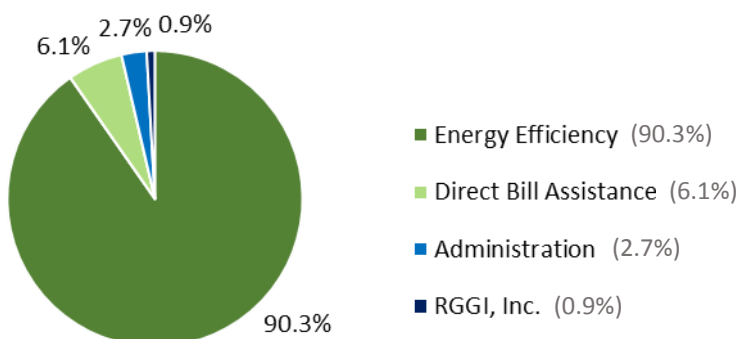
- Consolidating under one roof the funds for Maine's consumer energy efficiency programs for all fuel types — electric, natural gas, heating oil, and wood — together with consumer alternative energy programs;
- Integrating delivery of electric and thermal efficiency measures so the customer can have a one-stop shopping experience;
- Acquiring energy resources (efficiency and alternative energy) that cost less than traditional energy supply to help individuals and businesses meet their energy needs at the lowest cost; and
- Helping to transform the energy market in Maine so that energy efficiency products, alternative energy equipment, and related energy services are more accessible and affordable to end-use customers.

Maine RGGI Investments by Category

2015

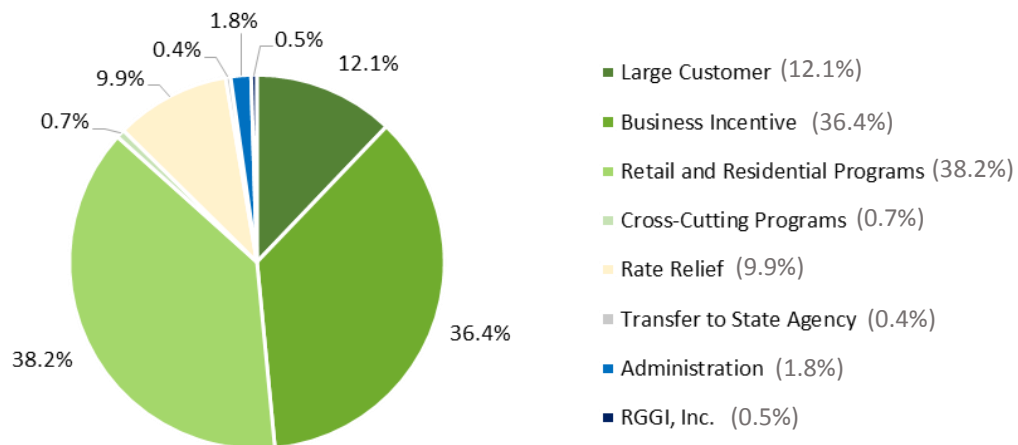


All-Time



Maine received \$64.8 million in proceeds from 2008-2015 (fiscal year). RGGI investments represent \$52.6 million, and \$12.3 million is committed to 2016 and future programs.

2015 Maine RGGI Investments by Program



Maine RGGI investments represent \$15.5 million in 2015.

Efficiency Maine's programs are funded primarily by a combination of electric and natural gas system benefit charges, Forward Capacity Market proceeds, and RGGI proceeds. During its 2015 fiscal year (FY 2015), Efficiency Maine invested over \$15.4 million in RGGI proceeds, directing approximately 97% towards a combination of energy efficiency incentives and direct bill assistance; the remaining 3% went toward program administration. Though nearly all of Efficiency Maine's programs leveraged RGGI funding to some degree in FY 2015, the bulk of funds were invested through the following three programs:

- Home Energy Savings Program: Drove market-based home weatherization and heating demand reduction by offering rebates and loans, providing customer education, and developing a vendor network.
- Business Incentive Program: Provided fixed-price incentives for a prescriptive suite of "off-the-shelf" energy efficiency measures for commercial and industrial customers.
- Large Customer Program: Targeted larger commercial and industrial customers by offering incentives for custom, site-specific energy efficiency projects that require unique engineering analyses.

Over the lifetime of the investments made in FY 2015, Maine's RGGI-funded efficiency measures are estimated to generate savings of over 362,000 MWh in avoided electricity use and another 1.5 million MMBtu in avoided consumption of natural gas and other heating or process fuels. These investments will lower participants' energy bills by more than \$60.7 million.

Program Highlight: Home Energy Savings Program

Efficiency Maine's Home Energy Savings Program (HESP) serves as the framework for market-based residential weatherization and heating system improvements achieved through a combination of rebates, financing, and customer education. HESP raises awareness about the benefits of home weatherization and encourages Maine homeowners to make energy efficiency upgrades.

Following the statutory requirements set forth in the 2013 the Omnibus Energy Bill, Efficiency Maine invested a portion of the available RGGI auction revenues on measures meant to reduce home heating demand. This change allowed Efficiency Maine to expand its funding for projects that save heating oil, Maine's most common home heating fuel, and lower greenhouse gases without relying on federal funds. In FY 2015, \$4,898,783 of RGGI funds was invested through HESP, constituting approximately 48% of the total HESP budget.

HESP provided 9,238 participants with rebates for energy-saving measures in FY 2015, including more than 6,200 rebates for mini-split, ductless, cold-climate heat pumps. There was also significant interest in pellet boilers with 287 installed in Maine homes over the course of the program year. The average HESP rebate of \$1,043 incentivized an average total project cost of \$3,555. Through these incentives, Efficiency Maine was able to facilitate more than \$24 million in private energy efficiency investments.

In FY 2015, HESP continued to offer loans to finance qualifying home energy upgrades. Smaller, unsecured loans have continued to increase in popularity, as they require less paperwork and can be processed more quickly than the other loan products. By the end of FY 2015, unsecured loans accounted for 79% of the loans administered by Efficiency Maine. The average amount financed was approximately \$9,000.

Success Story: Texas Instruments (TI) Vacuum Pump Replacement

In the spring of 2011, Texas Instruments (TI) acquired the National Semiconductor factory located in South Portland, Maine during a nationwide merger between the two companies. As the company set about making various improvements to the newly acquired facility, Efficiency Maine's Large Customer Program provided incentives for the installation of several pieces of high-efficiency equipment, from variable frequency drives to LED lighting.

In 2015, TI's South Portland staff approached Efficiency Maine with a substantially larger proposal – a project to replace 301 vacuum pumps with new, high-efficiency models. In the semiconductor industry, vacuum pumps maintain ultra-clean environments by removing all air from wafer processing stations. The existing pumps' extremely high run time and inefficient energy usage constituted a prime savings opportunity for TI. Nevertheless, facing a host of competing capital investment priorities, the national TI office would not approve the



Texas Instruments' South Portland, Maine wafer fabrication facility. Photo Courtesy of Texas Instruments

project due to its initial economics. This changed when Efficiency Maine endorsed the savings analysis and offered a financial incentive to significantly improve the project's return on investment.

Each of the TI project's three phases included an incentive of roughly \$1,000,000, for a total award of \$2,924,768. While Efficiency Maine leveraged a number of funding sources for this award, the \$1,000,000 Phase III incentive was comprised entirely of RGGI dollars. This incentive brought the simple payback period for Phase III down from 5.9 years to 3 years. In addition to the direct annual energy savings of 4,072,086 kWh, Phase III generated an indirect savings of 566,671 kWh in the form of reduced heat rejection; less waste heat equates to less energy used by the central chiller plant. Overall, Phase III reduced TI's vacuum pump electricity usage by 81%.

Resources:

- [Efficiency Maine Home Energy Savings Program](#)
- [Efficiency Maine Low-Income Options](#)
- [Efficiency Maine Case Studies](#)

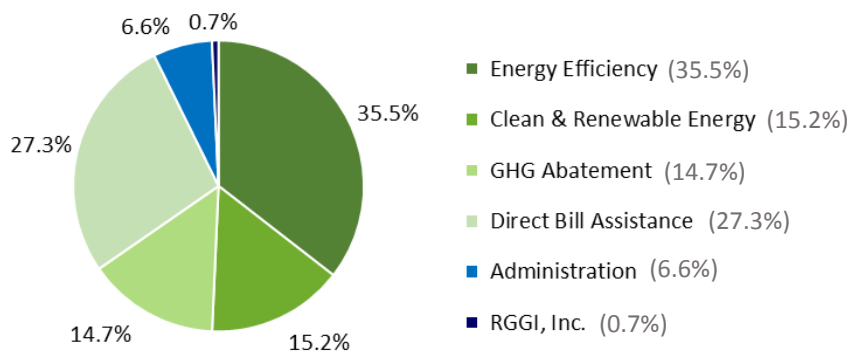
Maryland

Maryland allocates proceeds from the sale of CO₂ allowances into the State's Strategic Energy Investment Fund (SEIF)—a special, non-lapsing fund administered by the Maryland Energy Administration (MEA). MEA deploys SEIF funds to promote affordable, reliable, and clean energy across all of Maryland's diverse regions and communities. These programs are intended to reduce household bills, create new jobs in growing industries, and promote energy independence. The programs also have reduced significantly the energy costs of Maryland's businesses. Cumulative Maryland investments funded through RGGI proceeds have:

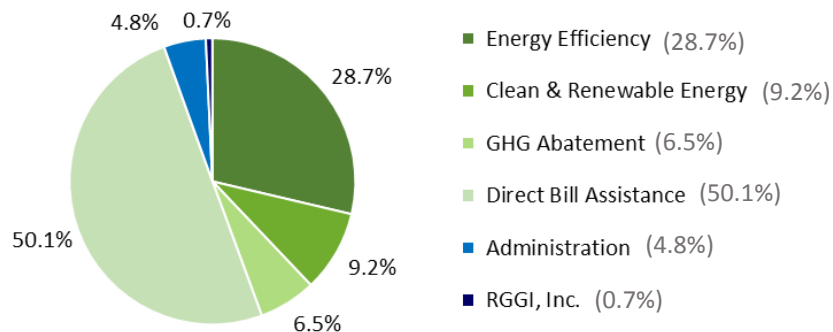
- Supported energy efficiency upgrades at 16,991 low- to moderate-income households;
- Provided over \$2.5 million in grants to assist 42 commercial entities in enhancing efficiency through the Game Changer Competitive Grant Program;
- Supported residential renewable energy projects at 10,433 households;
- Will return to Marylanders over \$1 billion in estimated lifetime energy bill savings.

Maryland RGGI Investments by Category

2015

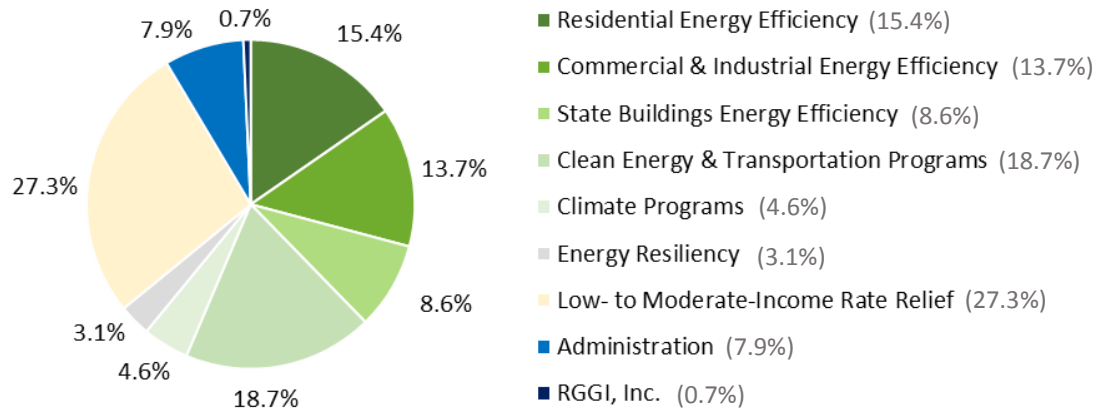


All-Time



Maryland received \$439.5 million in proceeds from 2008-2015 (fiscal year). RGGI investments represent \$384.2 million, and \$55.3 million is committed to 2016 and future programs.

2015 Maryland RGGI Investments by Program



Maryland RGGI investments represent \$63.8 million in 2015.

Program Highlight: Maryland Freedom Fleet Voucher Program

The Maryland Freedom Fleet Voucher Program provides financial assistance for the purchase of new and converted alternative fueled vehicles registered in the State of Maryland. In 2015, MEA issued 112 vouchers for the purchase or modification of vehicles that will displace an estimated 831,498 gallons of petroleum fuel, annually. Overall, more than \$9.9 million in private investment was leveraged through \$1.2 million in government funding. Grantees include:

- Jubb's Bus Service purchased the first propane-fueled school bus in the State of Maryland, displacing over 3,000 gallons of petroleum, annually.
- Waste Management acquired 10 compressed natural gas-powered refuse trucks, displacing more than 90,000 gallons of petroleum each year.
- DISH Network procured 10 propane-powered cargo vans, displacing over 25,000 gallons of petroleum per year.
- Verizon equipped 10 vehicles with hybrid electric systems, saving more than 18,000 gallons of petroleum, annually.

Success Story: H&S Bakery and Alternative Fuels

H&S Bakery, Inc., a family-owned company, is one of the largest providers of baked goods in the eastern United States. The bakery employs more than 2,000 people and operates in a service territory covering 23 states. Since it incorporated in 1962, H&S has served as a preferred supplier to a number of fast-food restaurants around the country.

In 2015, MEA awarded a total of \$500,000 in funding to H&S and its subsidiaries. H&S leveraged these funds to purchase 25 Class 8 tractors powered by compressed natural gas (CNG). CNG is produced regionally, which contributes to it being a cheaper and more stable fuel price compared to diesel fuel. In addition to the cost-savings, CNG is also a cleaner burning fuel that generates fewer greenhouse gas emissions and other harmful air pollutants. Altogether, the CNG-powered tractors will displace more than 386,000 gallons of petroleum, annually.



Left: One of the 25 Class 8 CNG-powered tractors purchased using Freedom Fleet Voucher Program funds. Right: Individual filling a tractor with CNG fuel. Photo Credit: Maryland Energy Administration.

Reducing greenhouse gas emissions and other air pollutants in the transportation sector plays a vital role in improving the air quality in Maryland. Partnering with businesses that are committed to advancing sustainability, like H&S, is key to achieving Maryland's environmental goals. Through initiatives like the Freedom Fleet Voucher Program, the State of Maryland will continue to work to secure cleaner and brighter future for all Marylanders.

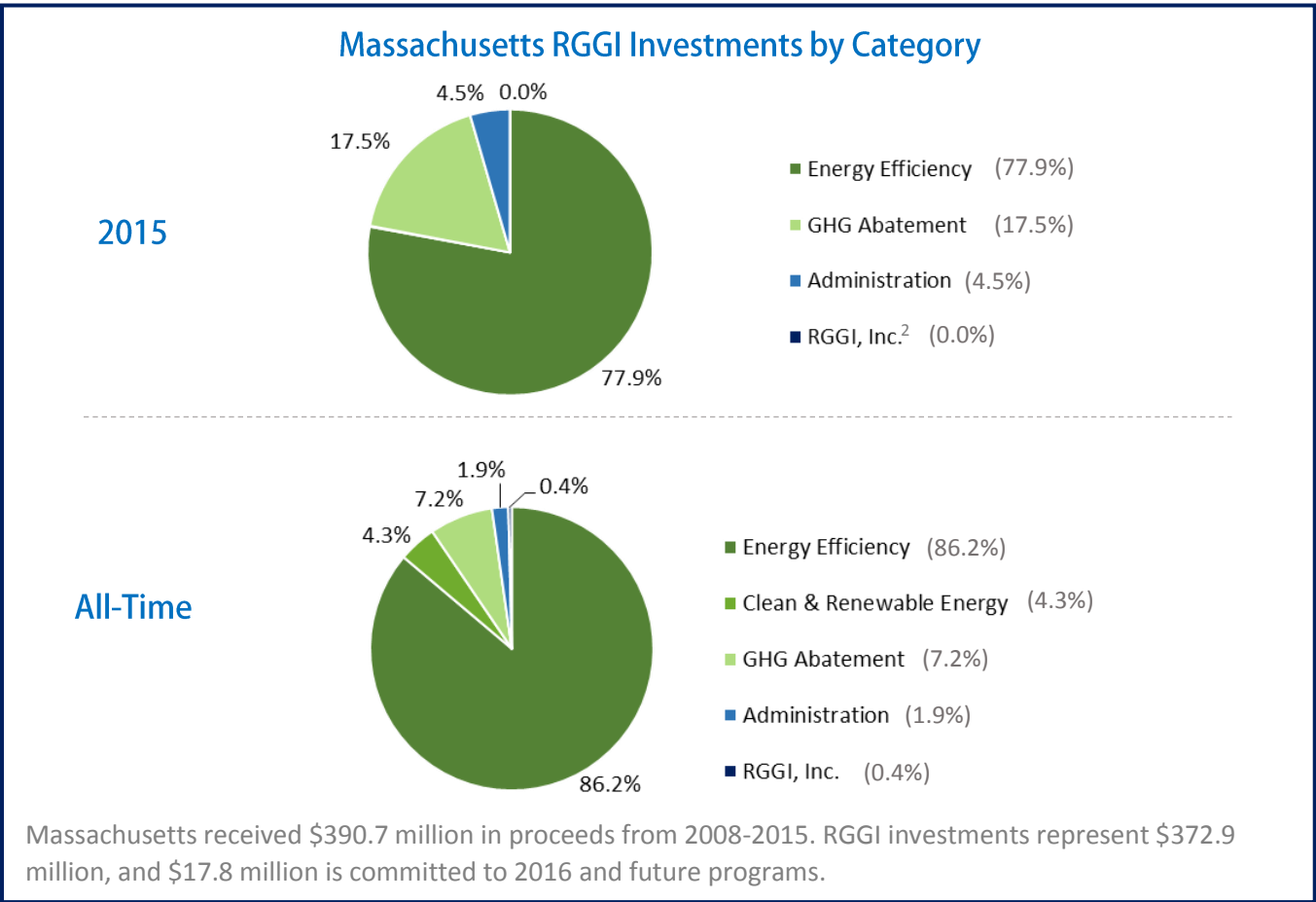
Resources:

- [Maryland Energy Administration](#)
- [Maryland Energy Administration Incentives](#)
- [Maryland Energy Administration Success Stories](#)

Massachusetts

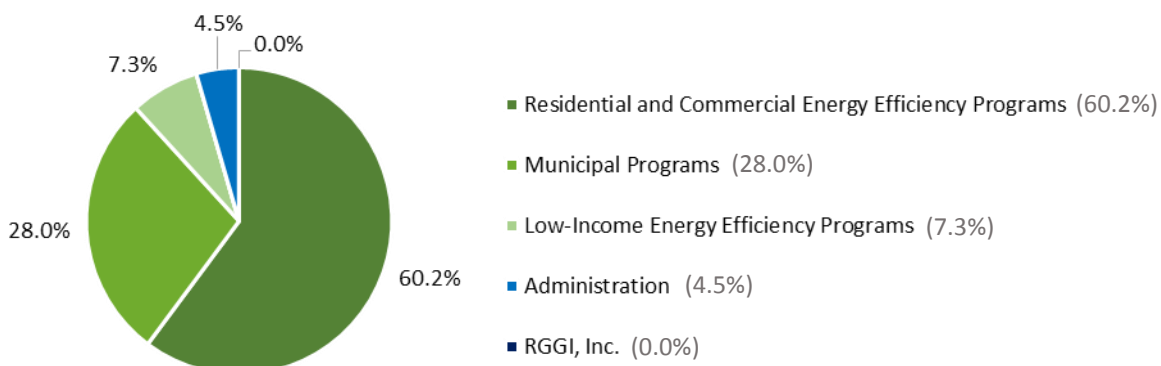
Massachusetts has put its RGGI allowance proceeds to work advancing the Commonwealth's energy goals. Since 2008, Massachusetts has invested more than \$372 million in RGGI proceeds, and more than 97 percent of these funds have been directed into strategic energy programs and initiatives. Two top initiatives are Massachusetts' statewide Three-Year Energy Efficiency Investment Plans, which are implemented through the Commonwealth's investor-owned utilities under the Mass Save® brand, and the Green Communities Designation and Grant Program, which provides funds to communities that meet ambitious energy criteria. These programs reduce harmful pollution, build the Commonwealth's clean energy economy, and increase the predictability of energy costs for homes and businesses.

Through 2015, investor-owned utilities and energy efficiency providers have delivered energy efficiency programs to Massachusetts residences and businesses, generating more than \$1 billion in lifetime energy bill savings. These programs gain additional funding through the state's Energy Efficiency Reconciliation Factor (EERF), system benefit charges, and regional forward capacity market auction proceeds.



² Massachusetts did contribute to the 2015 RGGI, Inc. operating budget, but this contribution was made at the end of the 2014 calendar year, and so was recorded in 2014.

2015 Massachusetts RGGI Investments by Program



Massachusetts RGGI investments represent \$71.1 million in 2015.

Mass Save programs provide energy assessments, air sealing and weatherization, and rebates for insulation and efficient lighting, appliances, HVAC, and water heating equipment. They incentivize the implementation of combined heat and power, and enable industrial facilities to improve process efficiency. RGGI proceeds also support incentives to promote the development of markets for energy-efficient technologies. This can include building code consultations, community-based initiatives, public education and outreach, and other programs helping to develop and commercialize energy-efficient products and practices. Massachusetts' energy policies and programs, including those funded in part by RGGI proceeds, have made Massachusetts a number one state for efficiency according to the American Council for an Energy Efficient Economy (ACEEE)'s 2015 Scorecard.

Program Highlight: Green Communities

The Green Communities Division strives to help all Massachusetts cities and towns find clean energy solutions that reduce long-term energy costs and strengthen local economies. The division provides technical assistance and financial support for municipal initiatives to improve energy efficiency and increase the use of renewable energy in public buildings, facilities and schools.

The Green Communities Designation and Grant Program has helped 185 cities and towns earn Green Community designation. As energy leaders in Massachusetts, Green Communities are eligible for state grants. A little over \$50 million from those Green Community grants is already at work in 155 communities, with more than \$6 million in additional grants for energy projects in the newest 30 designated communities. The Green Communities Division staff continues to work with scores of other local government entities on an array of energy activities: from reducing energy use in municipal and school buildings to establishing power purchase agreements that enable financially attractive renewable energy generation, adopting the latest building codes, and much more.

Success Story: Town of Maynard Very Pleased with Efficiency Improvements

The Town of Maynard received a Green Communities Grant of \$104,287 to fund interior light upgrades in the Fowler School and an LED streetlight retrofit.

Since completion, the Town has received positive feedback from the community for their energy reduction efforts. Only months after the Fowler Lighting Retrofit, the Fowler Gym was the host location for Maynard's Annual Town Meeting. Residents were extremely pleased with the new LED lighting in the area. It was a great opportunity to showcase the Town's commitment to energy reduction.

The new street lights have also received numerous compliments. Not only are the new LED lights much brighter, creating a safer environment, they are an opportunity for the community to see the Town's commitment to energy use reduction every day. Combined the projects resulted in an annual energy savings of 91,499kWh and utility cost savings of \$16,403.

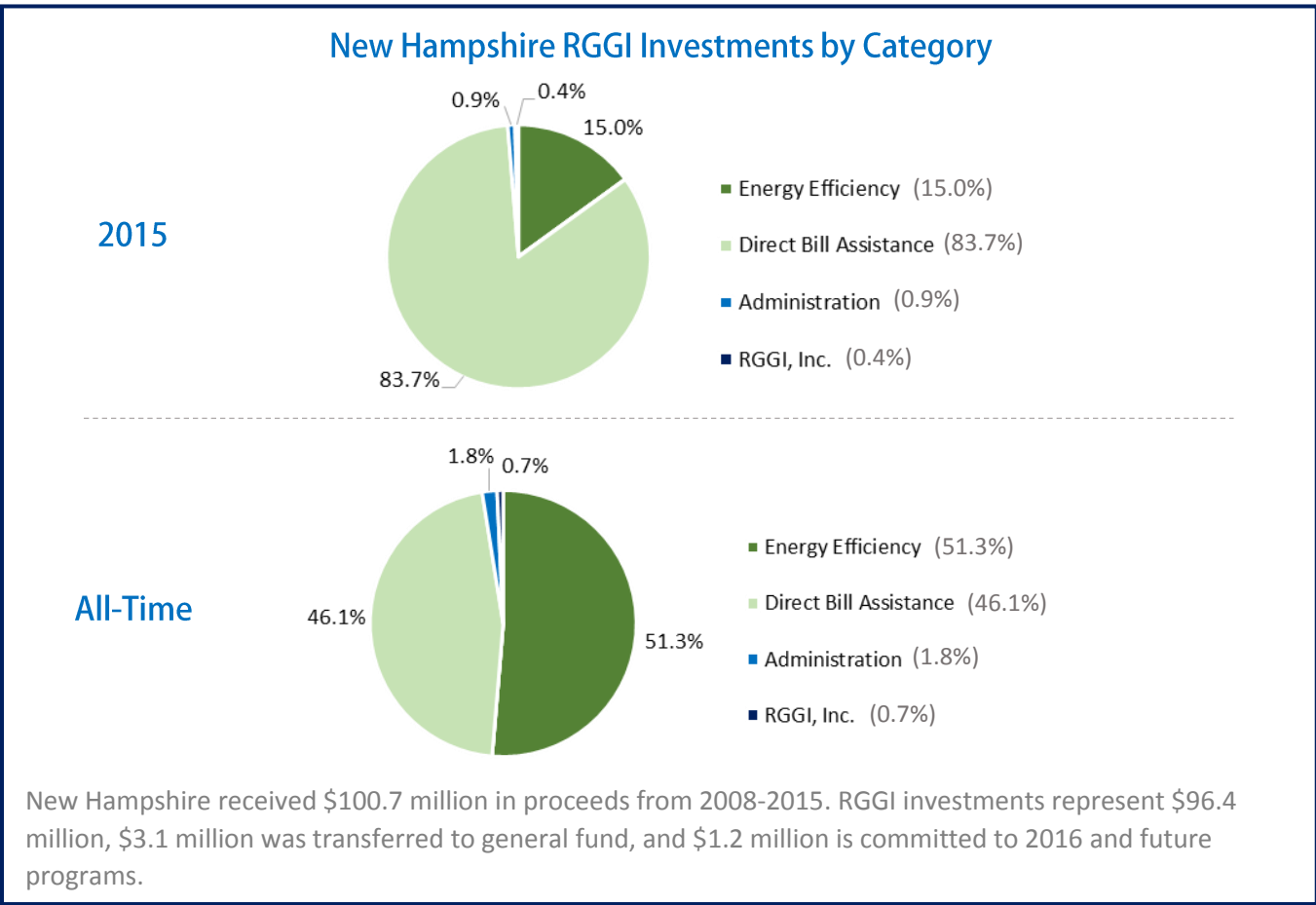
Resources:

- [MassSave](#)
- [Massachusetts Dept. of Energy Resources Green Communities Program](#)
- [Massachusetts Energy Efficiency Advisory Council](#)

New Hampshire

In 2015, New Hampshire received approximately \$24.4 million in RGGI allowance proceeds.³ New Hampshire invested approximately \$3.7 million to its Energy Efficiency Fund (EEF), which in conjunction with the System Benefits Charge, funds energy efficiency programs administered by the state's four electric utility companies. Pursuant to legislative changes enacted in 2013,⁴ approximately \$20.4 million provided direct bill assistance to New Hampshire electric consumers. The remaining auction proceeds of \$0.3 million covered administrative expenses.

The energy efficiency programs administered by the state's electric utility companies include a municipal program, an income-eligible program and an all-fuels program, pursuant to legislative changes enacted in 2014.⁵

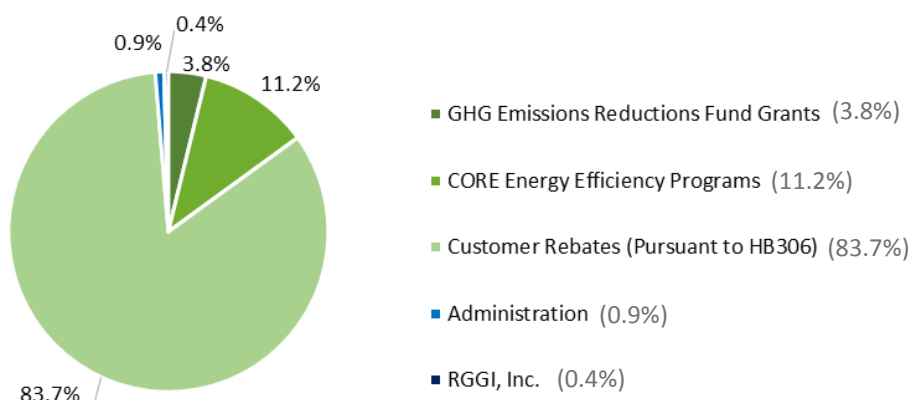


³ Based on [RGGI, Inc. Report](#) for Auction 27 through Auction 30.

⁴ House Bill 306, enacted July 15, 2013, effective date January 1, 2014.

⁵ Senate Bill 368, enacted August 14, 2014, effective date October 3, 2014.

2015 New Hampshire RGGI Investments by Program



New Hampshire RGGI investments represent \$24.4 million in 2015.

With respect to funds available for energy efficiency programs, the following results were accomplished in 2015:

- Weatherized 133 income-eligible homes through the Home Energy Assistance (HEA) program
- Upgraded to highly efficient equipment in 231 municipalities through the Municipal program
- Financed 70 residential energy efficiency projects utilizing consumer loans from the RGGI-Funded Revolving Loan Fund (RLF)
- Hosted workshops throughout the state to educate code officials, home builders, home buyers, realtors and more on the energy code

With respect to the HEA program and the Municipal program, these programs will save 103,094 MWH of electricity and 164,019 MMBtus over the expected life of the efficient equipment improvements.⁶ Associated bill savings over the lifetime of these improvements is estimated to be approximately \$20.9 million.⁷ In addition, if the one-time savings from direct bill assistance are incorporated, the total bill savings is approximately \$41.3 million (i.e., \$20.9 million + \$20.4 million).

The vendor selection process for the All-Fuels program was completed in November 2015 and the program was launched in early 2016. The program spans three years (i.e., 2016-2018) and the estimated RGGI funding for this period is \$1.2 million.

Consumer financing continues via the RGGI-Funded RLF which was originally funded through a RGGI grant awarded to the NH Electric Utilities in 2009. The RLF continues to offer zero interest loans and fixed monthly loan repayment on customer bills. Through its revolving nature, as loans are repaid, funds become available for new loans. In 2015, there were 70 residential projects financed utilizing RLF funds, with an average loan amount of approximately \$4,200.⁸

⁶ NH Core Energy Efficiency Programs, 4th Quarter Report, Jan-Dec 2015, Docket DE 14-216, p. 30 of 31

⁷ Estimated bill savings is based on unit electric and MMBtu savings estimates from last year's RGGI report.

⁸ NH Core energy Efficiency Programs, 4th Quarter Report, Jan-Dec 2015, Docket DE 14-216, p. 24 of 31.

Program Highlight: Energy Efficient Investments in Public Schools

RSA 374-F:4, VIII-a requires that the electric utilities submit plans for program design, and/or enhancements, and estimated participation that maximize energy efficiency benefits to public schools, including measures to enhance the energy efficiency of public school construction or renovation projects that are designed to improve indoor air quality. In 2015, the measures that were installed in public schools included: cooling, energy management systems, heating, lighting, lighting controls, motors, parking lot lights, process, refrigeration and weatherization. Approximately \$1.2 million⁹ was invested in NH Public Schools in 2015, with funding provided by RGGI allowance proceeds, in conjunction with funding provided by the System Benefit Charge (SBC). These projects resulted in annual kWh savings of 3,538,899 kWh and annual MMBtu savings of 28,078 MMBtu.

Success Story: Shaker Regional School District

School kids in Belmont, New Hampshire had brighter and warmer classrooms this winter thanks to significant investments in energy efficiency projects. Through the energy efficiency program, Shaker Regional School District (SAU 80) completed a number of projects at the Belmont elementary, middle, and high schools.



The district was awarded a rebate check of \$200,000 for the work, which included spray foam insulation, a retrofit of all existing interior and exterior lighting to energy-efficient LEDs, and new controls for the HVAC system at all three schools. Additionally, the elementary school installed a new high-efficiency propane boiler, the high school swapped out to high-efficiency, right-sized transformers, and the School Administrative Unit building added spray foam insulation. It's estimated the improvements will add up to savings of 287,347 kilowatt hours, 17,174 gallons of oil, and 3,679 gallons of propane a year. The overall project is estimated to save taxpayers over \$100,000 per year.

According to Doug Ellis, Director of Building and Grounds at Shaker Regional School District, "We were able to reduce our energy usage by 27% in November, 42% in December, and 37% in January. Additionally, we were able to replace our older boilers, which were ending their life cycle. We are very pleased with the savings that we have already seen as an outcome of this project." In addition to qualifying for \$200,000 of rebates, SAU 80 financed the project through a Performance Contract, under which the district pays over time through the savings the project generates. Performance Contracts are privately funded with guaranteed savings and are available for projects to offset any type of fuel, not just electricity.

Resources:

- [CORE Energy Efficiency Programs](#)
- [Energy Efficiency Rebates and Incentives](#)

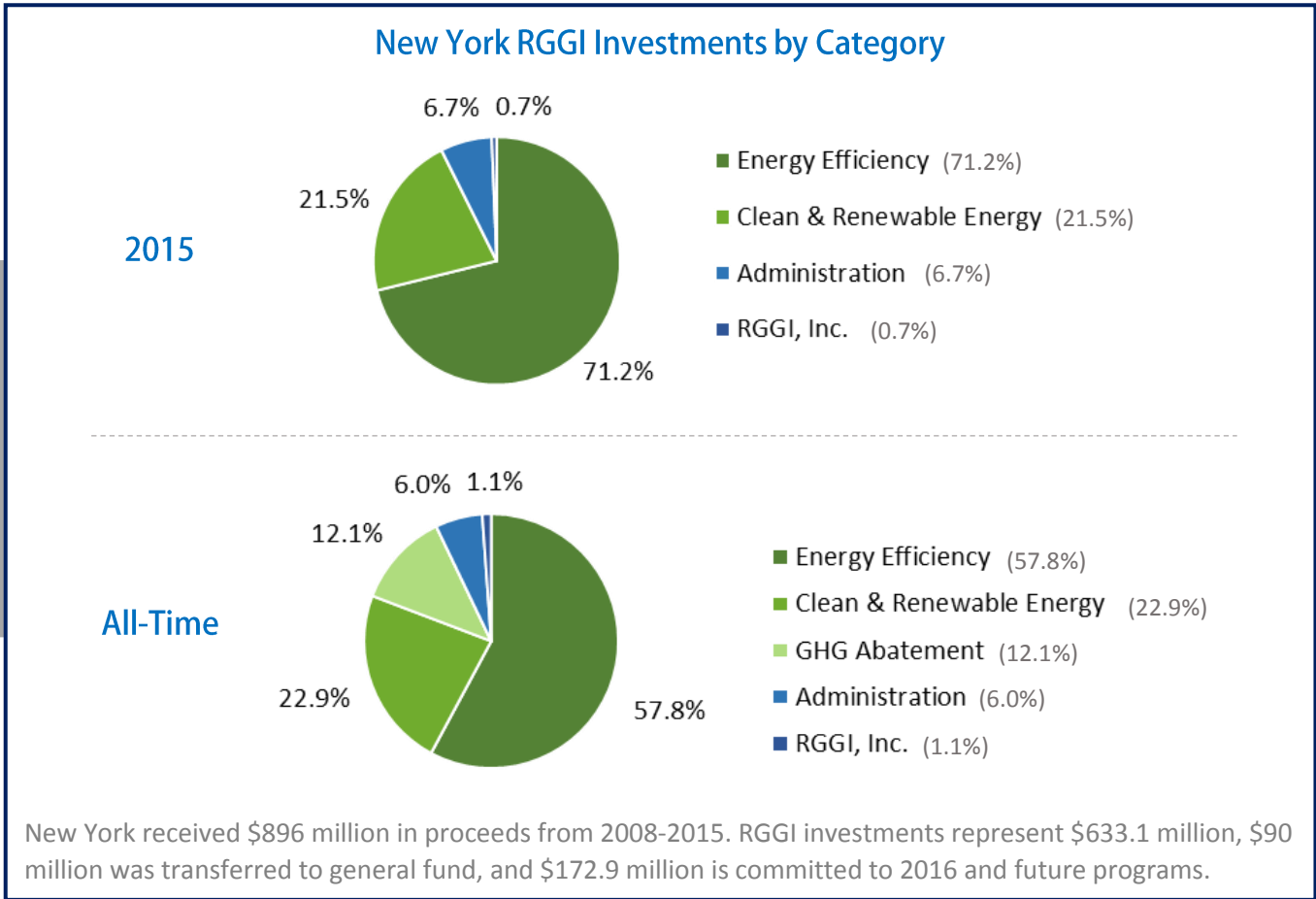
⁹ Results and Effectiveness of the System Benefits Charge, Annual Report, October 1, 2016, p.7.

New York

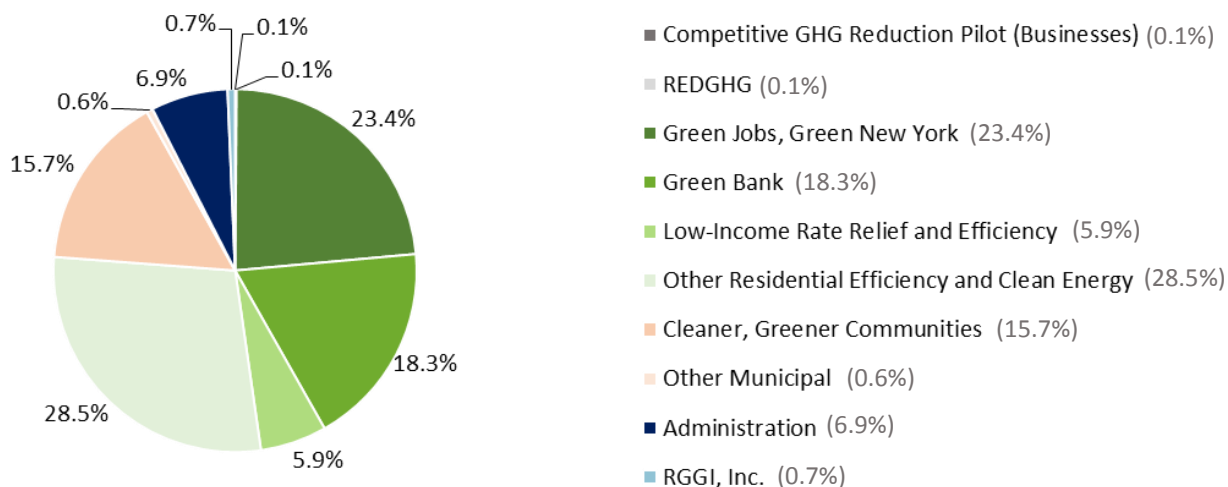
New York has led the fight against climate change for more than a decade, recently reaffirming its goal of 40% greenhouse gas emissions reductions from 1990 levels by 2030, which stands among the most ambitious greenhouse gas emissions reduction goals in the country. Along with New York’s Clean Energy Standard and Clean Energy Fund, RGGI is helping to realize the State’s goal. This multi-policy approach augments the scale of clean energy solutions that are at the core of State policy objectives, and compounds the reduction of carbon emissions.

New York State invests RGGI proceeds to support a diverse investment portfolio that reduces global climate change and other pollution through deployment of energy efficiency, renewable energy, and carbon abatement technology. This portfolio of initiatives works with a range of market parties from residents, to communities, to businesses and industry, to sow the seeds of change to ensure climate success.

RGGI-supported investments build New York’s capacity for long term carbon reduction through community and business focused solutions. RGGI has worked with communities to empower the transition to cleaner energy through programs and initiatives like *Climate Smart Communities*, *Cleaner, Greener Communities*, and more recently through initiatives like *Clean Energy Communities* and *Community Solar*. New York knows that transformation happens at the local level and starts with the actions that individual communities take to create better places to work and live.



2015 New York RGGI Investments by Program



New York RGGI investments represent \$167 million in 2015.

The *Climate Smart Communities* and *Clean Energy Communities* programs recognize and reward village, town, city, and county governments in New York State for reducing greenhouse gases and implementing clean energy programs. Through such activities, RGGI provides tools, resources, and technical assistance to help local governments implement climate and clean energy actions that can save taxpayer dollars, create jobs, and improve the environment. Similarly, RGGI enables the *Solarize* program to work at the local level to provide all communities with direct access to solar energy. Solarize campaigns bring together groups of potential solar customers through widespread outreach and education, and help customers choose solar companies that are offering competitive, transparent pricing.

RGGI also helps to support and grow clean-energy businesses in the state that will deliver solutions to reduce greenhouse gas emissions, make clean energy more affordable, and simultaneously create jobs, economic growth and community development benefits. Through programs like New York's *76West Clean Energy Business Competition*, the state is signaling the market to develop the next generation of clean energy solutions and invest in New York's burgeoning clean energy sector.

Through these and other initiatives, RGGI's investment portfolio is helping to change the way we use energy in New York for the benefit of current and future generations. New York's leadership in RGGI continues to provide momentum to lead in the global effort to protect our planet, and to provide unique opportunities to mobilize a cap and invest model to transform the energy system for a clean and sustainable future.

Program Highlight: New York Expands Energy Efficiency Financing Program

Energize NY is the State's Property Assessed Clean Energy (PACE) finance facility which offers counties and cities a way to activate PACE for commercial and not-for-profit building owners. PACE is a long-term and low-cost financing option for energy efficiency upgrades and renewable energy improvements. The financings are repaid through an annual charge on the property's tax bill.

While *Energize NY* was originally created to benefit Westchester County communities, in 2015, the facility was broadened to include the Central New York, Mid-Hudson and other regions. By offering PACE financing to additional communities across the State, New York expects to stimulate approximately \$13 million in energy cost savings and reduce greenhouse gas emissions by 48,000 metric tons by 2021, equivalent to removing 10,000 cars from the road

Energize NY also provides support and tools to residential and commercial property owners to improve energy efficiency and/or add renewable energy to their buildings, and to help building owners access local utility programs.

Energize NY is supported by RGGI under Governor Andrew M. Cuomo's *Cleaner, Greener Communities* initiative which encourages communities to incorporate sustainability goals and principles into local decision-making and forms partnerships to transform markets that lead to the reduction of emissions and the generation of economic development benefits.

Success Story: New York Supports Emerging Clean Energy Companies in Economic Revitalization Opportunity

RGGI investments are supporting New York's *76West Clean Energy Business Competition*, one of the largest competitions in the country that focuses on supporting and growing clean energy businesses. The \$20 million competition and support program will seek new participants each year from 2016 through 2019. Each year applicants will vie for six awards; a \$1 million grand prize, a \$500,000 award and four \$250,000 awards. In total, 76West will provide \$10 million in awards and \$10 million for business support, marketing and administration.

The winners will be determined based on their use of innovative technologies that have the potential to reduce greenhouse gas emissions and make clean energy more affordable. As a condition of the award, companies must either locate in New York's Southern Tier or establish a connection with the Southern Tier, such as a supply chain, job development with Southern Tier companies, or other strategic relationships with Southern Tier entities, that increases wealth creation and creates jobs. If the companies are already in the Southern Tier, they must commit to substantially growing their business and employment in the region.

The 76West competition complements Governor Andrew M. Cuomo's "Southern Tier Soaring," the region's comprehensive blueprint to generate robust economic growth and community development. An historic \$500 million State investment in the Southern Tier through the Upstate Revitalization Initiative was announced by Governor Cuomo in December 2015 and will incentivize private business to invest well over \$2.5 billion – and is projected to result in over 10,000 new jobs in the region.

Resources

- [2015 Operating Plan for Investments in New York under the CO₂ Budget Trading Program and the CO₂ Allowance Auction Program](#)
- [New York's RGGI-Funded Programs Status Report, Quarter Ending December 31, 2015](#)

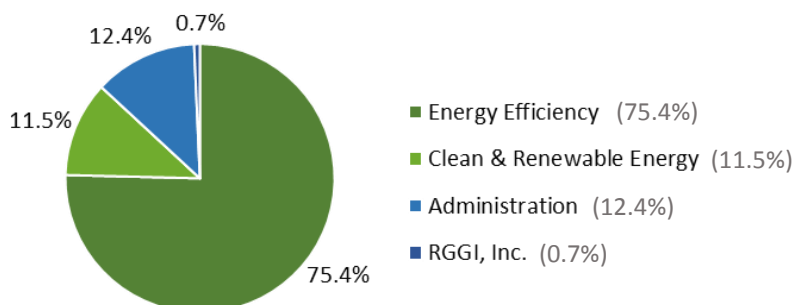
Rhode Island

In Rhode Island, RGGI auction proceeds are allocated to drive investment in – and expansion of – clean energy resources, including cost-effective energy efficiency and renewables. In doing so, the Office of Energy Resources (OER) seeks to support investment and job growth in Rhode Island's burgeoning clean energy sector; reduce barriers to consumer adoption of clean energy solutions; place downward pressure on long-term energy costs; and shrink carbon footprints. Through the periodic adoption of RGGI Allocation Plans, OER has leveraged auction proceeds with utility ratepayer-derived capital to drive wide-scale deployment of energy efficiency measures consistent with the state's least cost procurement mandate. Moreover, in recent years, OER has also focused on extending the many economic and environmental benefits of clean energy to underserved sectors of our local economy.

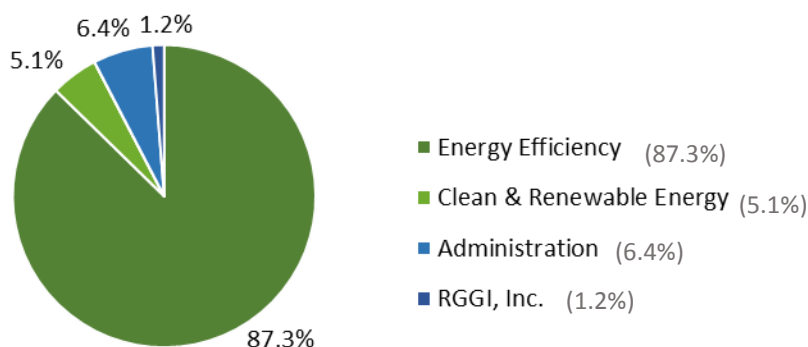
Clean energy investments supported by RGGI auction proceeds are driving the adoption of cleaner, more sustainable energy solutions across public and private sector institutions, and in Ocean State communities. These investments are being made in a manner consistent with the Regional Greenhouse Gas Initiative Act, our State Energy Plan, and broader state energy and environmental policy goals.

Rhode Island RGGI Investments by Category

2015

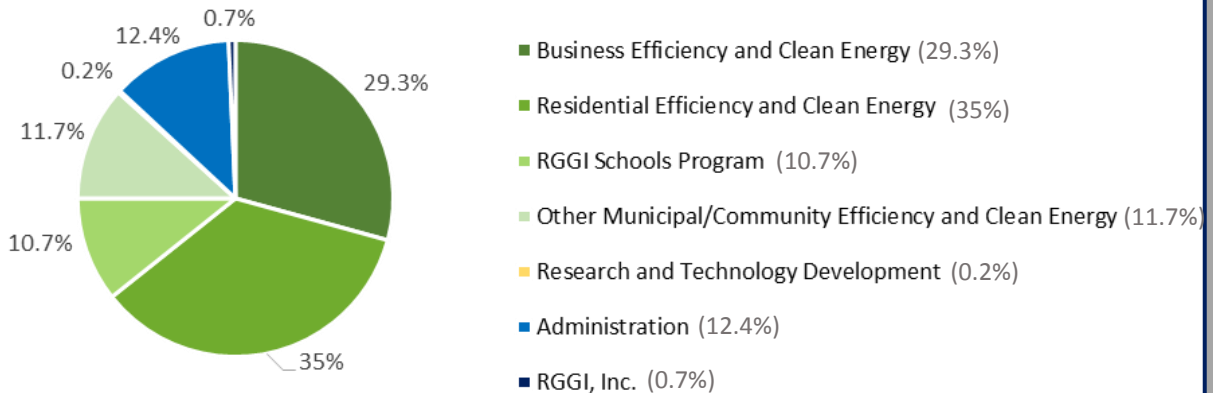


All-Time



Rhode Island received \$48.0 million in proceeds from 2008-2015. RGGI investments represent \$21.3 million, and \$26.7 million is committed to 2016 and future programs.

2015 Rhode Island RGGI Investments by Program



Rhode Island RGGI investments represent \$7.9 million in 2015.

In 2015, Rhode Island RGGI proceeds were allocated to the state's primary electric utility, National Grid, to support the broad implementation of Rhode Island's nation-leading energy efficiency programs, while reducing the amount charged to utility customers to support these important, cost-effective investments. RGGI dollars were also used to support energy efficiency rebates for homes heated with deliverable fuels (oil and propane). These programs help bring clean energy solutions to Residential, Income Eligible, and Commercial and Industrial customers across the state; achieve lowest-cost, carbon-free energy savings; and support local job growth, all while reducing energy burdens for local families and businesses. Funds were also allocated to the Rhode Island Department of Transportation (RIDOT) to begin replacing all state-owned highway street lights with more cost-effective LED fixtures and lighting controls.

OER has also invested funds in:

- The Rhode Island Solarize program, which seeks to increase the adoption of small-scale solar electricity in participating communities through a competitive tiered pricing structure that increases the savings for everyone as more home and business owners sign contracts;
- Local investments in energy efficiency and other clean energy solutions in the Pascoag Utility District and within the service territory of the Block Island Power Company;
- A Systems Integration Project to examine key issues related to the future of Rhode Island's power grid; and
- Grants to Rhode Island schools (K-12) to support their adoption of renewable energy projects through a competitive grant process.

Program Highlight: Lead by Example

Under Governor Raimondo's Executive Order, State agencies will "Lead by Example" and transition energy supply portfolios and consumption practices toward lower cost, cleaner, low-carbon solutions. Among the Governor's directives, OER has been tasked with overseeing and coordinating activities across State government to: reduce electric consumption by at least 10 percent below FY14 levels by the end of FY19; identify opportunities to support a full transition toward renewable energy sources by 2025; support the integration of clean transportation solutions into the State's fleet; and establish a stretch building code for use in all State construction and renovation projects.

As part of its Lead by Example initiative, OER has allocated approximately \$3.0 million of RGGI auction proceeds to assist the Rhode Island Department of Transportation (RIDOT) with making cost-effective investments in LED lighting and control technology across state roadways.

Success Story: State-Owned Street Light Conversion

OER has partnered with RIDOT to convert all State-owned highway streetlights to energy efficient LEDs. The project began in 2015 as a pilot study and project utilizing \$250,000 of RGGI proceeds. LED fixtures were installed at the cloverleaf interchange of Interstate 295 and Route 44 in Smithfield. Each of the four quadrants of the cloverleaf were equipped with a different type of LED fixture to test and evaluate the following criteria: lighting fixture design/shape/components accessibility, lighting meter data, visual inspection of lighting distribution and lighting brightness/disturbance. This pilot helped provide valuable product and technological data that later served as an input as the state moved toward replacing all State-owned highway lighting fixtures with LED lighting and controls.

Rhode Island is now poised to become the first state to shift all State-owned streetlights to LED technology, and is sharing best practices with local municipalities interested in making a similar transition. To date, RIDOT has replaced approximately 7,000 high pressure sodium lighting fixtures with LED luminaries and wireless lighting controllers. The annual energy savings after the completion of this retrofit are projected to exceed \$1 million.



I-295 Exit 7 – Smithfield, during the process of converting to efficient LED lighting. The left side of the highway are LEDs.
Source: RI Office of Energy Resources.

Resources:

- [Office of Energy Resources RGGI Plan Documents](#)
- [Office of Energy Resources Street Lights Program](#)

Vermont

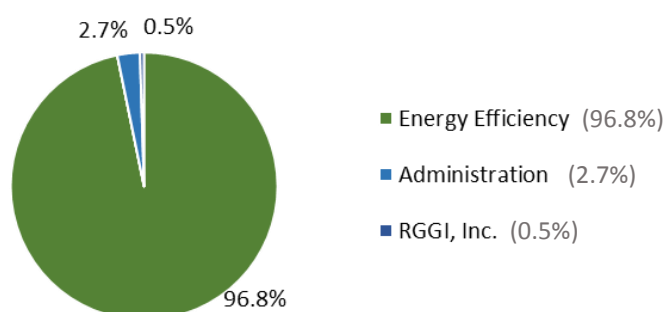
Vermont invests the majority of its CO₂ allowance proceeds in programs managed by Efficiency Vermont and the Burlington Electric Department. RGGI funds allow these entities to expand their electrical energy efficiency programs to include thermal energy and process fuel efficiency programs. Efficiency Vermont's participation in the regional grid's forward capacity market also provides funds for this program expansion.

Vermont's thermal energy and process fuel efficiency programs funded by RGGI through 2015 are estimated to result in lifetime energy savings of 2.3 million mMBTUs. Together with electric efficiency investments, these programs are estimated to avoid the emission of an estimated 161,000 short tons of CO₂, and to save participants an estimated \$125 million on their energy bills over the lifetime of those investments. Vermont's RGGI-funded programs have served approximately 5,700 households and 1,100 businesses.

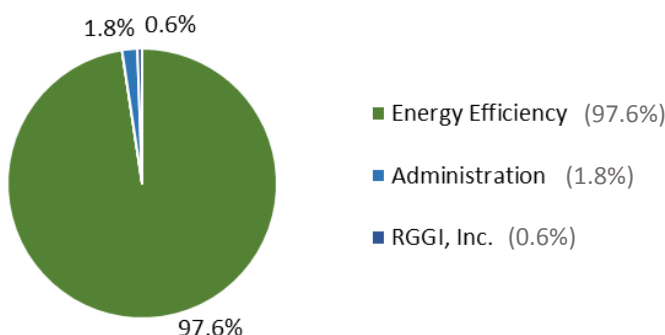
Programs currently supported by CO₂ allowance proceeds include the Home Performance with ENERGY STAR® service for residential customers, the Building Performance service providing incentives for efficiency services to small business customers, and low-income energy efficiency services through 3E Thermal project management.

Vermont RGGI Investments by Category

2015

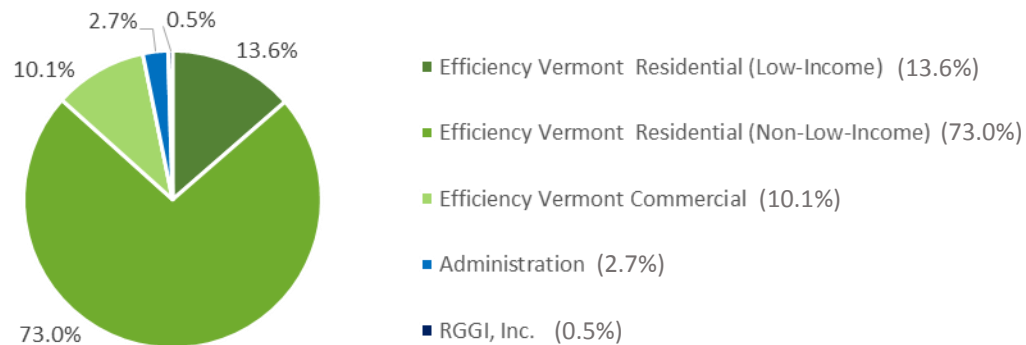


All-Time



Vermont received \$17.8 million in proceeds from 2008-2015. RGGI investments represent \$17.7 million, and \$146,184 is committed to 2016 and future programs.

2015 Vermont RGGI Investments by Program



Vermont RGGI investments represent \$3.2 million in 2015.

Efficiency Vermont, the nation's first ratepayer-funded energy efficiency utility, is overseen by the Vermont Public Utility Commission, and implemented by Vermont Energy Investment Corporation. Efficiency Vermont's programs have a proven track record of saving energy and money for commercial, industrial and residential consumers. These and other energy efficiency programs helped to rank Vermont third in the nation in 2015, according to the American Council for an Energy Efficient Economy (ACEEE) State Energy Efficiency Scorecard.

Program Highlight: Low-Income Multifamily Retrofits

Vermont delivers low income multifamily retrofit services through a unique partnership between 3E Thermal, the state's Weatherization Assistance Program (WAP) agencies, and Efficiency Vermont. By combining Efficiency Vermont's incentives, WAP funding and 3E Thermal project management and technical support, a deeper level of energy retrofit is achieved and that is sought by Vermont's nonprofit affordable housing organizations. This work enables the provision of long-term housing affordability for low-income Vermonters beyond that which is typically achieved through WAP alone.

Through increased incentives and project management for complicated multi-unit properties, this partnership overcomes challenges faced by renters and property owners who must confront "split incentives"—situations in which the property owners who fund energy efficiency investments do not benefit from long-term energy efficiency savings. That is, the renters benefit from the savings, when the investment is the burden of property owners.

Success Story: Weatherizing Emergency Housing in Middlebury, Vermont

"Thanks to Efficiency Vermont, our four-unit North Pleasant Street Housing has provided safe, warm and affordable housing to seventeen families in the past two years."

- Elizabeth Ready, Director, John Graham Housing and Services

John Graham Housing and Services, a non-profit offering housing, food, and services to homeless people in Vermont, wanted to celebrate its 35th year in a big way: by converting a four-unit apartment building in Middlebury into short-term housing for families. They had their work cut out for them. The building, located at North Pleasant Street in Middlebury, was over 120 years old. The wood-frame structure was uninsulated and nothing had been updated or renovated to code in many years.

Working in partnership with Vermont's Weatherization Assistance Program, 3E Thermal and Efficiency Vermont, John Graham Housing and Services was able to retrofit the building and make it both livable and affordable for the families moving in.

Improvements included:

- Air Sealing and Insulation: Dense-pack cellulose was installed in exterior walls, the attic was air sealed and given 14 inches of insulation, and cellar walls and sills were all sealed and insulated.
- Equipment upgrades: The old, inefficient boiler was replaced with a high-efficiency model, a new hot water tank was installed along with new pumps, controls, and insulation; and a new mechanical ventilation system was installed to provide fresh, healthy air.

The retrofit is expected to save 50% on energy costs – savings that will go a long way toward helping families get back on their feet. The upgrades will also provide families with better air quality, fewer drafts, and more comfort overall. Said Elizabeth Ready, Director of John Graham, "When a home is warm and safe, it makes all the difference for people's quality of life."

Total energy-retrofit costs were approximately \$47,000. Efficiency Vermont and the Weatherization Assistance Program paid 2/3 of the costs. Estimated savings are about 50%.

The North Pleasant Street Housing project is one of several affordable housing projects completed by 3E Thermal and Efficiency Vermont in multiple counties throughout the state in 2015.



A Vermont multi-family house which received weatherization assistance. Source: Vermont Energy Investment Corporation.

Resources:

- [Efficiency Vermont Rebates](#)
- [Efficiency Vermont Services](#)
- [Efficiency Vermont News](#)

Glossary and Methodology

Program Categories

Administration

Funds directed to administrative overhead expense associated with all RGGI-funded programs, including outsourced and in-house overhead expenses.

Clean and Renewable Energy

Programs directed at accelerating the deployment of renewable or other non-carbon emitting energy technologies. Program costs include evaluation and measurement. Examples include incentives for residential solar panels, financing of commercial renewable energy projects through green banking, research and development of new energy technologies.

Direct Bill Assistance

Programs providing energy bill payment assistance, including direct bill assistance to low-income ratepayers. Program costs include evaluation and measurement.

Energy Efficiency

Programs designed to improve energy efficiency by reducing overall energy use without degrading functionality. This includes programs directed at assisting low-income families and small business. Program costs include evaluation and measurement. Examples: home energy audit programs, home and building weatherization, energy efficient appliance or industrial equipment rebate programs, compact fluorescent light bulb programs, and energy efficiency workforce training programs.

Greenhouse Gas Abatement

Programs promoting the research and development of advanced energy technologies, the reduction of vehicle miles traveled, the reduction of emissions in the power generation sector, forestry projects designed to increase carbon sequestration, and other initiatives to reduce greenhouse gases. Program costs include evaluation and measurement.

RGGI, Inc.

Funds provided to RGGI, Inc. to support and implement state CO₂ Budget Trading programs.

General Terms

RGGI Investments

RGGI Investments are the proceeds generated by RGGI CO₂ allowance auctions that have been invested by the RGGI states in the energy efficiency, clean and renewable energy, GHG abatement, and direct bill assistance programs discussed in this report. These investments do not include New Jersey proceeds or investments, transfers to state general funds, or future committed funds.

Future Committed

Future committed funds are the proceeds generated by RGGI CO₂ allowance auctions that have not yet been invested by the RGGI states. Future committed proceeds represent funds that could be invested by the state in 2016 and beyond.

Current Period

The twelve-month period covered by this report, which may be either the fiscal year or calendar year 2015, as defined by each state. See table 2 on page 8 for state-by-state reporting periods.

Benefits and Statistics

Annual (2015)

A measure of one year's worth of benefits from all measures installed in 2015. Note that actual realized benefits in the year 2015 may differ slightly from the 2015 annual benefits, since measures may be installed at different times during the year.

Lifetime (2015)

The full benefits of measures installed in 2015, including benefits to be realized in the future. The lifespan of installed measures varies by type of measure and by program, and is calculated and provided by program administrators. For example, an industrial boiler would likely be estimated to provide benefits over a longer lifespan than an LED lightbulb. Measure lifespans used in this report typically range between 5-20 years.

Lifetime (All-Time)

The total estimated lifetime benefits of all measures installed since the inception of the RGGI program. This includes the full lifetime benefits of measures installed in previous years, in addition to the lifetime benefits of 2015 measures.

Funds Invested

Total dollar amount of RGGI proceeds invested in a program or category over a given period. For programs that are partially funded by RGGI, only the amount provided by RGGI funds is included. Remaining data on these programs is prorated based on the percentage of the program funded by RGGI. For example, if 30 percent of a program's total funding comes from RGGI, 30 percent of the households served by the program are reported under "Participating Households" in this report.

Participating Households: Programs

Number of households that have directly received assistance as a result of each program (e.g. number of homes weatherized, number of households receiving home energy audits, etc...). Households participating in more than one program may be counted under each program they have participated in (e.g. a completed home energy audit constitutes a participating household even if the household may elect to further participate in programs to install recommended measures). For multi-family dwellings, each unit within the multi-family home may be considered to be a household. For retail programs such as lightbulb distribution, households may be extrapolated from the number of items distributed.

Participating Households: Direct Bill Assistance

Number of households receiving direct bill assistance or energy bill rebates funded through RGGI proceeds. Bill assistance programs vary by state; in some cases rebates may be returned to all customers, while in other cases they may be targeted to low-income customers or to specific customer types.

Participating Businesses: Programs

Number of "end-user" businesses who have directly received assistance as a result of the program (e.g. number of businesses whose offices were weatherized, number of businesses receiving grant assistance

to install energy efficiency measures, etc... via a grant, loan, or rebate). Businesses participating in more than one program will be counted under each program they have participated in (e.g. a completed audit constitutes a Participating Business even if the business may elect to further participate in programs to install recommended measures).

Participating Businesses: Direct Bill Assistance

Number of businesses receiving direct bill assistance or energy bill rebates funded through RGGI proceeds.

Workers Trained

Total number of training seats filled directly by the program from inception through the Current Period. This measure accounts for the fact that some workers may have attended more than one training course as they seek to expand their skills.

MWh Avoided

Estimated total MWh projected to be avoided as a result of RGGI funds invested, calculated using program-specific savings as defined by each state.

MMBtu Avoided

Estimated total MMBtu projected to be avoided as a result of RGGI funds invested, calculated using program-specific savings as defined by each state.

Energy Bill Savings

Estimated gross amount saved as a result of RGGI funds invested (initial investment in installed measures is not deducted). Calculated using program-specific savings, as defined by each state. Estimates of 2015 lifetime energy bill savings are not discounted into the future, and are given in current year dollars as of the report's release. To generate all-time lifetime bill savings, past years' savings are not adjusted into current year dollars.

CO₂ Emissions Avoided

Estimated total number of short tons of CO₂ avoided as a result of funds invested, calculated using a program-specific formula as defined by each state.

Cars Taken Off the Road

Estimated number of cars that would need to be taken "off the road" for one year to reduce CO₂ emissions by the same amount as the RGGI-funded measures. Calculated using average annual CO₂ emissions for passenger cars (10,582 pounds or 5.29 short tons of CO₂), as published by the U.S. Environmental Protection Agency. View conversion rates at: <http://www.epa.gov/cleanenergy/energy-resources/calculator.html>

RGGI States Proceeds Contacts

Connecticut

Keri Enright-Kato
Department of Energy & Environmental Protection

Dino Pascua
Department of Energy & Environmental Protection

Delaware

Valerie Gray
Department of Natural Resources & Environmental Control

Morgan Ellis
Department of Natural Resources & Environmental Control

Maine

Laura Martel
Efficiency Maine

Emily Cushman
Efficiency Maine

Jack Riordan
Efficiency Maine

John Brautigam
Maine Public Utilities Commission

Maryland

Tyler Butler
Maryland Energy Administration

Chris Hoagland
Department of the Environment

Massachusetts

Ian Finlayson
Department of Energy Resources

Matt Rusteika
Department of Energy Resources

New Hampshire

Jim Cunningham
Public Utilities Commission

Karen Cramton
Public Utilities Commission

Joe Fontaine
Department of Environmental Services

Chris Skoglund
Department of Environmental Services

New York

Robert Bergen
NYSERDA

Allison Rose
NYSERDA

Lois New
Department of Environmental Conservation

Rhode Island

Barbara Cesaro
Office of Energy Resources

Vermont

Mary-Jo Krolewski
Public Service Board

David Westman
Vermont Energy Investment Corp

