

The Regional Greenhouse Gas Initiative

An Initiative of the New England and Mid-Atlantic States of the United States

The Investment of RGGI Proceeds in 2018

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Table of Contents

Executive Summary	3
Introduction	4
2018 RGGI Investments	5
Energy Efficiency	7
Clean and Renewable Energy	9
GHG Abatement	10
Direct Bill Assistance	11
Cumulative Uses of Auction Proceeds	12
RGGI States	15
Connecticut	15
Delaware	17
Maine	20
Maryland	23
Massachusetts	26
New Hampshire	29
New York	32
Rhode Island	35
Vermont	38
Appendix	41
Glossary and Methodology	41
RGGI States Proceeds Contacts	44

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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 Jersey, New York, Rhode Island, and Vermont.

Executive Summary

Proceeds from the Regional Greenhouse Gas Initiative (RGGI) have powered significant investment in the energy future of the New England and Mid-Atlantic states. This report reviews the benefits of programs funded in 2018 by \$248 million in RGGI investments, which have reduced harmful carbon dioxide (CO₂) pollution while spurring local economic growth. The lifetime effects of 2018 RGGI investments are projected to avoid the release of 4.6 million short tons of carbon pollution. RGGI-funded programs also save consumers money and support businesses. RGGI investments in 2018 are estimated to return \$2 billion in lifetime energy bill savings to over 120,000 households and over 1,200 businesses that participated in programs funded by RGGI proceeds, while over 750,000 households and businesses received direct bill assistance in 2018. As a whole, the RGGI states have reduced power sector CO₂ pollution over 50% since 2005, while the region's gross domestic product has continued to grow.

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 funds (such as transfers to general funds) are outside the scope of this report.

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

Energy efficiency makes up 38% of 2018 RGGI investments and 56% of cumulative investments. Programs funded by these investments in 2018 are expected to return about \$1.2 billion in lifetime energy bill savings to over 115,000 participating households and 1,200 businesses in the region and avoid the release of 1.4 million short tons of CO₂ pollution.

Clean and renewable energy makes up 19% of 2018 RGGI investments and 14% of cumulative investments. RGGI investments in these technologies in 2018 are expected to return about \$600 million in lifetime energy bill savings and avoid the release of 1.9 million short tons of CO₂ pollution.

Greenhouse gas abatement makes up 20% of 2018 RGGI investments and 9% of cumulative investments. RGGI investments in greenhouse gas (GHG) abatement in 2018 are expected to avoid the release of 1.2 million short tons of CO₂ pollution and to return over \$200 million in lifetime savings.

Direct bill assistance makes up 16% of 2018 RGGI investments and 15% of cumulative investments. Direct bill assistance programs funded through RGGI in 2018 have returned \$10 million in credits or 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 GHG pollution and improving energy efficiency.

Introduction

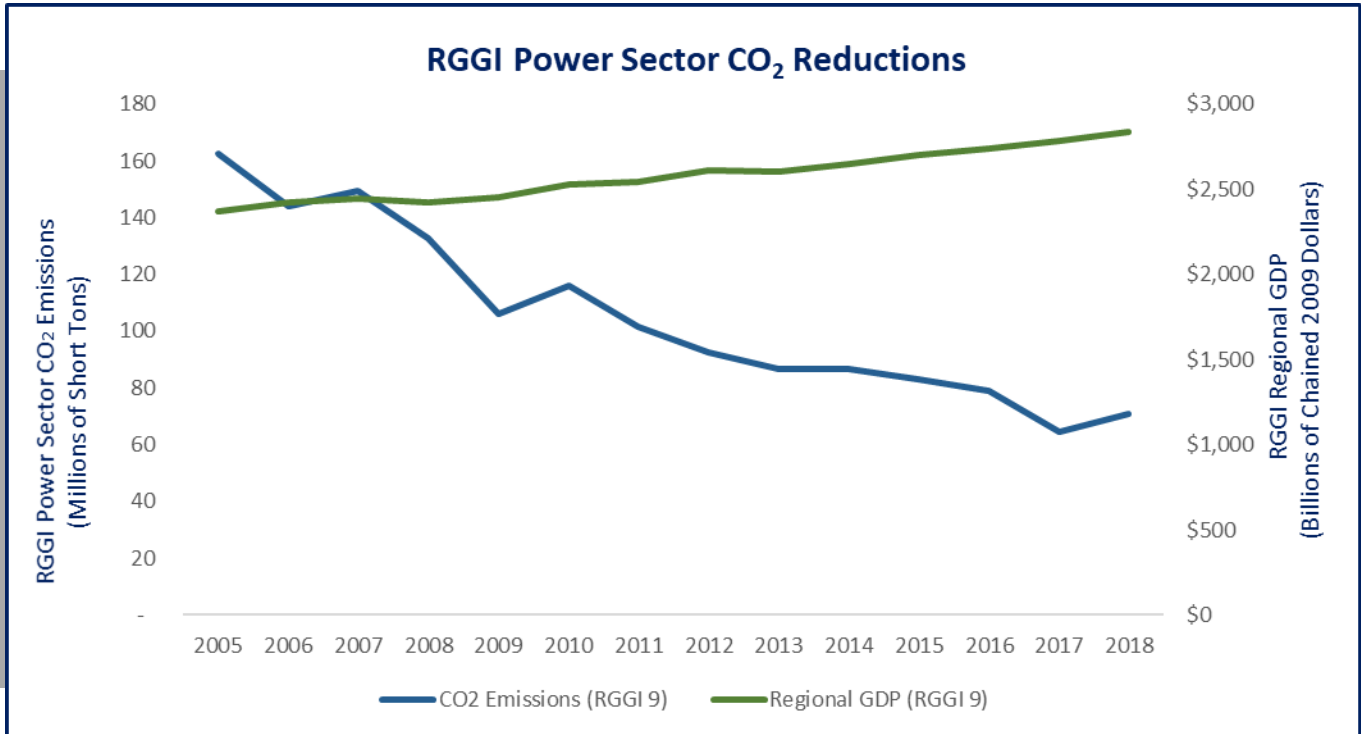
The Regional Greenhouse Gas Initiative

RGGI is the nation's first multi-state program to reduce power sector CO₂ emissions. The RGGI states (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, 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 to drive long-term investments in clean energy. Each state's independent regulations are based on the RGGI Model Rule.

The RGGI states have distributed 90% 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 nine RGGI states that participated from 2005-2018 experienced a reduction of over 90 million short tons of annual power sector carbon pollution, even as the regional economy grew (see **Chart 1**).¹ This represents a reduction in power sector carbon pollution of over 50%.

Chart 1: RGGI Power Sector CO₂ Reductions



¹ The nine RGGI states that participated for the entire 2005-2018 time period are CT, DE, ME, MD, MA, NH, NY, RI, and VT.

2018 RGGI Investments

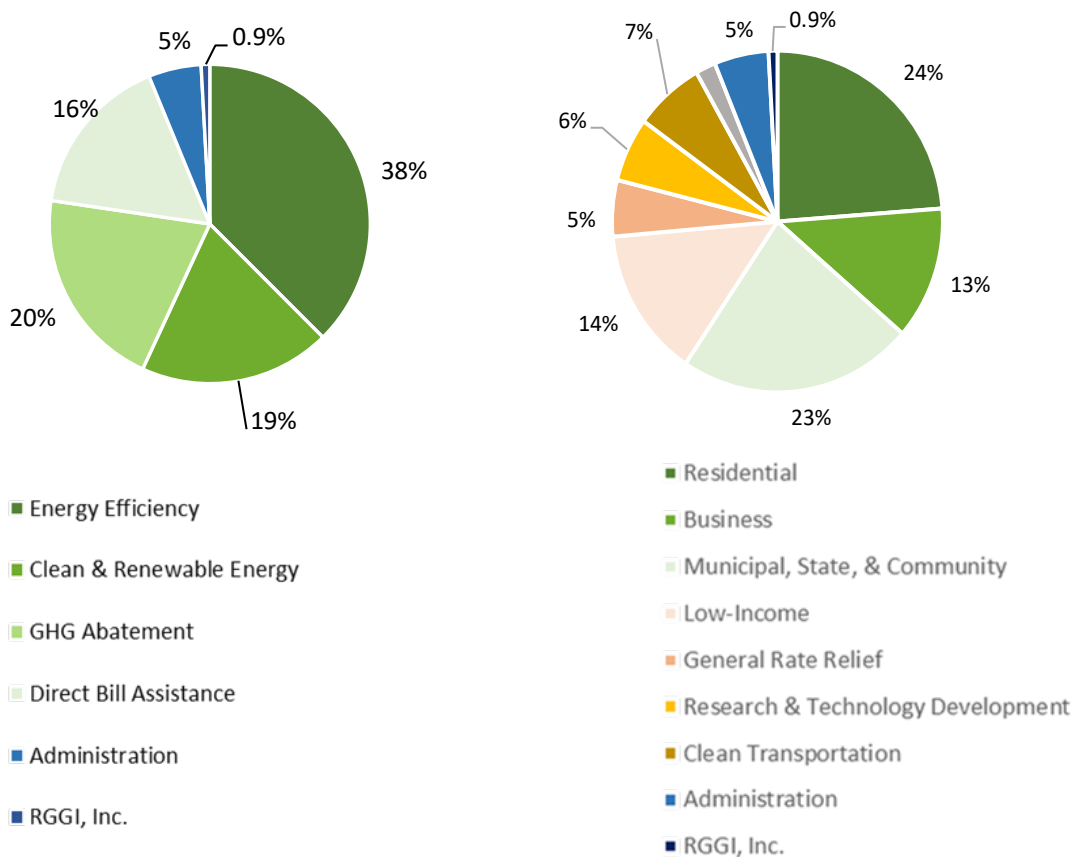
This report estimates the benefits (such as energy bill savings and short tons of CO₂ emissions avoided) that arise from \$248 million in 2018 RGGI investments. RGGI investments as defined within this report include investments in energy efficiency, clean and renewable energy, greenhouse gas abatement, and direct bill assistance, as well as administrative costs associated with these programs. This report focuses on 2018 annual investments. RGGI investments throughout the region cover a wide variety of programs.

Chart 2 shows 2018 RGGI investments divided among major program categories. **Chart 3** illustrates the same 2018 funds divided in a different way, according to the type of end-user who benefits from the program or ultimately receives funding.

Many of the categories in Chart 3 can be seen as subcategories of those in Chart 2. Direct Bill Assistance is split between assistance for low-income consumers, and general rate relief for all consumers. GHG Abatement includes a wide variety of program types, including research funding and clean transportation programs. The Energy Efficiency and Clean Energy program categories mainly flow to residential, business, and municipal, state, & community recipients, with some programs specifically serving low-income households.

Due to rounding, pie charts may not sum to exactly 100%.

Charts 2 and 3: 2018 RGGI Investments by Category and Recipient





The RGGI states invested \$248MM in 2018.

In 2018, RGGI investments have saved participants money on their energy bills, created jobs, and reduced pollution. Over their lifetime they will save participants an estimated \$2 billion on energy bills, and avoid the emission of 4.6 million short tons of harmful CO₂ pollution. 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 investments in costly infrastructure to meet peak demand.

RGGI states have long been and continue to be leaders in energy efficiency, with millions of MWh saved. As the region’s generation becomes cleaner, many states are also investing in “beneficial electrification” programs to reduce direct fossil fuel use. Often, these programs result in an increase in MWh, but do reduce carbon pollution. Avoided MWh continues to be a relevant metric for Energy Efficiency and Clean and Renewable Energy programs, and will be reported in the tables associated with these respective investment categories.

Table 1: Benefits of 2018 RGGI Investments

Category	Annual Benefits of 2018 Investments	Lifetime Benefits of 2018 Investments
 Short Tons CO ₂ Avoided	273,217	4,648,652
 Energy Bill Savings	\$113,711,413	\$2,099,664,661









One of RGGI’s strengths is the discretion offered to each state to invest RGGI auction proceeds according to state-specific goals. This can present challenges for data collection; for example, 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. Methods for estimating program benefits differ across states and across programs. 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 many cases, the reported benefits from the program are adjusted based on the percentage of the program’s funding that comes from RGGI. In cases where states determine a program could not have gone forward without RGGI funds, states will report the full benefits associated with that program.

Energy Efficiency

Energy efficiency remains the largest portion of 2018 RGGI investments, at 38%. Over the lifetime of the installed measures, 2018 investments in energy efficiency funded through RGGI proceeds are projected to save participants over \$1.2 billion on energy bills, providing benefits to more than 115,000 participating households and 1,200 participating businesses. They are also projected to avoid the release of 1.4 million short tons of CO₂ pollution (see **Table 2**).

Table 2: Benefits of 2018 RGGI Investments in Energy Efficiency

Category	Annual Benefits of 2018 Investments	Lifetime Benefits of 2018 Investments
 Participating Households	115,374	n/a
 Participating Businesses	1,244	n/a
 Workers Trained*	146	n/a
 Short Tons CO ₂ Avoided	73,609	1,448,132
 Equiv. Internal Combustion Engine Cars Off Road	14,433	283,947
 Megawatt-Hours Saved	516,348	12,254,845
 MMBtu Saved	300,647	6,183,748
 Energy Bill Savings	\$55,444,706	\$1,251,981,419

*Not all participating RGGI states report this metric.

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 saving on their energy bills.

Energy efficiency also creates jobs. Programs such as home retrofits directly spur employment gains in housing and construction. Lower energy costs create numerous benefits across the economy, allowing businesses to expand and families to save and invest in other priorities.

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. The full economy-






wide benefits of energy efficiency are not modeled in this report. However, a range of other independent reports have affirmed these widespread benefits of energy efficiency, including work by the Analysis Group, the Regulatory Assistance Project, and others.

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 2018's top ten states for energy efficiency, according to the American Council for an Energy Efficient Economy.

Clean and Renewable Energy

Clean and renewable energy represents 19% of 2018 RGGI investments in the region. Over the lifetime of the projects installed in 2018, these investments are projected to offset \$608 million in energy expenses. They are also projected to avoid the release of 1.9 million short tons of CO₂ pollution (see **Table 3**).

Table 3: Benefits of 2018 RGGI Investments in Clean Energy

Category	Annual Benefits of 2018 Investments	Lifetime Benefits of 2018 Investments
 Short Tons CO ₂ Avoided	107,886	1,949,228
 Equiv. Internal Combustion Engine Cars Off Road	21,254	382,201
 Megawatt-Hours Avoided	192,372	3,458,008
 MMBtu Avoided	18,755	339,642
 Energy Bill Savings	\$29,608,761	\$608,513,745

“Megawatt-Hours Avoided” refers to grid-scale MWh, largely fossil-fuel, avoided due to RGGI investments in clean energy (e.g. solar panels).

Clean energy systems require labor to install, which creates jobs and boosts local economic activity. Energy expenditures that might otherwise flow to out-of-state fossil fuel resources stay within the region. As with energy efficiency, “behind-the-meter” programs also contribute to lowering wholesale electricity prices by 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 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 95%. In 2018 the RGGI states derived 50% of total generation from clean or renewable sources.







Greenhouse Gas Abatement

Greenhouse gas abatement (GHG abatement) is a broad category encompassing other ways of reducing greenhouse gases, apart from energy efficiency and clean and renewable energy. Approximately 20% of 2018 RGGI investments supported GHG abatement programs. Over their lifetime, the investments made in 2018 are expected to avoid the release of over 1.2 million short tons of CO₂ (see **Table 4**).

Programs in the GHG abatement category may vary significantly, and may drive GHG emission reductions in multiple sectors. For example, RGGI-funded clean transportation and electric vehicle programs are tracked under the larger umbrella of GHG abatement. Technology, research, and development programs are tracked as GHG abatement, as they may lead to advancements resulting in the reduction of greenhouse gases. Climate change policy research is also tracked as GHG abatement.

GHG abatement programs 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. Other projects may not return immediately trackable benefits within the scope of this report, but still provide important long-term benefits in climate preparedness and mitigation. Additionally, GHG abatement investments sometimes result in increased MWh, given that electricity is often less carbon intensive than direct fossil fuel use. Increased MWh stemming from RGGI beneficial electrification investments in 2018 were significantly fewer than MWh avoided through RGGI energy efficiency investments in 2018, resulting in net avoided MWh.

Table 4: Benefits of 2018 RGGI Investments in GHG Abatement

Category	Annual Benefits of 2018 Investments	Lifetime Benefits of 2018 Investments
 Participating Households	6,493	n/a
 Participating Businesses	16	n/a
 Short Tons CO ₂ Avoided	91,722	1,251,293
 Equiv. Internal Combustion Engine Cars Off Road	17,994	245,351
 MMBtu Saved	1,063,304	13,878,115
 Energy Bill Savings	\$17,930,864	\$228,442,415

Direct Bill Assistance




Direct bill assistance returns money to consumers as a rebate on their energy bills. Approximately 16% of 2018 RGGI investments have funded direct bill assistance. RGGI investments in direct bill assistance in 2018 returned \$10.7 million in bill savings to energy consumers (see **Table 5**).

These programs provide rate relief to electricity consumers in the RGGI region. Some 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 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: 2018 RGGI Investments in Direct Bill Assistance

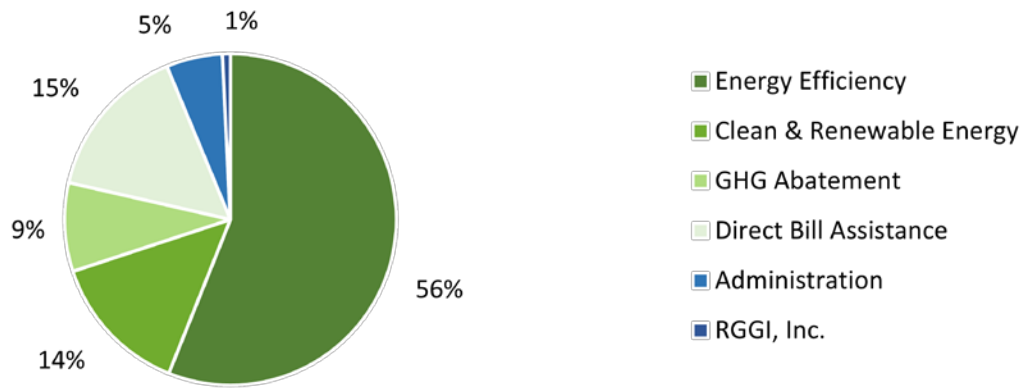
Category	Annual Benefits of 2018 Investments
 Participating Households	732,962
 Participating Businesses	38,387
 Energy Bill Savings	\$10,727,081

Cumulative Uses of Auction Proceeds

While this report focuses primarily on 2018 data, information on cumulative RGGI investments is provided in this section as an overview of RGGI's track record. **Chart 4**, below, shows the percentage of all-time RGGI investments directed to each of the major program categories

This pie chart shows each program category as a percentage of all-time RGGI investments.

Chart 4: Cumulative RGGI Investments by Category

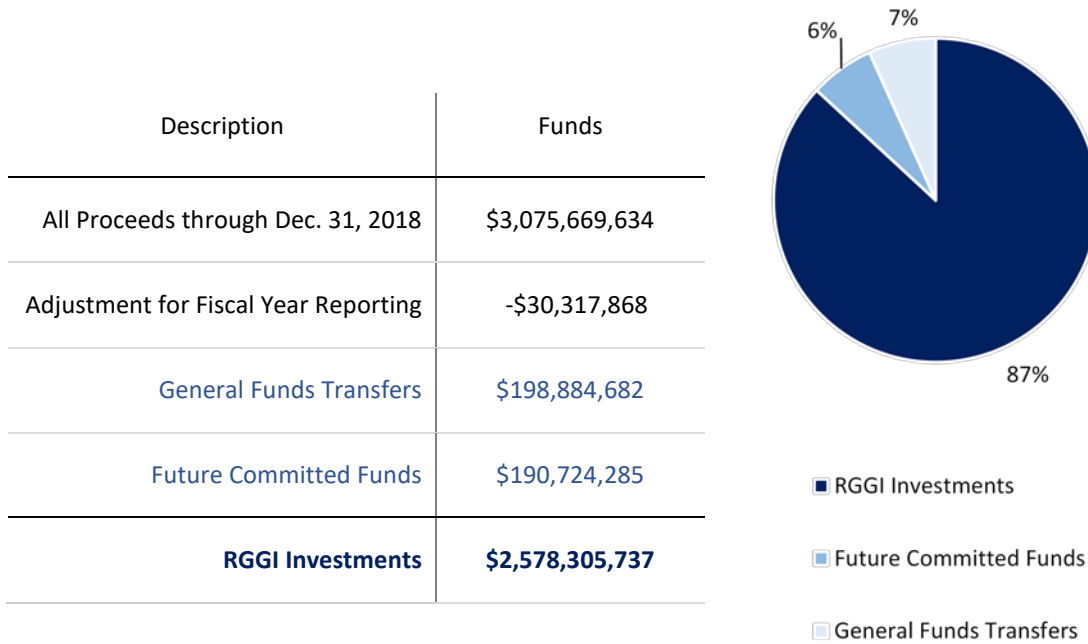


The nine states participating in RGGI from the start of the program through 2018 invested \$2.5 billion over this period. \$290MM remained to be invested in future programs. \$116MM was transferred to state general funds.

RGGI investments are themselves a subset of total proceeds. Most RGGI proceeds through 2018 are defined as RGGI investments. Other uses of funds, such as transfers to state general funds, are outside the scope of this report. See **Chart 5**, below, for more details on total RGGI proceeds.

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



The pie chart shows three categories of funds, as a percentage of all proceeds **after** the fiscal year adjustment. The ten participating RGGI states invested \$2.6B in the period covered by this report. This leaves \$190MM in funds that are yet to be invested.

All-time benefits metrics may be best understood as a general indication of the cumulative benefits of RGGI-funded investments since the program’s inception. **Table 6** shows that the track record from all RGGI investments includes benefits on the order of billions in customer bill savings, and tens of millions of short tons of CO₂ avoided. Note that as the program’s track record grows longer, all-time numbers may include changes in states’ methodologies from year to year.

Table 6: All-Time Benefits of RGGI Investments

Category	Lifetime Benefits of All RGGI Investments
 Participating Households	7,447,885
 Participating Businesses	215,582
 Workers Trained*	8,389
 Short Tons CO ₂ Avoided	39,359,169
 Equiv. Internal Combustion Engine Cars off Road	7,717,484
 Megawatt-Hours Saved	56,990,140
 MMBtu Saved	199,317,431
 Energy Bill Savings	\$11,357,279,465

*Not all participating RGGI states report this metric.

Previously reported cumulative data plus 2018 data may not sum exactly to updated cumulative data. This is due to state adjustments or corrections to prior cumulative calculations.

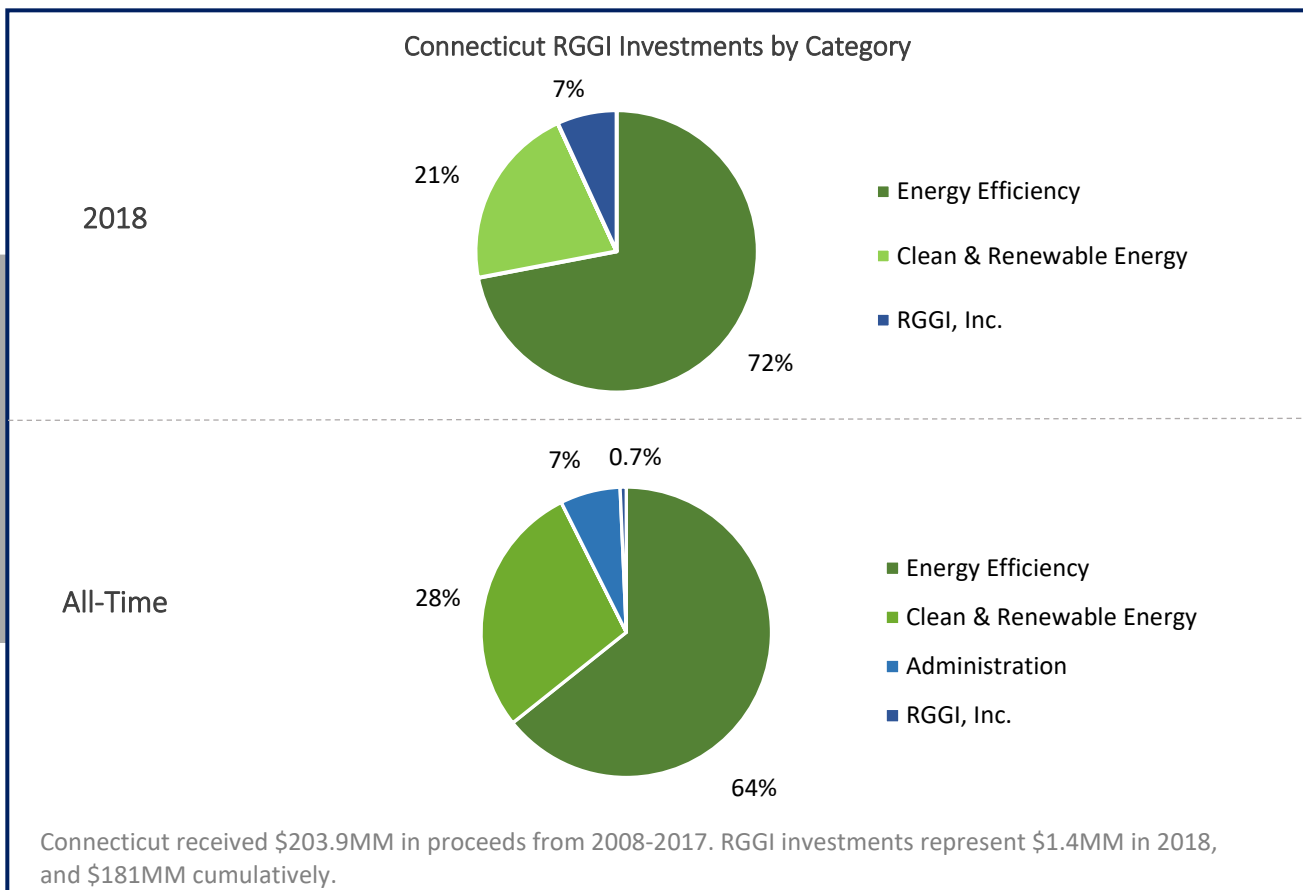
Connecticut

Connecticut allocates 69.5% of its RGGI auction proceeds towards supporting the energy efficiency programs of the Connecticut Energy Efficiency Fund (CEEF), the Connecticut Municipal Electric Energy Collective (CMEEC) and the Town of Wallingford - Electric Division (WED), and 23% to the Connecticut Green Bank to support the development of Class I renewable energy sources. 7.5% is retained by the Department of Energy and Environmental Protection. However, in 2018, about 92.6% (~\$15.5 million) of the auction proceeds generated by Connecticut (~\$16.76 million) were transferred to the general fund. This left just \$1.2 million to invest toward energy efficiency programs and renewable energy projects.

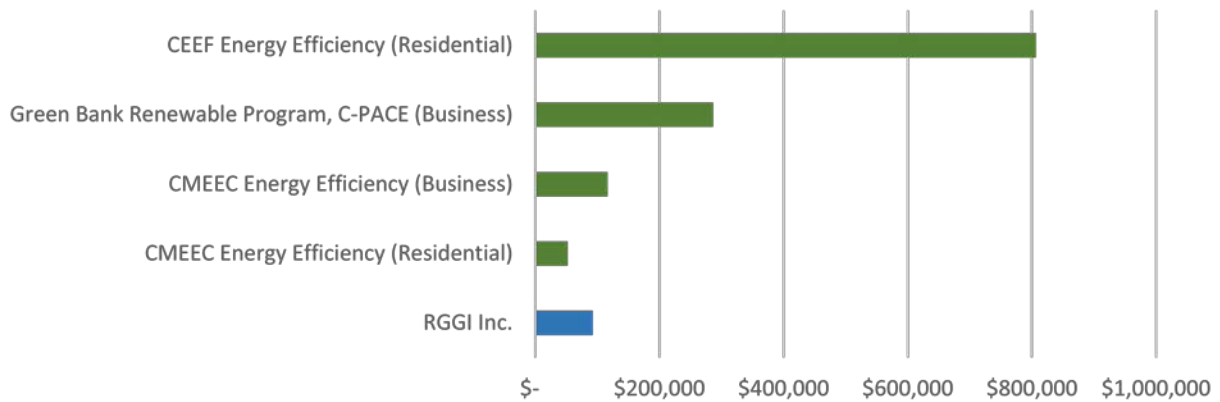
During 2018, Eversource Energy and The United Illuminating Company invested RGGI funds into weatherization measures under the CEEF's Home Energy SolutionsSM program for families who heat their homes with fuel oil or propane. CMEEC invested RGGI funds from 2018 and available funds from prior years toward deployment of energy efficient light bulb replacements, measures under its Home Energy Savings program, incentives for energy efficient products (e.g. air conditioners, heat pumps, water heaters, and variable frequency drives), and other energy efficiency projects. WED opted to defer its use of 2018 RGGI funding until 2019. WED stated that the funds would go toward Home Energy Savings program expenditures by July 2019.

The Connecticut Green Bank continues to invest its share of RGGI proceeds into its Commercial Property Assessed Clean Energy (C-PACE) program, which offers low interest, no-money-down financing for clean and renewable energy projects. The CT Green Bank's investment of RGGI proceeds in the C-PACE has helped to finance three projects that were completed during 2018, and a total of 94 projects since the program's inception.

In the 2019 State Energy Efficiency Scorecard, which evaluated 2018 state efficiency efforts, the American Council for an Energy-Efficient Economy (ACEEE) ranked Connecticut 6th in the nation.



2018 Connecticut RGGI Investments by Recipient



Connecticut RGGI investments represent \$1.4MM in 2018.

Program Highlight: Commercial Property Assessed Clean Energy Program

With a portion of its share of RGGI funding, the Connecticut Green Bank launched, in January 2013, the Commercial Property Assessed Clean Energy (C-PACE) program, which helps commercial, industrial and multi-family property owners access affordable, fixed-rate, long-term financing (for up to 25 years) for qualifying clean energy and energy efficiency improvements to their buildings at no upfront costs. Building owners finance C-PACE improvement projects through a voluntary assessment on their property tax bill, which are paid back over time. Repayment obligations transfer automatically to subsequent owners if any of the properties are sold. Participating building owners benefit from lower energy costs, and the communities in which they are located experience reduced electricity demand and new clean energy generation. As of year-end 2018, the Connecticut Green Bank approved a combined total of over \$140 million in C-PACE financing for more than 258 projects, which are estimated to avoid 35,000 tons of CO₂ emissions annually.

Success Story: Powerhouse Partners (aka Malibu Fitness)

The property of Malibu Fitness located in Farmington, Connecticut is a 25,989-square foot owner-occupied building used primarily as a health club. Built in 2005, the property sits upon a 3.37-acre site, and boasts six rentable rooms within the footprint of the health club that are used for exercise classes and health, wellness and beauty treatments.

Utilizing \$306,142 in construction financing through the C-PACE program, Malibu Fitness installed a 131-kW rooftop solar photo-voltaic system. RGGI auction proceeds were used to provide financing for 100% of the project costs. Completed in 2018, Malibu Fitness is expected to save over the life of the project over 3 million kWh in electricity, save nearly \$807,000 in total avoided energy and other savings, and avoid 1,677 short tons of CO₂ emissions.

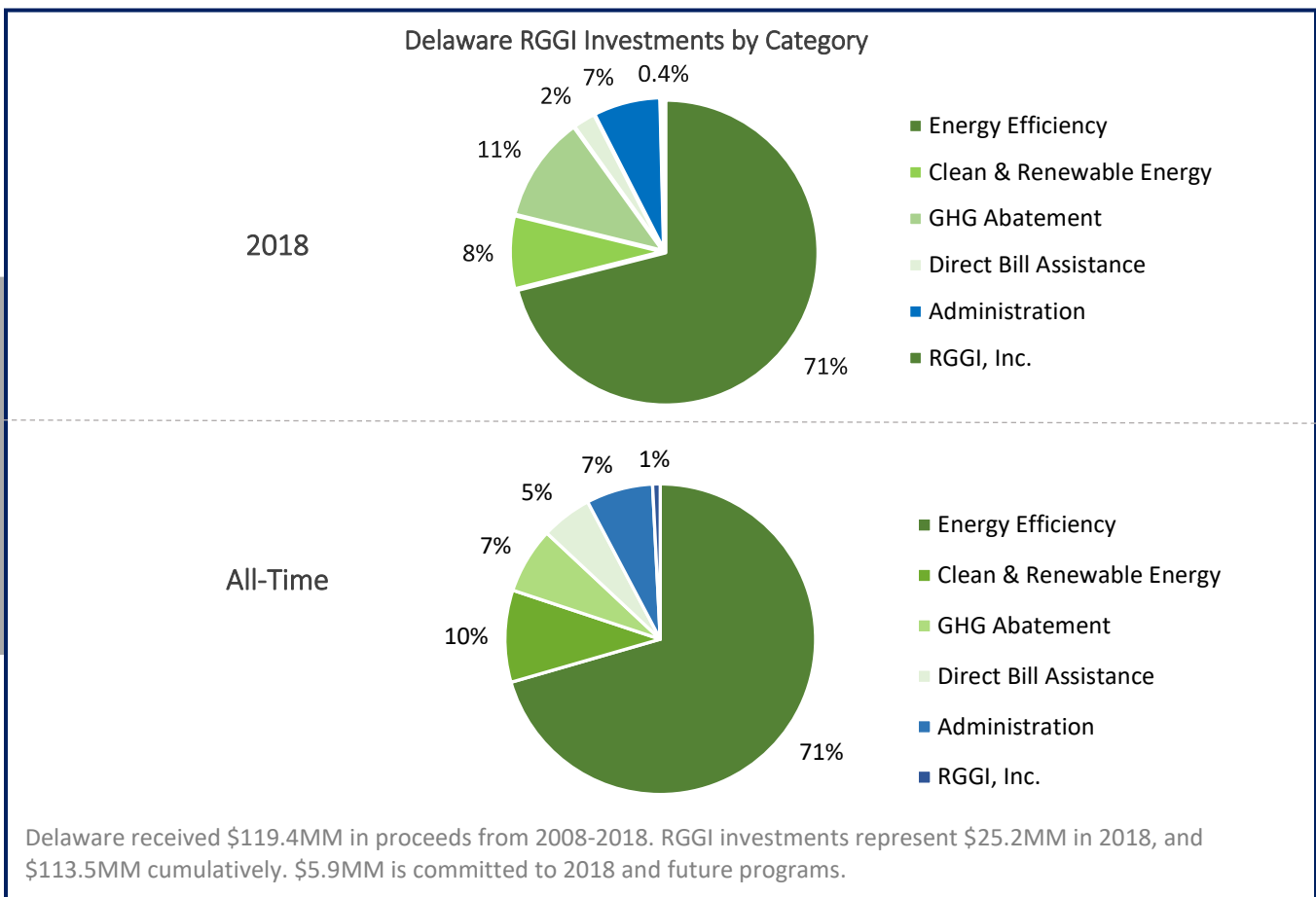
Resources:

- [Energy Efficiency Board 2018 Programs and Operations Report](#)
- [Energize ConnecticutSM](#)
- [Home Energy SolutionsSM - Core Services](#)
- [C-PACE](#)

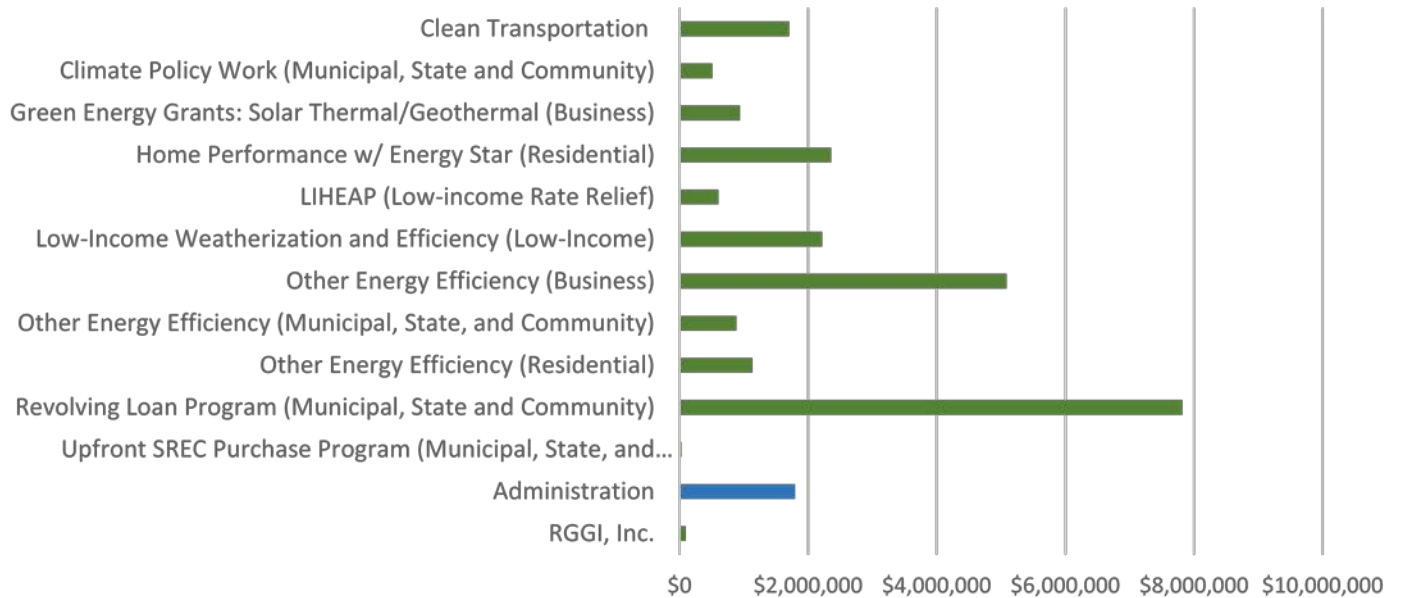
Delaware

Delaware invests RGGI allowance proceeds in a variety of programs that reduce energy use, reduce greenhouse gas emissions, and assist low-income families with energy bill payments. The suite of programs funded with RGGI allowance proceeds provides Delaware families and businesses with valuable assistance with energy efficiency improvements, while providing opportunities for innovation in greenhouse gas reductions.

Delaware directs 65% of its allowance proceeds to the Delaware Sustainable Energy Utility (SEU). The SEU serves Delawareans by promoting the use of affordable, reliable, clean energy, and providing a variety of incentives for energy efficiency improvements. In addition, Delaware directs 10% of its allowance proceeds to the Delaware Department of Natural Resources and Environmental Control (DNREC) for development of innovative programs to reduce greenhouse gas emissions. Ten percent of proceeds is also directed to DNREC to implement the state's Weatherization Assistance Program which provides no-cost upgrades to homes to decrease energy use and decrease bills. Five percent of proceeds is also directed to a program to reduce energy bills for low-income customers.



2018 Delaware RGGI Investments by Recipient



Program Highlight: Delaware Sustainable Community Planning Grants

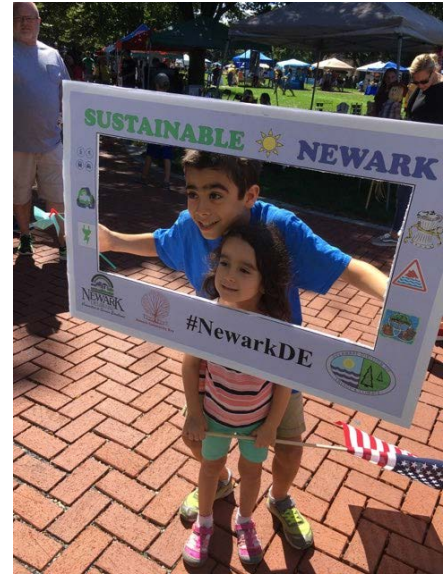
Delaware Sustainable Communities Planning Grants provide communities with funding to assess and develop plans that enable municipal governments to implement actions that promote clean energy, climate readiness, and sustainable community development as a way to combat climate change. Program funds are available for activities under four broad categories: Sustainability Practices, Climate Change Vulnerability, Greenhouse Gas Reductions, and Natural Areas. Grants of up to \$80,000 can be awarded to any Delaware municipal or county government as well as non-profit organizations, colleges, universities, and quasi-governmental organizations working in partnership with a Delaware municipality or county.

The program seeks to build local capacity to implement sustainability and resiliency practices that address the causes and consequences of climate change. Grant applicants are encouraged to seek partnerships and engage community members in their projects. Applicants are also strongly encouraged to give particular consideration to the inclusion of vulnerable and diverse populations in their assessments.

Success Story: Newark Community Sustainability Plan

In 2018, the City of Newark received an \$80,000 Sustainable Communities Planning Grant to develop a sustainability plan. The City conducted a collaborative process to create a broad, long-term, and integrated community sustainability plan to define the City's vision. Plan development took two years of work by a volunteer steering committee, working hand-in-hand with a consultant. More than 600 volunteer hours were dedicated to the effort.

The City of Newark finalized and adopted its plan in 2019. It contains clear goals and specific actions to significantly reduce greenhouse gas emissions and do its part to minimize the worst effects of climate change. Using the plan as a guide, the City will convert its energy sources away from fossil fuels, aiming for 100% renewable energy by 2045. They will conduct a greenhouse gas inventory and seek to achieve net zero emissions by 2060. The City will further require all new investments in building and land development to use the latest sustainable design strategies.



Funding through the Sustainable Community Grant Program was key to providing the capacity that the City needed to combine nascent and sometimes disconnected efforts together into one comprehensive vision that has the support to be implemented. The plan will be used as an example for other municipal governments in the state.

Resources:

- [Delaware Division of Climate, Coastal, and Energy: de.gov/dcce](https://www.de.gov/dcce)
- [Delaware SEU: www.energizedelaware.org](http://www.energizedelaware.org)
- [Weatherization: www.de.gov/wap](http://www.de.gov/wap)
- [Delaware Clean Transportation Incentive Program: de.gov/cleantransportation](https://www.de.gov/cleantransportation)

Maine

The Efficiency Maine Trust (Efficiency Maine) is the independent, third-party administrator for programs to improve the efficiency of energy use and reduce greenhouse gases in Maine. The Trust does this primarily by delivering financial incentives on the purchase of high-efficiency equipment or changes to operations that help customers save electricity, natural gas and other fuels throughout the Maine economy. The organization's purposes include the following:

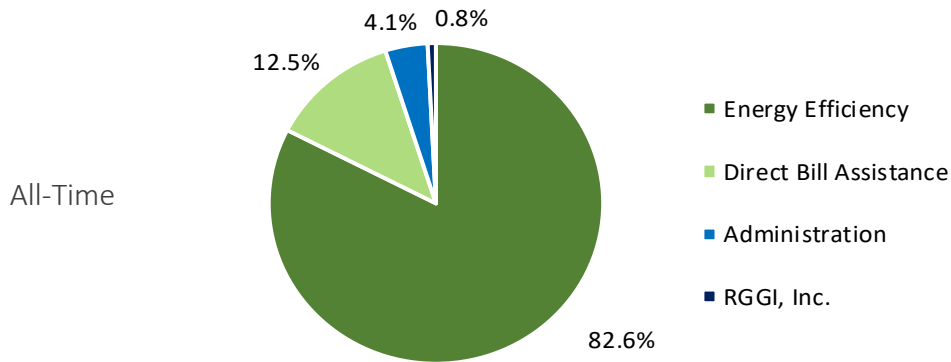
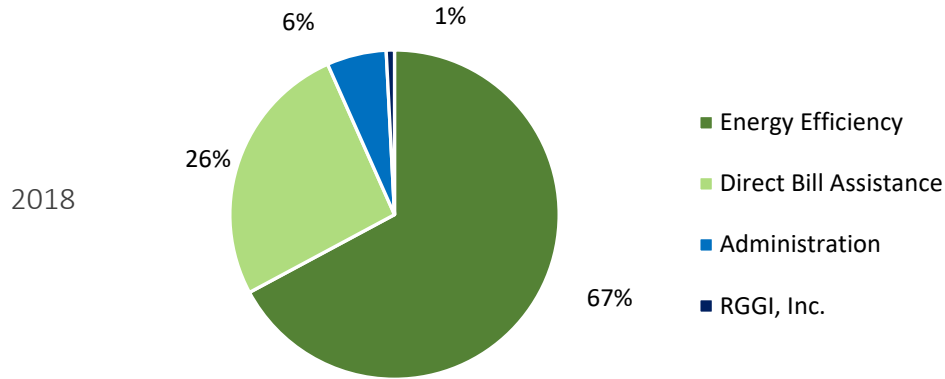
- Provide uniform, integrated planning, program design and administration of programs;
- Reduce energy costs and improve security of the state and local economies;
- Administer cost-effective energy and energy efficiency programs to help individuals and businesses meet their energy needs at the lowest cost;
- Ensure that all expenditures of the trust are cost-effective in terms of avoided energy costs; and
- Actively promote investment in cost-effective energy and energy efficiency measures and systems that use alternative energy resources to reduce energy costs for consumers in the State.

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 2018 fiscal year (FY2018), Efficiency Maine invested over \$9.5 million in RGGI proceeds, directing approximately 93% towards a combination of energy efficiency programs and direct bill assistance to large manufacturers; the remaining 7% went toward general administration. Though nearly all of Efficiency Maine's programs leveraged RGGI funding to some degree in FY18, the bulk of funds were invested through the following four 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.
- Low-Income Initiatives Program: Targeted low-income customers by providing enhanced incentives for residential energy audits, home weatherization, and heating systems within the market-based channel.
- Commercial and Industrial (C&I) Prescriptive Program: Provided fixed-price incentives for a prescriptive suite of "off-the-shelf" energy efficiency measures for C&I customers.
- C&I Custom Program: Targeted larger C&I customers by offering incentives for custom, site-specific energy efficiency projects that require unique engineering analyses.

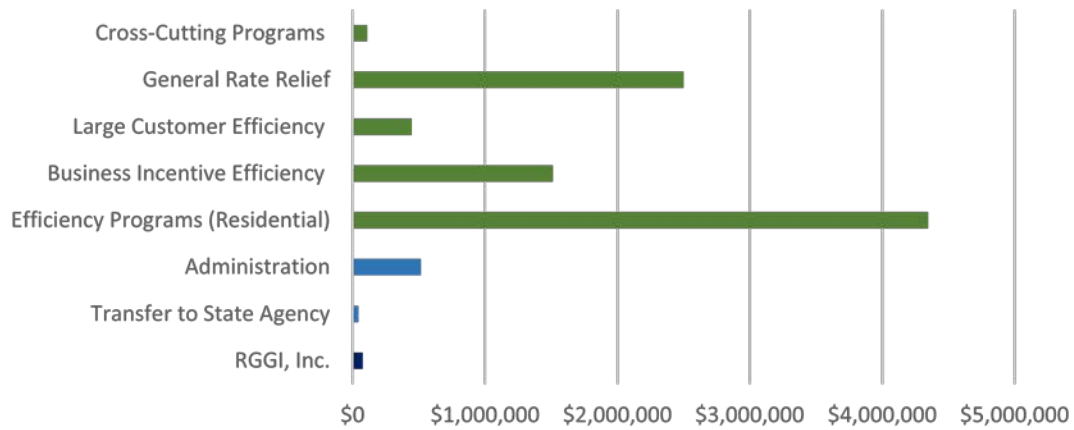
Over the lifetime of the investments made in FY18, Maine's RGGI-funded efficiency measures are estimated to generate savings of over 32,500 MWh in avoided electricity use and another 3.3MM MMBtu in avoided consumption of natural gas and other heating or process fuels. These investments will lower participants' energy bills by more than \$33 million.

Maine RGGI Investments by Category



Maine received \$96MM in proceeds from 2008-2018. RGGI investments represent \$9.5MM in 2018, and \$85.8MM cumulatively. \$10.2MM is committed to 2019 and future programs.

2018 Maine RGGI Investments by Recipient



Maine RGGI investments represent \$9.5MM in 2018.

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 Omnibus Energy Bill, Efficiency Maine invested a portion of RGGI auction revenues on measures 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 FY18, \$2,327,551 of RGGI funds were invested through HESP, constituting approximately 36% of the total HESP budget.

HESP provided more than 7,000 participants with rebates for energy-saving measures in FY18, including 5,066 mini-split, ductless, cold-climate heat pumps. There was also significant interest in pellet boilers and stoves with 129 installed in Maine homes over the program year. Through these incentives, Efficiency Maine was able to facilitate close to \$8MM in private energy efficiency investments. In FY18, HESP continued to offer loans to finance qualifying home energy upgrades. Smaller, unsecured loans are popular, as they require less paperwork and can be processed more quickly than the other loan products. By the end of FY18, unsecured loans accounted for 74% of the loans administered by Efficiency Maine. The average amount financed was approximately \$7,500.

Success Story: Hodgdon Yacht Services

Founded in 1816, Hodgdon is a family-owned business that provides a host of boat construction, maintenance, and tending services in mid-coast Maine. The company's Hodgdon Yacht Services division in Southport offers servicing, refits, storage, and dockage. Until recently, all hull painting and finishing work at this facility was conducted in a general maintenance building. In order to eliminate any dust contamination associated with initial sanding and surface preparation, the space required thorough cleaning between project stages. Simultaneous work on multiple vessels was not possible. In 2018, Hodgdon decided to construct a new dedicated marine coatings spray/cure booth to shorten the overall project cycle time and increase production.

In contemplating the associated ventilation system design plans, Hodgdon was considering a traditional installation with 100% exhaust and a make-up air unit that would provide 100% outside air throughout the spray and cure cycles. However, with the help of Efficiency Maine, the company was able to move to something more efficient – a state-of-the-art Aquest Corporation system with enhanced filtration, added ductwork, and controls that allow for recirculation of 80% of the exhaust air during the cure cycle. Because recirculated air is warmer than outside air, this design lowers the heating load on the air unit, resulting in considerable propane savings.

Given the relatively complex, site-specific nature of the project, Hodgdon worked with Efficiency Maine's Commercial and Industrial (C&I) Custom Program. The program was able to offer a \$53,086 incentive using RGGI funds. This award defrayed the upfront capital cost of the more efficient recirculation option (\$118,035), bringing the customer's simple payback period down from 3.2 years to 1.7 years. This investment will save Hodgdon approximately 2,123 MMBtu of propane annually, reducing operating costs for years to come.

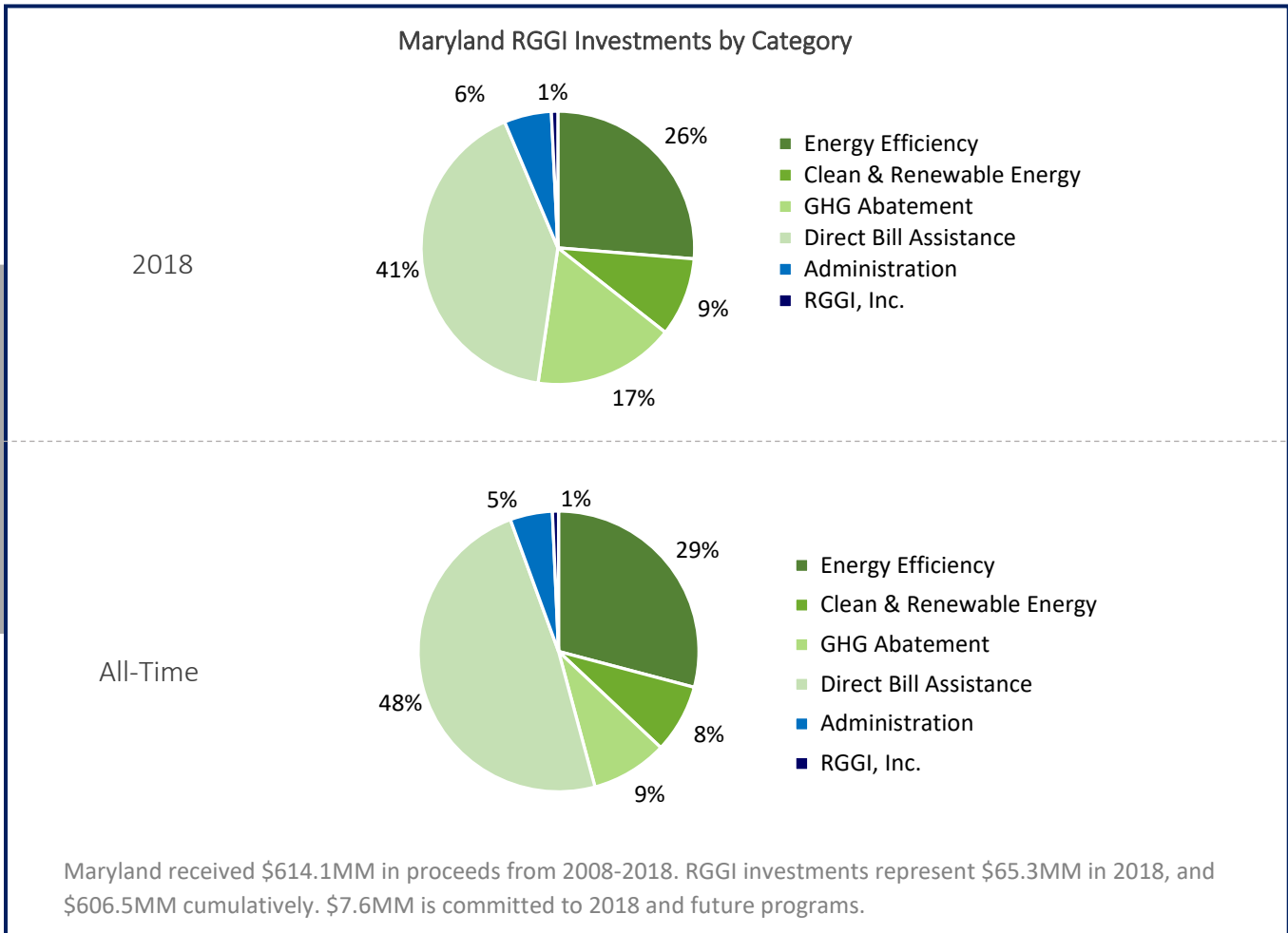
Resources:

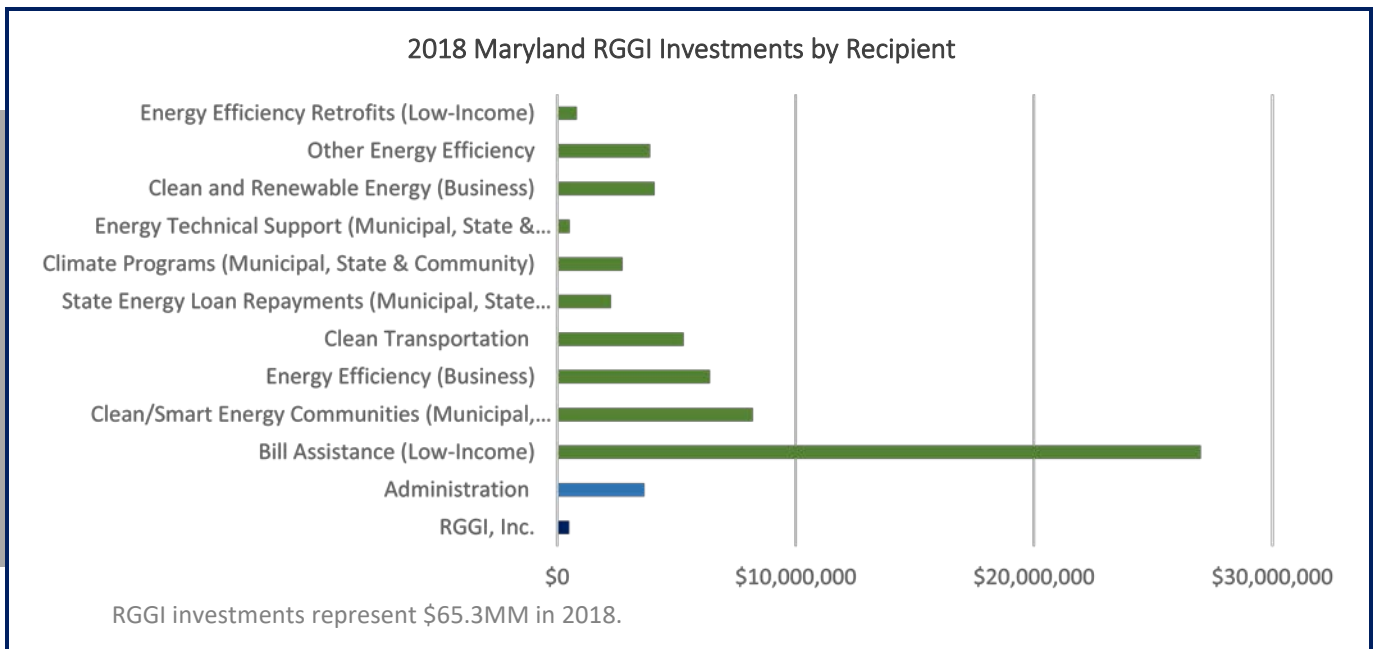
- Efficiency Maine website: <https://www.energymaine.com/>

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 Maryland's diverse regions and communities.

These programs are intended to reduce household bills, create jobs in growing industries, increase resiliency, and promote energy independence. The programs also have significantly reduced the energy costs of Maryland's businesses.





Program Highlight: Clean Energy Communities

The Clean Energy Communities program was established in 2009, as part of MEA’s Clean Energy Communities Low-to-Moderate Income Grant Program. It finances energy efficiency projects that benefit low-to-moderate income Marylanders.

Success Story: Bon Secours—Unity Properties Inc.

Bon Secours is committed to providing safe, affordable housing for low- and moderate- income families, seniors, and persons with disabilities in West Baltimore. Identifying the connection between the healthcare industry and community development, Bon Secours and Unity Properties, Inc., a wholly owned subsidiary of Bon Secours Mercy Health System, work in partnership with the community to help revitalize the area. Since 1988, they have renovated over 800 family and senior housing units to be more efficient, healthier, more comfortable, and safer homes.

Bon Secours fosters community improvement from the ground up by connecting homes to health care and other important resources like schools, economic mobility and transit. Their properties are strategically located to promote quality of life being within walking distance to the Bon Secours Baltimore Health System, churches, the Bon Secours Community Works center, public bus and rail transportation, as well as shopping, recreation, and neighborhood green space. To specifically address housing-related conditions that affect wellness in the community, Unity Properties’ work focuses on the quality, affordability, stability and location of a person’s home.

Utilizing multiple funding sources to develop and upgrade their neighborhoods and housing stock, Unity Properties targets the upstream factors contributing to health. The Maryland Energy Administration’s (MEA) Clean Energy Communities Low-to-Moderate Income Grant Program (LMI) Program was able to provide funding for cost-effective energy efficiency



LMI Program Manager Dean Fisher with Lisa Stachura, Development Program Manager at Unity Properties, Inc., and Terry McMillion, Maintenance Technician.

upgrades that assisted with enhancing the physical environment of this West Baltimore housing. Unity Properties received awards in three consecutive years totaling approximately \$300,000. These LMI Program funds have enhanced funding received from other sources by providing energy audits, followed by weatherizing measures and upgrades to HVAC, appliances and lighting for 90 apartments, in 45 row house residences. The weatherization efforts have resulted in an average 6-8% decrease in air infiltration, while making residences more energy efficient and more comfortable for residents. Residences with natural-draft appliances (such as a furnace, boiler, or water heater) were tested for combustion appliance zone safety (CAZ testing) as a part of the Building Performance Institute audit process to ensure the gas appliances were working safely.

The energy efficiency improvements made possible from the funds granted by the MEA LMI program, as well as the additional leveraged funds, not only helped to lower utility costs, but also create a healthier, brighter, and safer living environment for residents. MEA is proud to assist Bon Secours' holistic healthcare goal of "addressing the social determinants" of health for their West Baltimore neighbors.

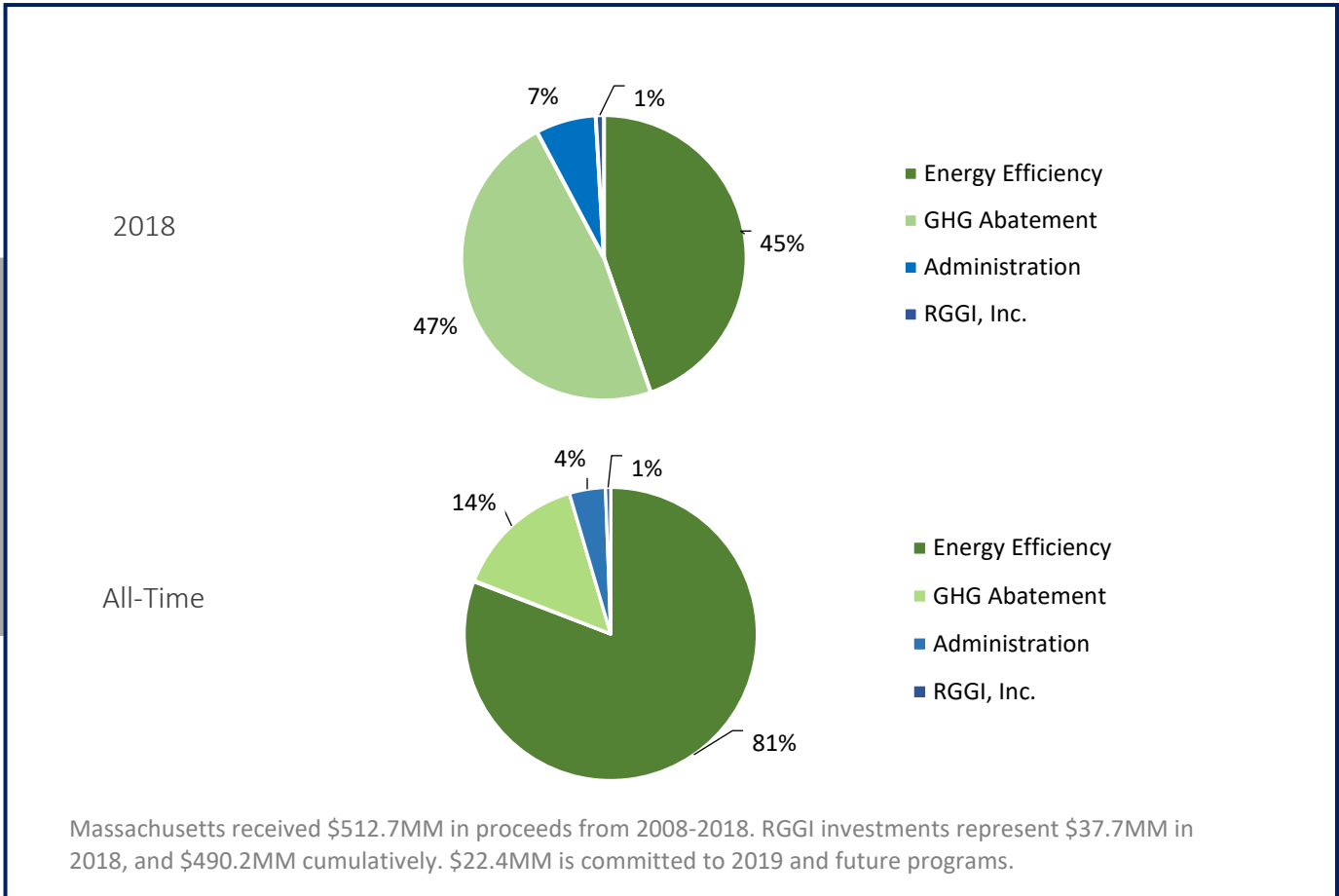
Resources:

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

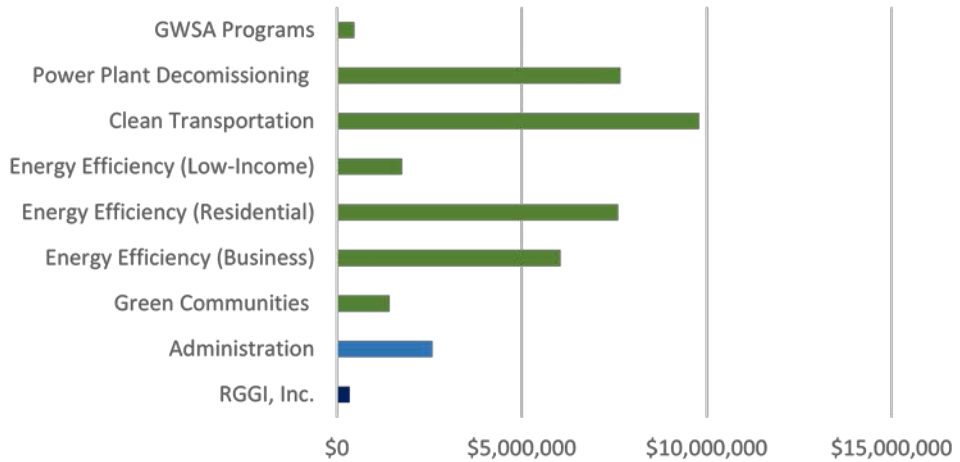
Massachusetts

Since 2008, Massachusetts has invested more than \$490 million in RGGI proceeds towards strategic programs and initiatives to advance the Commonwealth's energy goals. Massachusetts has invested the majority of its RGGI funds in energy efficiency through the Massachusetts' statewide Three-Year Energy Efficiency Investment Plans and other state programs managed by the Department of Energy Resources, such as the Green Communities Designation and Grant Program.

After administrative costs and required funding to communities affected by fossil fuel plant closures are allocated, 80% of remaining proceeds (net funding) are allocated to the statewide Energy Efficiency Investment Plans implemented through the Commonwealth's investor-owned utilities. These plans, under the Mass Save® brand, deliver cost-effective energy savings to Massachusetts residences and businesses. The Commonwealth's nation-leading energy efficiency programs are also funded through the state's Energy Efficiency Reconciliation Factor (EERF), system benefit charges, and regional forward capacity market auction proceeds. The remaining 20% of net funding supports a variety of other programs, from Massachusetts' Green Communities, focused on implementing clean energy projects and energy efficiency improvements, to incentive programs for electric and plug-in hybrid vehicles.



2018 Massachusetts RGGI Investments by Recipient



Massachusetts RGGI investments represent \$37.7MM in 2018.

Program Highlight: Mass Save® Electric Energy Efficiency Programs



New Construction incentives for “Live 155” in Northampton, MA. Developed by Way Finders, a nonprofit affordable housing developer, “Live 155” is a 4-story building located in Northampton, Massachusetts comprised of 70 rental units, community space and retail. Way Finders’ mission is to create homes for all income levels and communities where people thrive, while incorporating sustainability practices. The project includes subsidized low-income, moderate-income and market rate units, and started with a goal to reduce annual operating costs and total housing and utility costs for tenants.

Way Finders enrolled the project during schematic design in the Massachusetts Residential New Construction Program (MARNC), provided by the utility National Grid, to identify and maximize energy efficiency savings and incentives early in the design process. When a gas moratorium went into effect during design development, the

MARNC Program provided technical assistance to design an all-electric building, eliminating fossil fuels from the project. The total Residential New Construction (RNC) Incentive was \$64,960 (\$928/unit). The project combines a robust building envelope (including continuous insulation and average wall rating of R-19) with effective air sealing to reduce building energy demand and initial capital costs as mechanical equipment was downsized to meet the lower load. The Massachusetts Clean Energy Center provided an additional \$105,000 for the heating ventilation and air-conditioning (HVAC) variable refrigerant flow (VRF) system. Lighting is 100% LED lamps throughout. The combination of energy efficiency measures allows about 22-25% of the annual energy load to be met by a 102 kilowatt roof-mounted solar photovoltaic (PV) system. As a result, the project is expected to reduce annual utility costs by approximately 50% from the building energy code baseline, in turn allowing reduced housing and utility costs for the tenants.

Success Story: Stow Police Station HVAC Improvements

The town of Stow was awarded a \$144,115 grant by the Green Communities Program to fund energy efficiency projects in municipal buildings.



An energy audit of the 5,000 sq. ft police station in Stow identified building envelope improvements and replacement of the 22-year-old gas furnace and air conditioning condenser as the most effective energy conservation measures.

A consultant, engaged by the town, conducted in-depth analysis and estimates and recommended replacing the existing furnace and air conditioning with heat pumps for heating and cooling after improving the attic insulation.

The town used \$117,153 of its grant award to overhaul the HVAC system and install a 12-ton air-source heat pump and contributed nearly \$110,000 of its own funds toward the project. Since coming online in 2018, the police station is using 46% less energy and has reduced its annual greenhouse gas emissions from 72 mtCO_{2e} to 40 mtCO_{2e}.

Police Station central heat pump installed as part of HVAC project

Resources:

- <https://www.masssave.com/>
- Green Communities: <https://www.mass.gov/guides/becoming-a-designated-green-community>

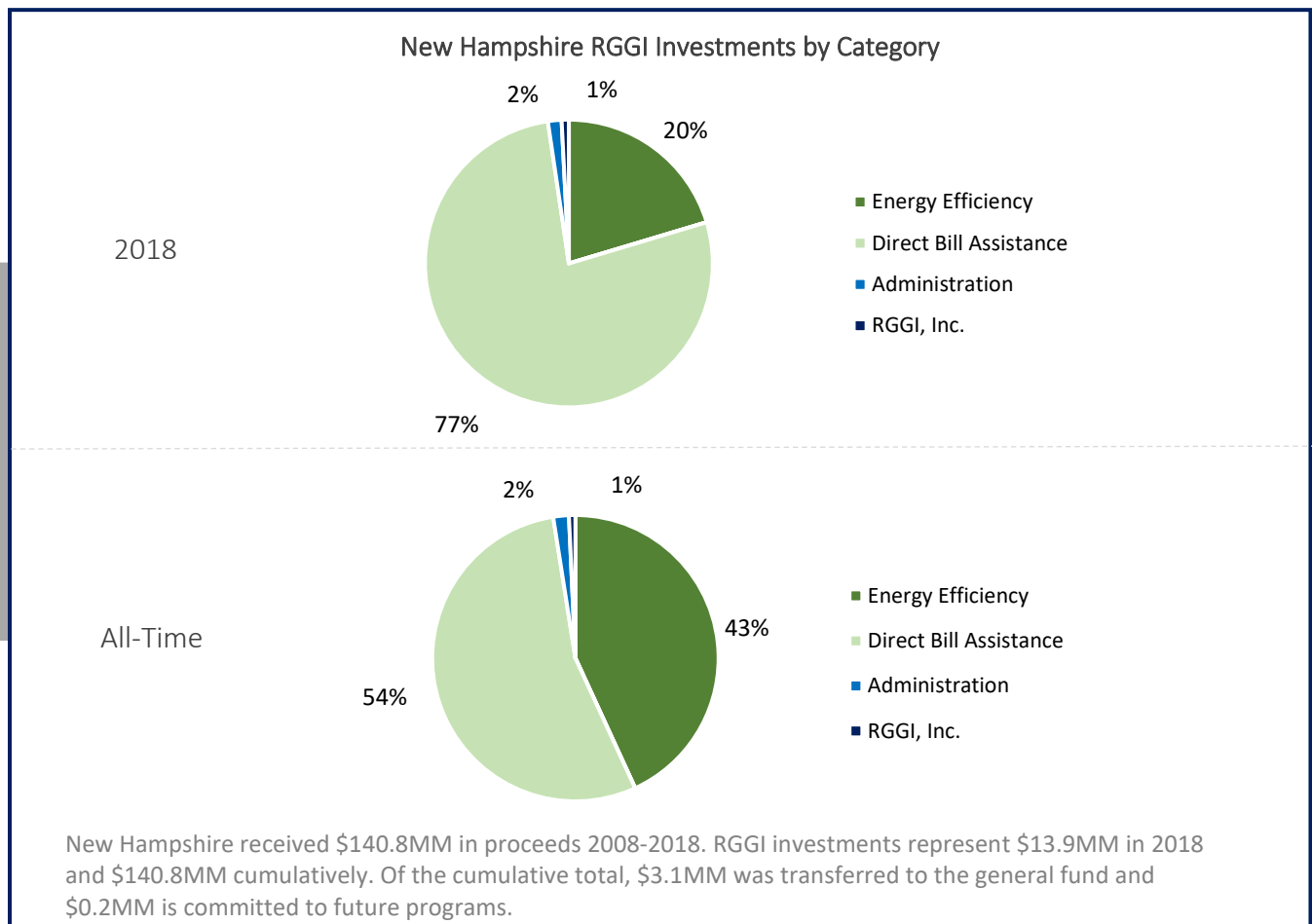
New Hampshire

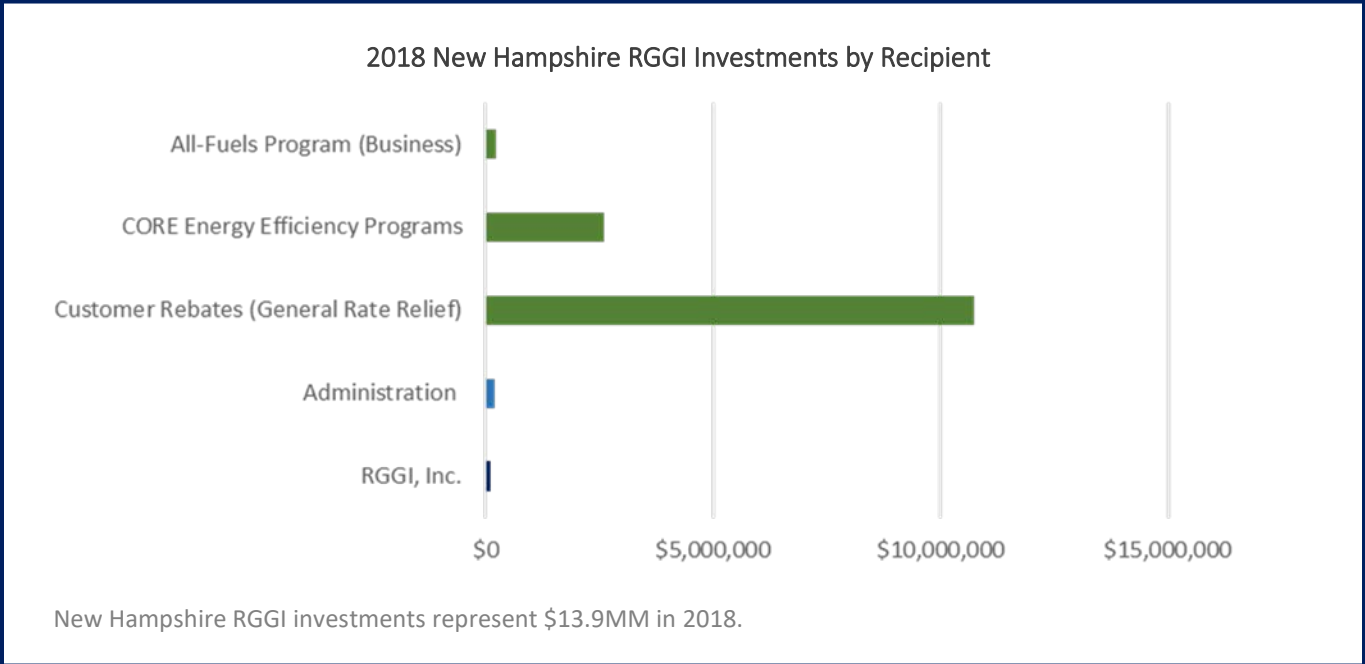
New Hampshire invests RGGI allowance proceeds in a variety of programs that reduce energy use in municipal and retail buildings, commercial and industrial facilities, and income-qualified households. RGGI allowance proceeds also provide direct bill assistance to reduce electric bills.

In 2018, New Hampshire received approximately \$13.9 million in RGGI allowance proceeds, of which approximately \$2.8 million was allocated to the Energy Efficiency Fund (EEF). The state's four electric utility companies administer CORE energy efficiency fund programs through the EEF in combination with funds collected through the System Benefits Charge. Approximately \$10.8 million was used to provide direct bill assistance to New Hampshire electric consumers, and the remaining RGGI auction proceeds of approximately \$0.3 million covered RGGI-related administrative expenses.

The state's electric utility companies' energy efficiency programs include: a Municipal program; an income-eligible Home Energy Assistance program; and an All-Fuels program. In 2018, EEF funds were used to accomplish the following:

- Weatherized 106 income-eligible homes;
- Installed energy efficiency measures and efficient equipment in 154 municipal buildings;
- Implemented energy efficiency measures and installed energy efficient equipment in 65 retail and large businesses; and
- Financed 35 residential energy efficiency projects from the Revolving Loan Fund.





Program Highlight: Efficiency Programs

The Home Energy Assistance and the Municipal programs will save approximately 57,461 MWh of electricity and 143,397 MMBtu over the expected life of the energy efficient equipment improvements. Associated bill savings over the lifetime of these improvements is estimated to be \$12.4 million. The All-Fuels program will save approximately 935 MWh of electricity and 151,800 MMBtu over the expected life of the energy efficient equipment improvements. Associated bill savings over the lifetime of these improvements is estimated to be \$3.5 million. The All-Fuels program was launched in 2016. From 2016 through 2018 the program received \$1.2 million of RGGI funding. The All-Fuels program supports energy efficiency measures for retail businesses and large commercial and industrial energy users.

On-bill consumer financing continues to be available through a revolving loan fund, which was originally funded by a RGGI grant awarded to the state’s electric utilities in 2009. The revolving loan fund continues to offer zero interest loans. Through its revolving nature – as loans are repaid – funds become available for new loans. In 2018, there were 35 new residential projects financed utilizing these funds, with an average loan amount of approximately \$2,100.

Success Story: Mountain View Grand Resort and Spa, Whitefield NH

When guests visit this iconic resort in the White Mountains they might not realize that energy efficiency is saving the award-winning hotel more than \$22,000 per year while also reducing its carbon emissions.

Mountain View Grand began their comprehensive energy efficiency plan in 2014 and to date they have completed fifteen energy efficiency projects. Recently, utilizing RGGI funds, the resort invested in comprehensive air sealing and insulation that made the resort more airtight from the basement to the attic. The resort also installed a new heat pump system that provides both electrical cooling and oil heating savings while taking advantage of the extra thick insulated exterior sheathing under the hotel's siding.

Over the past half dozen years, the resort has transitioned from a mix of incandescent and fluorescent lights to LEDs, and has replaced the kitchen vent system with a new intelligent system that exhausts air over the cooking surfaces only when it senses heat.

Looking forward, Mountain View Grand plans to continue its commitment to sustainability with a multi-year energy efficiency plan aimed at maximizing the benefits and savings from the resort's new building envelope and HVAC design.



Resources:

- [Energy Efficiency Program Regulatory Webpage](#)
- [2019 RGGI Annual Report to the NH Legislature](#)

New York

New York's robust record of climate action includes helping to establish RGGI as North America's first market-based program to reduce carbon emissions. The state affirmed its role as a climate leader with enactment of the Climate Leadership and Community Protection Act (CLCPA), one of the most aggressive climate policies of any major economy. The State has already reduced electricity emissions 51% since 1990, with a 60% reduction from 2005 to 2019 in greenhouse gas emissions from sources covered by the RGGI program. Further reductions in electricity sector emissions will allow for needed shifts to electrify buildings and transportation. RGGI, alongside state policies such as the Clean Energy Standard and the ten-year, \$5 billion Clean Energy Fund, will continue to serve as a critical tool to reduce economy-wide greenhouse gas emissions 40% from 1990 levels by 2030 and realize a zero-carbon electricity sector by 2040.

Proceeds generated through RGGI auctions allow New York to pursue opportunities for clean energy, energy efficiency, and carbon reduction that other state activities are not currently designed to reach. The demand for RGGI-supported programs underscores New Yorkers' desire for clean energy opportunities. Since its inception, New York's Green Jobs Green New York program has used RGGI funding to provide financing for thousands of clean energy upgrades and projects. In March 2017, the state used RGGI funds, among other sources, to launch its Drive Clean electric vehicle rebate program. By the end of 2018, the program disbursed over 12,000 rebates, rapidly accelerating the EV market in New York and demonstrating New Yorkers are looking for low-carbon transportation options.

Program Highlight: Green Jobs Green New York

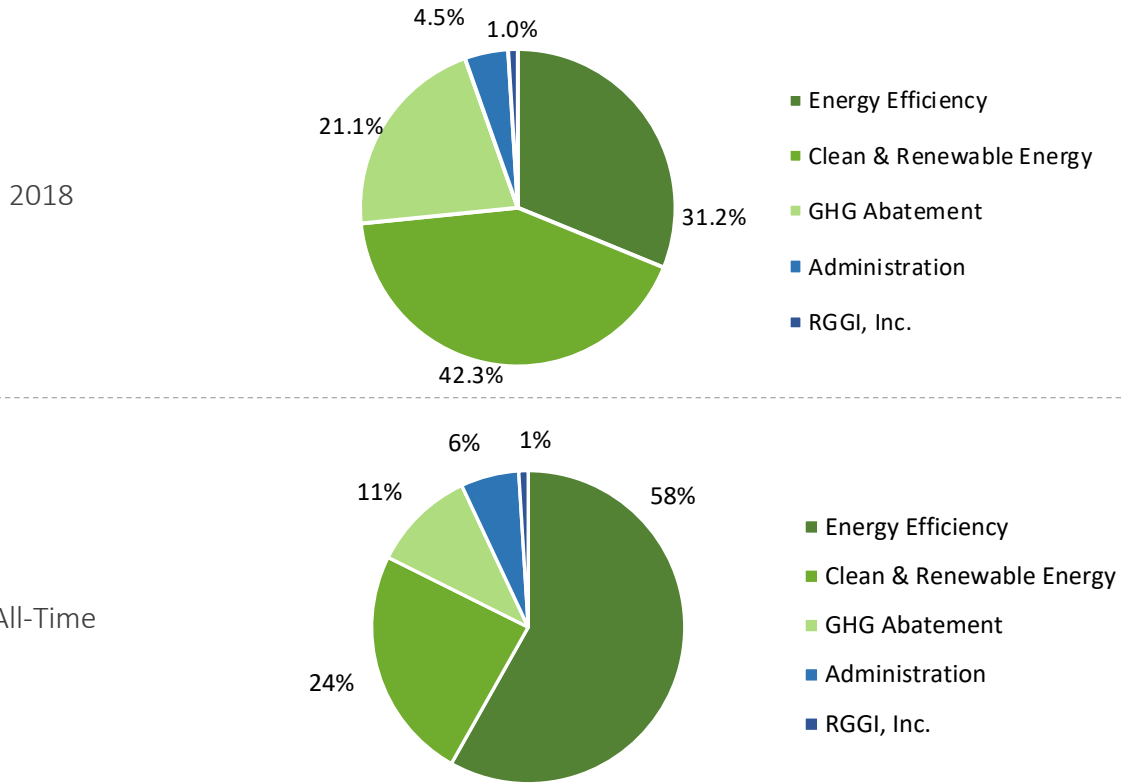
The Green Jobs Green New York (GJGNY) program is designed to serve single family homes, multi-family housing, nonprofits, and small commercial businesses with low-cost financing for recommended improvements as well as support education and training opportunities to prepare New Yorkers for clean energy jobs. GJGNY loans are able to support energy efficiency, solar photovoltaic (PV), solar thermal, ground and air source heat pumps, and wood and pellet stove upgrades. Financing through the program is available to New Yorkers of all incomes, including those who have low FICO scores but can demonstrate financial responsibility through other means.

GJGNY issued 24,025 loans totaling over \$282 million to residential customers by the end of 2018, including 16,363 energy efficiency loans and 7,597 solar PV loans. Since September 2016, 78% of energy efficiency loans and 48% of renewable energy loans were issued to low-and-moderate income customers. Energy efficiency measures have been installed in 61,795 multi-family housing units, half of which were affordable, while small commercial buildings have completed 1,855 energy efficiency projects over the lifetime of the program. Over 3,900 New Yorkers have received clean energy jobs training funded by GJGNY. GJGNY is serving as an integral component of the State's growing clean energy economy, an economy that grew 8.9% since 2016, a rate double that of the statewide average.

Success Story: Drive Clean Program Drives Strong Electric Vehicle Demand

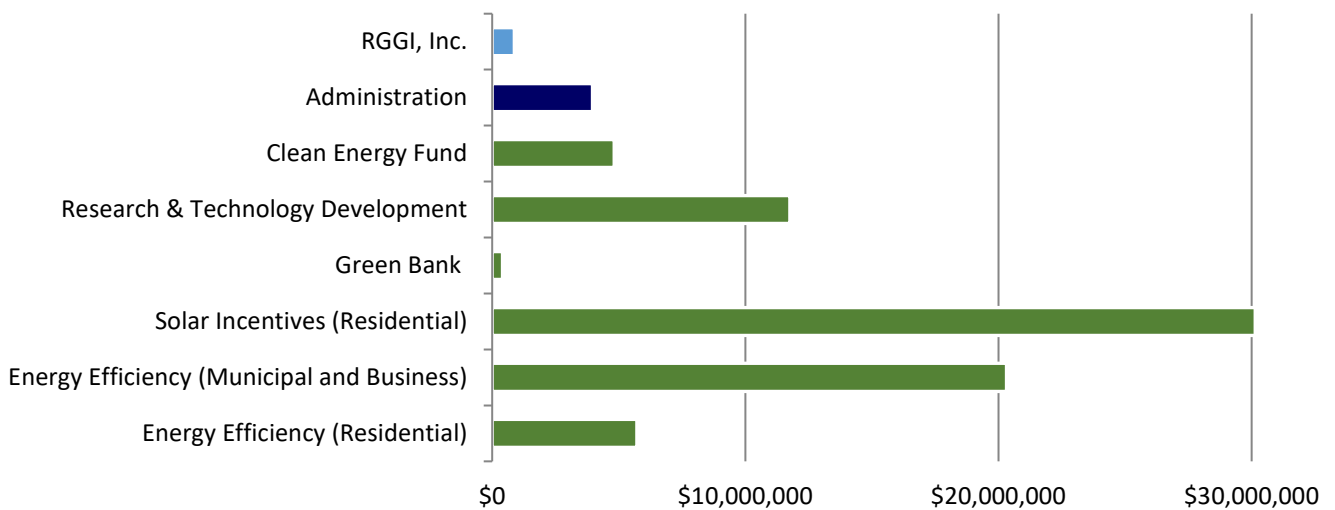
New York unveiled the Drive Clean Rebate for Electric Vehicles in March 2017 as part of Governor Cuomo's Charge NY initiative to increase electric vehicle uptake and deployment of charging stations. By December 2017, NYSERDA had issued over 4,500 rebates, bringing the state to over 24,500 EVs by year's end – or supporting nearly 20% of the State's total in one year. And only one year later, the number of rebates provided through the program nearly tripled to over 12,400. Supported by RGGI, New York saw EV sales grow by 60% in 2018 compared to 2017. As of January 2020, over 21,600 rebates have been issued, bumping New York's total to more than 46,000 electric vehicles, and saving 54,000 metric tons of greenhouse gases each year. The success of RGGI-enabled investments in clean transportation demonstrates New Yorker's appetite for clean transportation alternatives.

New York RGGI Investments by Category



New York received \$1.2B in proceeds from 2008-2018. RGGI investments represent \$88.9MM in 2018, and \$941.9MM cumulatively. \$131.4MM is committed to 2019 and future programs.

2018 New York RGGI Investments by Recipient



New York RGGI investments represent \$88.9MM in 2018.

Resources:

- 2018 RGGI Operating Plan: <https://www.nyserda.ny.gov/Researchers-and-Policymakers/Regional-Greenhouse-Gas-Initiative/Useful-Documents>
- Green Jobs Green New York reports: <https://www.nyserda.ny.gov/About/Publications/GJGNY-Advisory-Council-Reports>
- Clean Energy Industry reports: <https://www.nyserda.ny.gov/About/Publications/New-York-Clean-Energy-Industry-Report>
- Drive Clean Rebate: <https://www.nyserda.ny.gov/Drive Clean Rebate>

Rhode Island

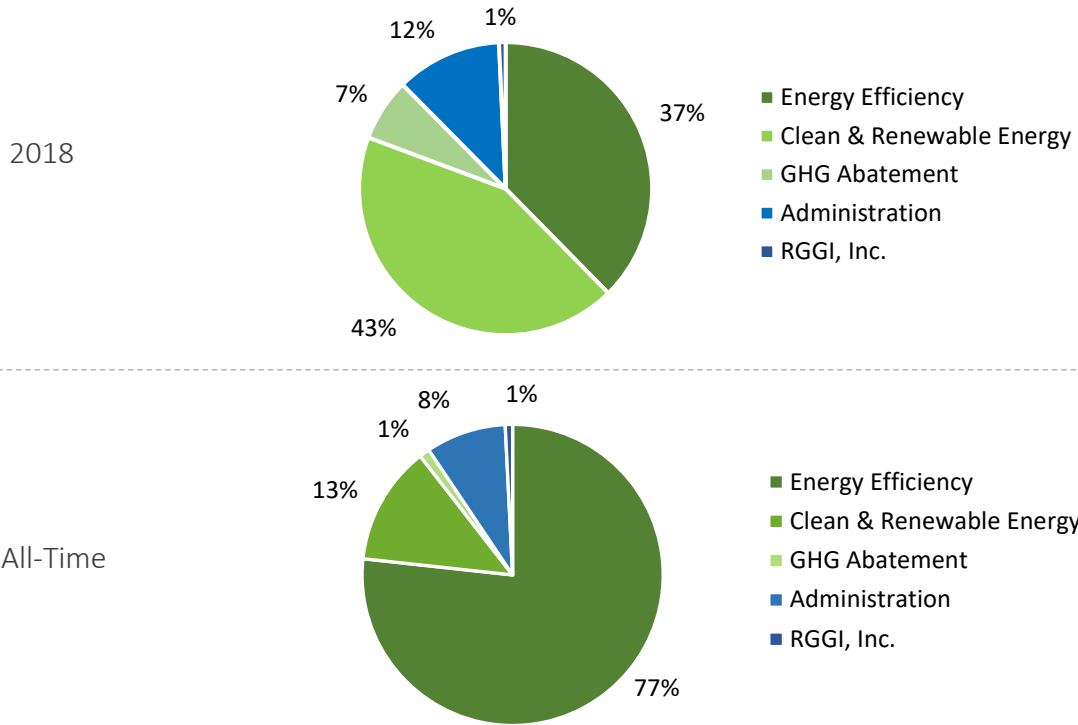
RGGI auction proceeds are allocated by the state's Office of Energy Resources (OER) to drive investment in – and expansion of – clean energy resources, including cost-effective energy efficiency and renewables. In doing so, OER seeks to support investment and job growth in Rhode Island's burgeoning clean energy sector; reduce barriers to consumer adoption of clean energy solutions; place downward pressure on long-term energy costs; and shrink the state's carbon footprint.

RGGI auction proceeds are accelerating 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, Rhode Island's State Energy Plan, and broader state energy and environmental policy goals.

In 2018, Rhode Island RGGI proceeds were allocated to support several important clean energy programs, including:

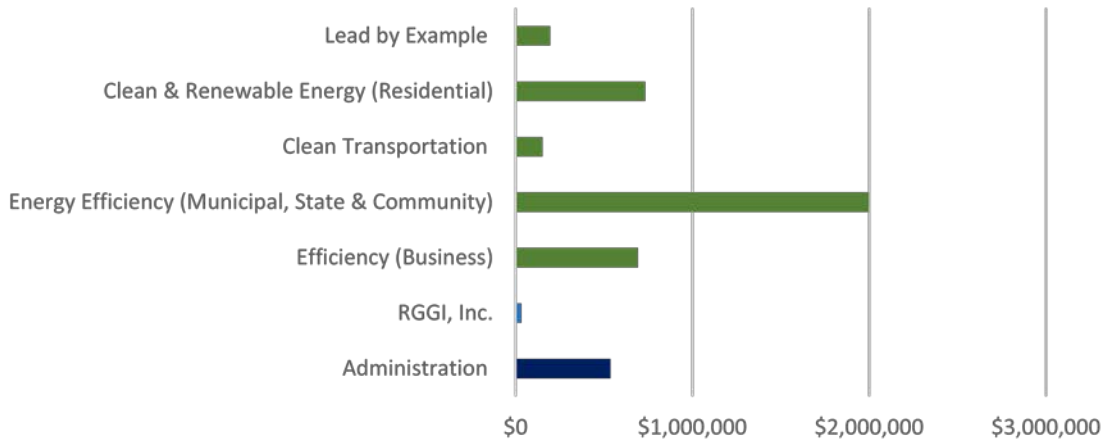
- Working with the Rhode Island Department of Transportation, the state has replaced all state-owned highway streetlights with more cost-effective LED fixtures and lighting controls;
- Similarly, OER is working with Rhode Island Municipalities and providing enhanced energy efficiency incentives to support cities and towns convert local streetlights to high-efficiency LED technologies;
- Continued support for the Rhode Island Department of Environmental Management's Energy-Savings Trees program, which distributes trees to homeowners that can be strategically planted on their property and result in saving energy and lower utility bills;
- Advancement of the State Clean Energy Lead by Example program, which is supporting the adoption of energy efficiency and renewable energy projects at state government properties;
- Support for a Farm Energy Program that links local farms to energy efficiency and solar PV opportunities; and
- Furthering solar PV adoption by Rhode Island homes and businesses through continued support of the state's Renewable Energy Fund.

Rhode Island RGGI Investments by Category



Rhode Island received \$72.9MM in proceeds from 2008-2018. RGGI investments represent \$4.6MM in 2018, and \$46.8MM cumulatively. \$26.1MM is committed to 2018 and future programs.

2018 Rhode Island RGGI Investments by Recipient



Rhode Island RGGI investments represent \$4.6MM in 2018.

Program Highlight: Municipal LED Streetlight Energy Efficiency Program

The Municipal LED Streetlight Energy Efficiency Program provides Rhode Island municipalities with incentives to facilitate the installation of LED streetlights and control technology as part of the State's "Lead by Example" Initiative. The funds made available support enhanced financial incentives to qualified municipalities on a first-come, first-served basis and are offered in addition to any applicable utility-administered incentives representing a unique project cost savings opportunity.

Through this program, municipalities that have acquired their lighting equipment and plan to retrofit their existing streetlights to more energy efficient LED technologies can apply to receive \$0.40 per watt reduced for qualified LED fixtures, calculated as existing system wattage minus LED wattage, and \$20.00 for each remotely-programmable dimming control installed (as applicable). A qualified municipality can receive a total award of up to \$300,000. As of February 2020, thirty (30) of Rhode Island's thirty-nine (39) municipalities have participated in the program. A total of 89,869 municipal streetlights have been converted to LED streetlights.

Success Story: City of Providence

The City of Providence was the first Rhode Island community to receive an award through OER's Municipal LED Streetlight Energy Efficiency Program. The city received the program's maximum award of \$300,000 in incentives and has converted 16,800 streetlights to high-efficiency LED lights. This project will reduce Providence's energy consumption and costs and help shrink the community's carbon footprint. Converting streetlights to energy efficient technology was one of the "highest priority actions" outlined the city's 2014 sustainability plan, Sustainable Providence.

"We are pleased to offer this investment so that our cities and towns can more easily reduce their carbon footprints and save on energy costs," said former state Energy Commissioner Carol Grant. "Rhode Island is a national leader in energy efficiency, and we want to continue to build on successful efforts and lead by example."

"I'm excited that Providence stands to save millions of dollars each year and decrease the amount of fossil fuels used for street lighting through the LED conversion," said Providence Mayor Jorge Elorza. "My administration is committed to providing the most efficient, environmentally-friendly, and cost-effective service to constituents, and I thank the Office of Energy Resources for assisting municipalities in realizing savings throughout Rhode Island."

Resources:

- [Rhode Island RGGI Auction Proceeds Allocation Plans](#)
- [Rhode Island Government Press Release December 2016](#)



Photo courtesy of the Rhode Island Office of Energy Resources

Vermont

Vermont invests the majority of its CO₂ allowance proceeds in programs managed by Efficiency Vermont. RGGI funds allow Efficiency Vermont to expand its electrical energy efficiency programs to include thermal energy and process fuels 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 fuels efficiency programs funded by RGGI through 2018 are estimated to result in lifetime energy savings of 4 million MMBtu. These programs are estimated to avoid the emission of over 242,000 short tons of CO₂, and to save participants over \$102 million on their energy bills over the lifetime of those investments. Vermont's RGGI-funded programs have served approximately 10,700 households and 755 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.

Efficiency Vermont, the nation's first ratepayer-funded energy efficiency utility, is overseen by the Vermont Public Utility Commission, and implemented by VEIC. 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 fourth in the nation in 2018, according to the American Council for an Energy Efficient Economy (ACEEE) State Energy Efficiency Scorecard.

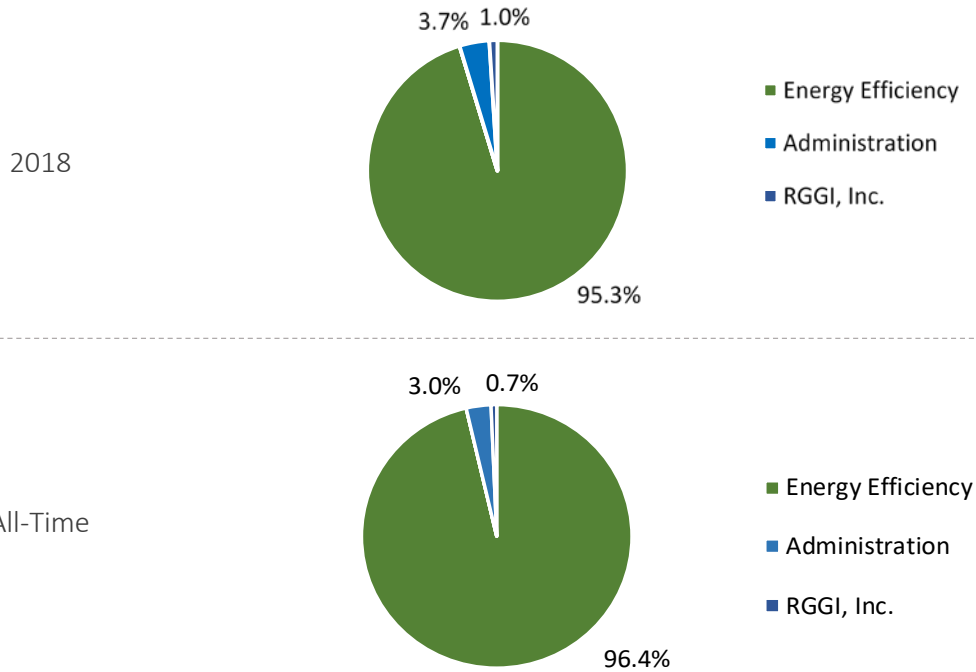
Program Highlight: Home Performance with ENERGY STAR

The Efficiency Vermont Home Performance with ENERGY STAR service is an incentive-based program for single-family Vermont residences to lower utility bills and increase home comfort and safety by installing insulation, air sealing, ventilation, and heating systems improvements. Vermonters can access comprehensive thermal efficiency retrofits, incentives to offset project costs, and low-no interest rate financing. Customers hire a participating Efficiency Excellence Network, Building Performance Institute certified, contractor. This allows customers to receive incentives up to \$2,000, ensures the contractor meets Vermont residential building energy codes and standards, health and safety and program requirements, and provides quality assurance for projects.

The Efficiency Vermont Home Performance with ENERGY STAR service officially launched in 2005. In 2008, when the Vermont Legislature set a statewide goal to weatherize 80,000 homes by the year 2020, the Home Performance with ENERGY STAR service was galvanized. The legislation sought to harness energy efficiency as a driver of savings for consumers and economic development in Vermont. Home Performance with ENERGY STAR is one of the primary programs contributing to these goals.

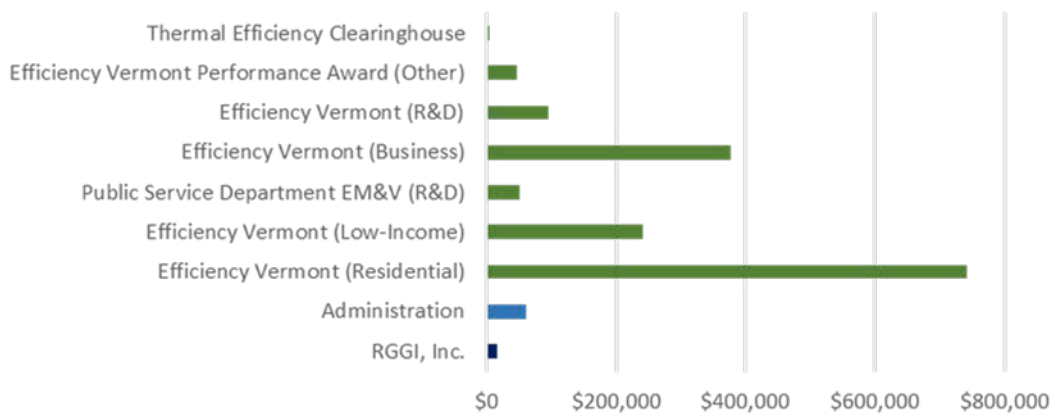
Home Performance with Energy STAR is a national brand managed by the US Department of Energy (US DOE). Across the US, 50 organizations sponsor local programs under this brand. Although local programs differ, they follow the same basic structure to ensure a comprehensive, whole-house approach to energy efficiency and maximize long-term savings for homeowners. The key components of the Home Performance with ENERGY STAR program approach are outlined by US DOE and implemented in Vermont by Efficiency Vermont.

Vermont RGGI Investments by Category



Vermont received \$23.4MM in proceeds from 2008-2018. RGGI investments represent \$1.6MM in 2018, and \$21.6MM cumulatively. \$1.8MM is committed to 2019 and future programs.

2018 Vermont RGGI Investments by Recipient



Vermont RGGI investments represent \$1.6MM in 2018.

Success Story: From one-room schoolhouse to energy-saving home

When first-time house buyer Kelsey Burns decided to convert a one-room schoolhouse in Guilford into a home, she knew she was stepping into a piece of local history. What she didn't know was that the century-old school's lack of insulation would mean a host of problems. It was expensive to keep the house warm, because the building lost heat faster than Kelsey could load the woodstove. Warm air that escaped the house was causing ice dams on the roof, and cold outdoor air that seeped in through basement walls was bringing a damp smell into the house. With the health and comfort of her four-year-old son in mind, Kelsey contacted Efficiency Vermont for advice.



"As a new home owner in need of guidance, I found incredible value in what Efficiency Vermont provided," said Kelsey. "I am so grateful to them for helping me repeatedly in this process, including telling me about Efficiency Excellence Network contractors, and about a low-interest Heat Saver loan available through a Vermont credit union so I could be able to do this project."



Kelsey hired the Efficiency Excellence Network contractors at Vermont Foam Insulation in nearby Chester. The crew air sealed and insulated the entire structure, resulting in fresher indoor air and comfortable temperatures year-round. Ice dams are now a thing of the past, and Kelsey is estimated to save \$400 on heating costs.

"I am totally in love with my 'new' home!" said Kelsey. "It holds heat even during the coldest winter nights, it has great air quality, and feels cozier than before. I'm amazed by all the ways Efficiency Vermont supports homeowners in their quest to save money

and create an efficient home. As my son says when we come in the house, Home Sweet Home!"

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 businesses. 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, tree-planting 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 2019 and beyond.

Current Period

The twelve-month period covered by this report, which may be either the fiscal year or calendar year 2018, as defined by each state.

Benefits and Statistics

Annual (2018)

A measure of one year's worth of benefits from all measures installed in 2018. Note that actual realized benefits in the year 2018 may differ slightly from the 2018 annual benefits, since measures may be installed at different times during the year.

Lifetime (2018)

The full benefits of measures installed in 2018, 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 5-25 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 2018 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.

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.

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 lifetime energy bill savings are given in current year dollars as of the start of the savings, and in most cases are not discounted into the future. Where discounts are applied, they are noted on state-specific pages.

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 (10,207 pounds or 5.1 short tons of CO₂), as published by the U.S. Environmental Protection Agency. View conversion rates at: <https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references>.

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