

The Regional Greenhouse Gas Initiative
An Initiative of Eastern States of the United States

The Investment of RGGI Proceeds in 2019

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Executive Summary

Proceeds from the Regional Greenhouse Gas Initiative (RGGI) have powered significant investment in the energy future of participating Eastern states. This report reviews the benefits of programs funded in 2019 by \$217 million in RGGI investments, which have reduced harmful carbon dioxide (CO₂) emissions while spurring local economic growth. The lifetime effects of 2019 RGGI investments are projected to avoid the release of 2.5 million short tons of carbon emissions. RGGI-funded programs also save consumers and businesses money, create jobs, and provide targeted assistance to low-income communities throughout the RGGI region. RGGI investments in 2019 are estimated to return \$1.3 billion in lifetime energy bill savings to over 260,000 households and over 1,400 businesses that participated in programs funded by RGGI proceeds, while over 130,000 households and businesses received direct bill assistance in 2019. As a whole, the RGGI states have reduced power sector CO₂ emissions over 50% since 2008, 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 40% of 2019 RGGI investments and 54% of cumulative investments. Programs funded by these investments in 2019 are expected to return about \$553 million in lifetime energy bill savings to over 250,000 participating households and 1,400 businesses in the region and avoid the release of more than 1.5 million short tons of CO₂.

Clean and renewable energy makes up 18% of 2019 RGGI investments and 14% of cumulative investments. RGGI investments in these technologies in 2019 are expected to return nearly \$600 million in lifetime energy bill savings and avoid the release of more than 850,000 short tons of CO₂.

Greenhouse gas abatement makes up 15% of 2019 RGGI investments and 10% of cumulative investments. RGGI investments in greenhouse gas (GHG) abatement in 2019 are expected to avoid the release of more than 160,000 short tons of CO₂ and to return over \$93 million in lifetime savings.

Direct bill assistance makes up 19% of 2019 RGGI investments and 15% of cumulative investments. Direct bill assistance programs funded through RGGI in 2019 have returned \$39 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 driving decarbonization while strengthening economic resilience.

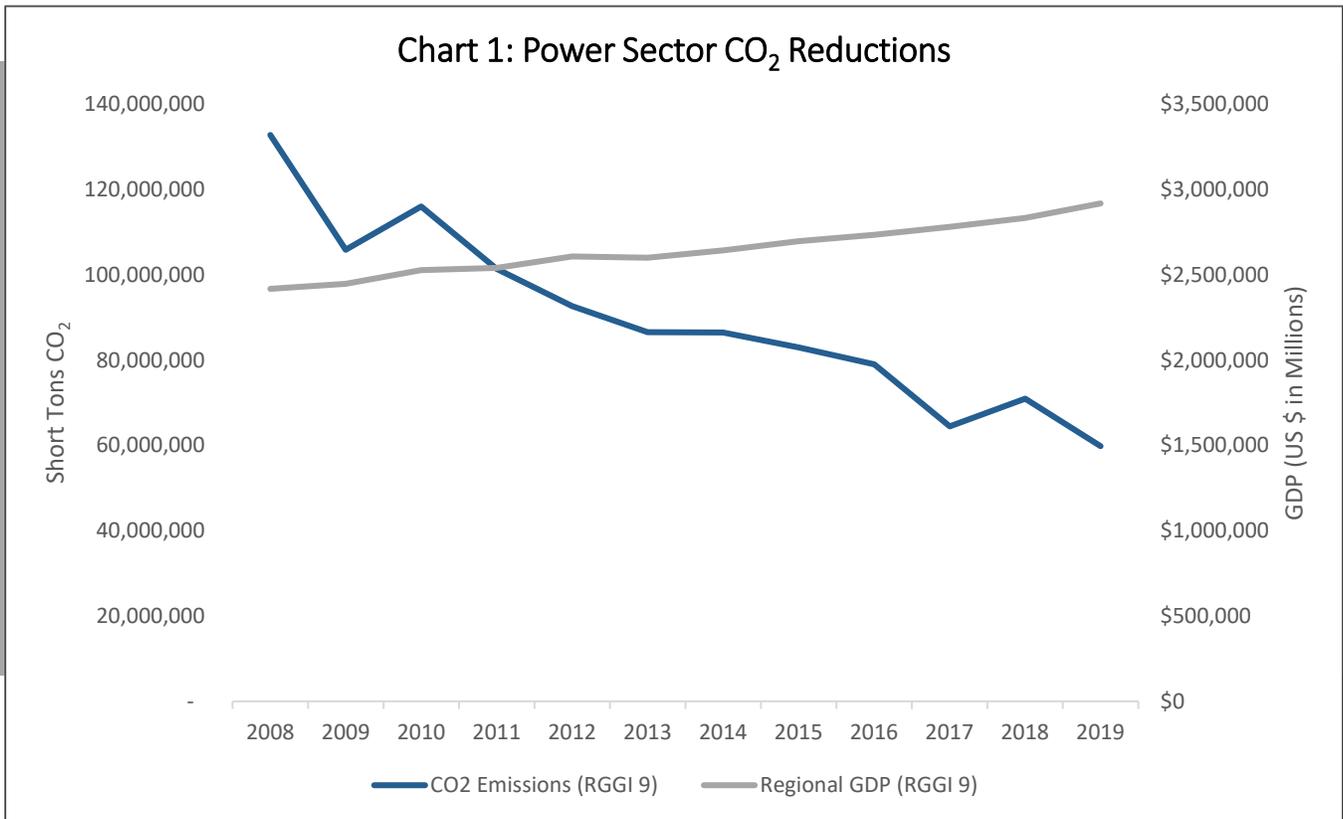
Introduction

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, Vermont, and Virginia) establish a regional cap on the amount of CO₂ emissions 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 full discretion over the investment of RGGI proceeds and the administration of RGGI-funded programs.

The nine RGGI states that participated from 2009-2019 experienced a reduction of over 90 million short tons of annual power sector carbon emissions, even as the regional economy grew (see **Chart 1**).¹ This represents a reduction in power sector carbon emissions of over 50%.



¹ The nine RGGI states that participated for the entire 2009-2019 time period are CT, DE, ME, MD, MA, NH, NY, RI, and VT.

2019 RGGI Investments

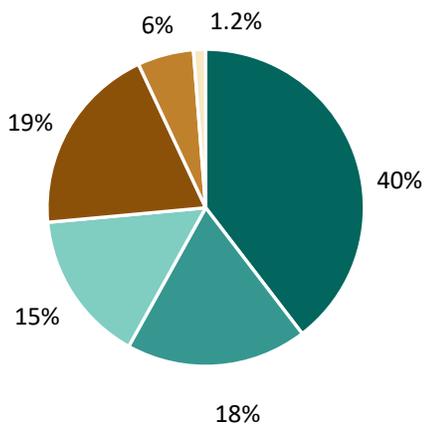
This report estimates the benefits (such as energy bill savings and short tons of CO₂ emissions avoided) that arise from \$217 million in 2019 RGGI investments. RGGI investments as defined within this report include investments in energy efficiency, clean and renewable energy, greenhouse gas abatement, and direct bill assistance, as well as administrative costs associated with these programs. This report focuses on 2019 annual investments. RGGI investments throughout the region cover a wide variety of programs.

Chart 2 shows 2019 RGGI investments divided among major program categories. **Chart 3** illustrates the same 2019 funds divided in a different way, according to the type of end-user who benefits from the program or ultimately receives funding.

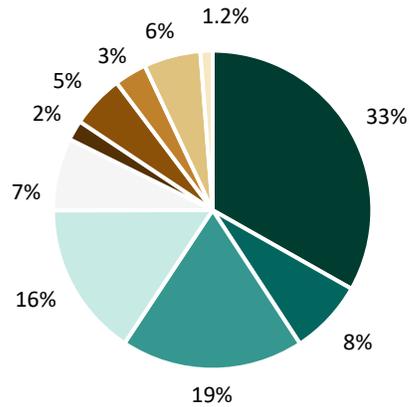
Many of the categories in Chart 3 can be seen as subcategories of those in Chart 2. Direct Bill Assistance is split between assistance for low-income consumers, and general rate relief for all consumers. GHG Abatement includes a wide variety of program types, including research funding and clean transportation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

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

Charts 2 and 3: 2019 RGGI Investments by Category and Recipient Type



- Energy Efficiency
- Clean & Renewable Energy
- GHG Abatement
- Direct Bill Assistance
- Administration
- RGGI, Inc.



- Residential
- Business
- Municipal, State, & Community
- Low-Income
- General Rate Relief
- Research & Technology Development
- Clean Transportation
- Other
- Administration
- RGGI, Inc.

In 2019, RGGI investments have saved participants money on their energy bills, created jobs, and reduced carbon emissions. Over their lifetime they will save participants an estimated \$1.3 billion on energy bills, and avoid the emission of 2.5 million short tons of harmful CO₂ emissions. 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.² Often, these programs result in an increase in MWh, but do reduce carbon emissions. 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.

Category	Annual Benefits of 2019 Investments	Lifetime Benefits of 2019 Investments
 Short Tons CO ₂ Avoided	167,211	2,531,492
 Energy Bill Savings	\$112,183,893	\$1,283,157,717

One of RGGI’s strengths is the discretion held by 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.

² “Beneficial Electrification” refers to programs that reduce carbon emissions by replacing direct fossil fuel use with electric power; examples include electric vehicles (reducing oil use) and electric heat pumps (reducing heating fuel use).

Energy Efficiency

Energy efficiency remains the largest portion of 2019 RGGI investments, at 40%. Over the lifetime of the installed measures, 2019 RGGI investments in energy efficiency, including both electric energy efficiency and “beneficial electrification” programs, are projected to save participants over \$550 million on energy bills, providing benefits to more than 200,000 participating households and 1,400 participating businesses. They are also projected to avoid the release of 1.5 million short tons of CO₂ (see **Table 2**).

Table 2: Benefits of 2019 RGGI Investments in Energy Efficiency

Category	Annual Benefits of 2019 Investments	Lifetime Benefits of 2019 Investments
 Participating Households	255,131	n/a
 Participating Businesses	1,413	n/a
 Increased Employment	n/a	1,750-1,900*
 Short Tons CO ₂ Avoided	105,857	1,509,458
 Energy Bill Savings	\$34,835,370	\$553,847,013
 MMBtu Saved	959,104	18,735,147
 MWh Saved	127,735	2,098,720

*Estimated job-years created.

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.

In addition to electric energy efficiency projects, many RGGI states invest in beneficial electrification projects that replace fossil-fuel-burning appliances with electricity powered units. These projects increase MWh but result in net CO₂ savings, as the average electric grid mix is less carbon-intensive than fuels typically used in on-site combustion for residential heating or transportation. These beneficial electrification investments will yield even greater emissions savings over time as renewables take up a larger portion of the electric grid composition.

Energy efficiency also creates jobs. Programs such as home retrofits directly spur employment gains in housing and construction, with 2019 RGGI investments projected to create an estimated additional 1,750-1,900 job-years

across participating states. Lower energy costs also 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 the region a leader in this field. Six RGGI states once again ranked among 2019'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 18% of 2019 RGGI investments in the region. Over the lifetime of the projects installed in 2019, these investments are projected to offset \$596 million in energy expenses. They are also projected to avoid the release of 857,471 short tons of CO₂ emissions (see **Table 3**).

Table 3: Benefits of 2019 RGGI Investments in Clean Energy

Category	Annual Benefits of 2019 Investments	Lifetime Benefits of 2019 Investments
 Short Tons CO ₂ Avoided	48,816	857,471
 MWh Avoided*	194,173	3,467,464
 MMBtu Avoided	19,388	406,147
 Energy Bill Savings	\$31,317,999	\$596,188,665

*RGGI investments in clean and renewable energy decrease the electricity generated from marginal generating units, which are typically more expensive and carbon-intensive.

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 a measurable impact on the energy mix. Since 2008, RGGI states have increased their non-hydro renewable generation by 95%. In 2019 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 15% of 2019 RGGI investments supported GHG abatement programs. Over their lifetime, the investments made in 2019 are expected to avoid the release of over 160,000 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.

Table 4: Benefits of 2019 RGGI Investments in GHG Abatement

Category	Annual Benefits of 2019 Investments	Lifetime Benefits of 2019 Investments
 Participating Households	6,606	n/a
 Participating Businesses	28	n/a
 Short Tons CO ₂ Avoided	12,537	164,563
 MMBtu Saved	205,789	2,650,747
 Energy Bill Savings	\$6,543,851	\$93,635,365

Direct Bill Assistance

Direct bill assistance returns money to consumers as a rebate on their energy bills. Approximately 19% of 2019 RGGI investments have funded direct bill assistance. RGGI investments in direct bill assistance in 2019 returned \$39 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.

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: 2019 RGGI Investments in Direct Bill Assistance

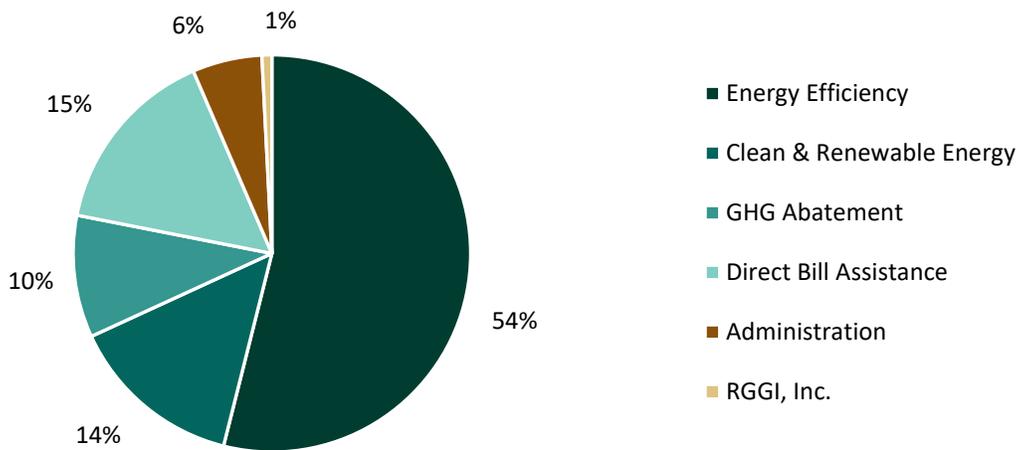
Category	Annual Benefits of 2019 Investments
 Participating Households	98,115
 Participating Businesses	38,580
 Energy Bill Savings	\$39,486,673

Cumulative Uses of Auction Proceeds

While this report focuses primarily on 2019 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



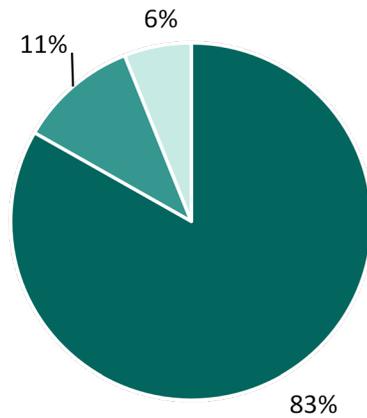
The states participating in RGGI invested \$2.8B as of 2019.

RGGI investments are themselves a subset of total proceeds. Most RGGI proceeds through 2019 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

Description	Funds
All Proceeds through Dec. 31, 2019	\$3,382,623,237
Adjustment for Fiscal Year Reporting	-\$33,495,731
General Funds Transfers	\$199,700,000
Future Committed Funds	\$353,887,717
RGGI Investments	\$2,795,539,789



- RGGI Investments
- Future Committed Funds
- General Funds Transfers

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.

Category	Lifetime Benefits of All RGGI Investments
 Participating Households	7,179,713
 Participating Businesses	255,915
 Short Tons CO ₂ Avoided	42,837,064
 Megawatt-Hours Saved	64,444,412
 MMBtu Saved	218,642,643
 Energy Bill Savings	\$12,953,361,752.60

Previously reported cumulative data plus 2019 data may not sum exactly to updated cumulative data. This is due to state adjustments or corrections to prior cumulative calculations.

Connecticut

Connecticut predominantly invests RGGI auction proceeds towards programs dedicated to the deployment of energy efficiency measures and improvements and financing options for renewable energy projects. In general, Connecticut allocates 69.5% of its auction proceeds to support the energy efficiency programs overseen by the Connecticut Energy Efficiency Board (CEEB) and administered by Eversource Energy and The United Illuminating Company, as well as those of the Connecticut Municipal Electric Energy Collective (CMEEC) and the Town of Wallingford - Electric Division (WED). Connecticut further allocates 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 for administrative purposes.

During 2019, Connecticut invested RGGI auction proceeds in the following programs:

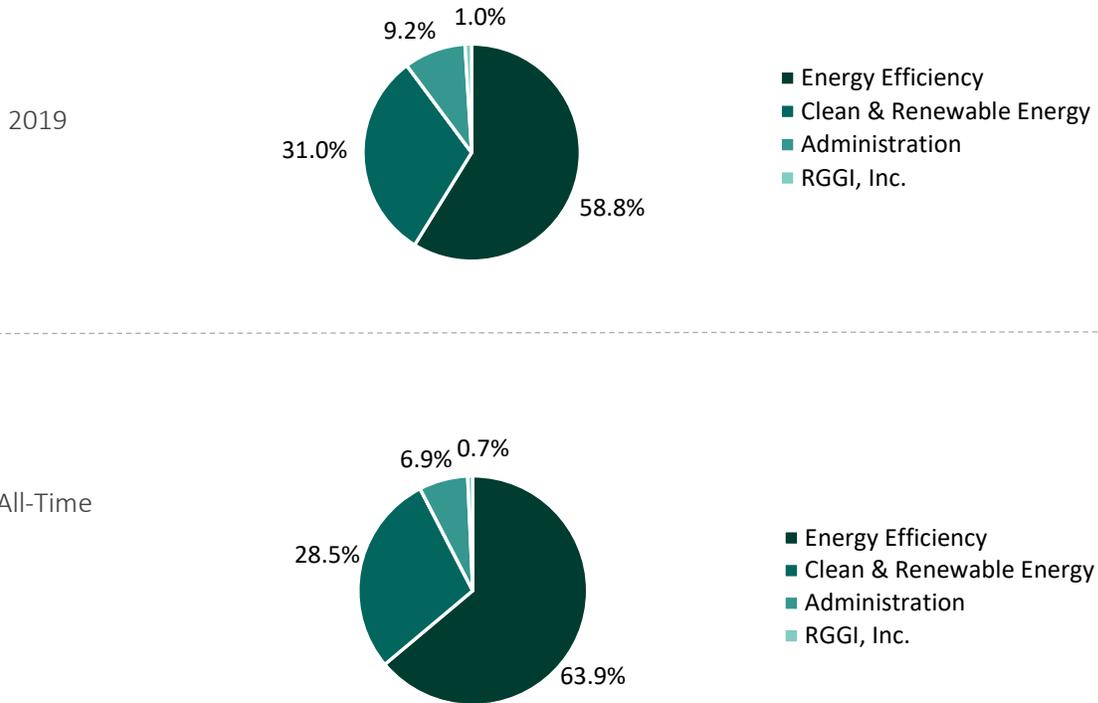
- Home Energy SolutionsSM Program: Under this program, Eversource Energy and The United Illuminating Company invested RGGI funds to conduct residential energy audits and install weatherization measures;
- Various energy efficiency projects: CMEEC used RGGI funds toward the deployment of residential and commercial energy efficiency projects, ranging from the installation of heat pumps and mini splits to street lighting upgrades;
- Home Energy Savings Program: Under this program, WED used RGGI funds to perform residential energy audits and deploy weatherization measures; and
- Commercial Property Assessed Clean Energy (C-PACE) Program: Under this program, the Connecticut Green Bank offers low interest, no-money-down financing for clean and renewable energy projects. The Connecticut Green Bank's investment of RGGI proceeds in C-PACE has helped to finance six projects that were completed during 2019, for a total of 100 projects since this program's inception.

Connecticut has cumulatively invested more than \$195 million in RGGI allowance proceeds toward programs and services dedicated to the deployment of energy efficiency measures and renewable energy technologies.

The American Council for an Energy-Efficient Economy (ACEEE) nationally ranked Connecticut sixth in its 2020 State Energy Efficiency Scorecard, which evaluated 2019 state energy efficiency efforts. Connecticut's continued Top Ten ranking is attributed to a range of energy-saving policies across multiple sectors and the state's overall statutory pollution goals, including:

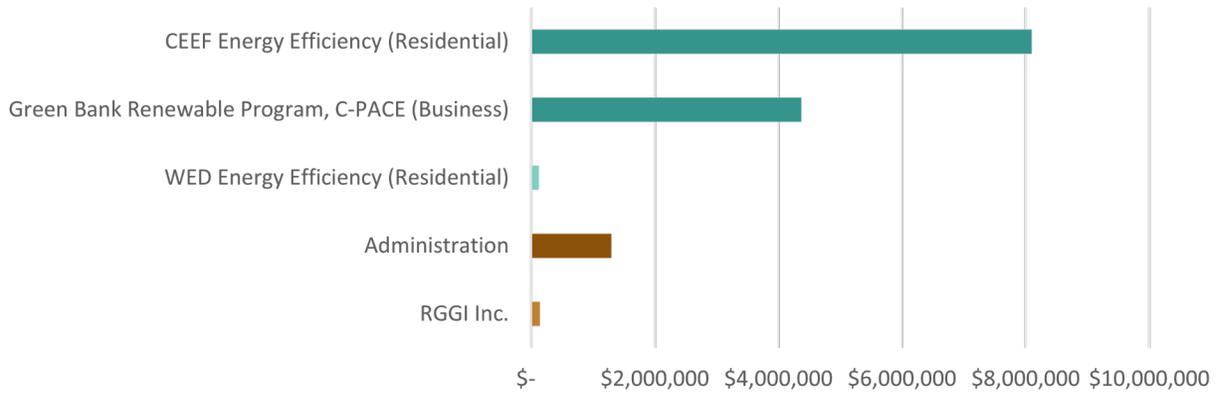
- An executive order signed in April 2019 by Governor Ned Lamont that directs an interagency steering committee to strengthen agency-specific lead-by-example goals for reductions in on-site heating and cooling, fleet vehicle emissions, and water use; and
- Passage of an interim goal of reducing greenhouse gas emissions by 45% from 2001 levels by 2030.

Chart 6: Connecticut RGGI Investments by Category



Connecticut received \$223M in proceeds from 2008-2019. RGGI investments represent \$14.8M in 2019, and \$195.4M cumulatively. \$5M is committed to 2020 and future investments.

Chart 7: 2019 Connecticut RGGI Investments by Recipient



Connecticut RGGI investments represent \$14.8M in 2019.

Program Highlight: Home Energy SolutionsSM

The Home Energy SolutionsSM (HES) program is a home energy efficiency audit and energy conservation program, primarily funded by mandated conservation charges collected from electric and natural gas ratepayers, who in turn can receive its services. Connecticut's investment of RGGI proceeds in this program has provided funding for the deployment of services under the program to families who heat their homes with fuel oil or propane.

The HES program enables evaluation of a home's energy performance and installation of core weatherization and energy-saving measures such as sealing air leaks, and installing energy-efficient lighting, faucet aerators and low-flow showerheads. HES also provides families with customized reports with more opportunities for deeper energy-saving measures, such as improved insulation, upgrades to energy-efficient equipment; and as well as information about money-saving rebates and financing options. The average home in Connecticut receives about \$1,000 in services and realizes \$200-\$250 in savings on their annual energy bills.

Success Story: Wyndham Park – Forest Properties

Wyndham Park is a multi-family complex of 104 townhouses over 25 acres in Windham, Connecticut. The complex is owned and managed by Forest Properties.

Through the Multifamily Initiative offered by Eversource, an Energize Connecticut Sponsor, Forest Properties completed several energy efficiency improvements at Wyndham Park in 2019. More than \$47,000 in RGGI funds were utilized to complete these improvements, including air sealing, insulation and the installation of low-flow showerheads and faucet aerators throughout the 104 units. These measures are estimated to reduce the property's oil use by 48,836 gallons, and carbon emissions by nearly 547 tons over the lifetime of the improvements. Forest Properties' satisfaction with the results has led to the completion of several more improvements utilizing RGGI funds in 2020, including the upgrading of windows and boilers, and the installation of Wi-Fi thermostats, which reduce oil use even further.

Resources:

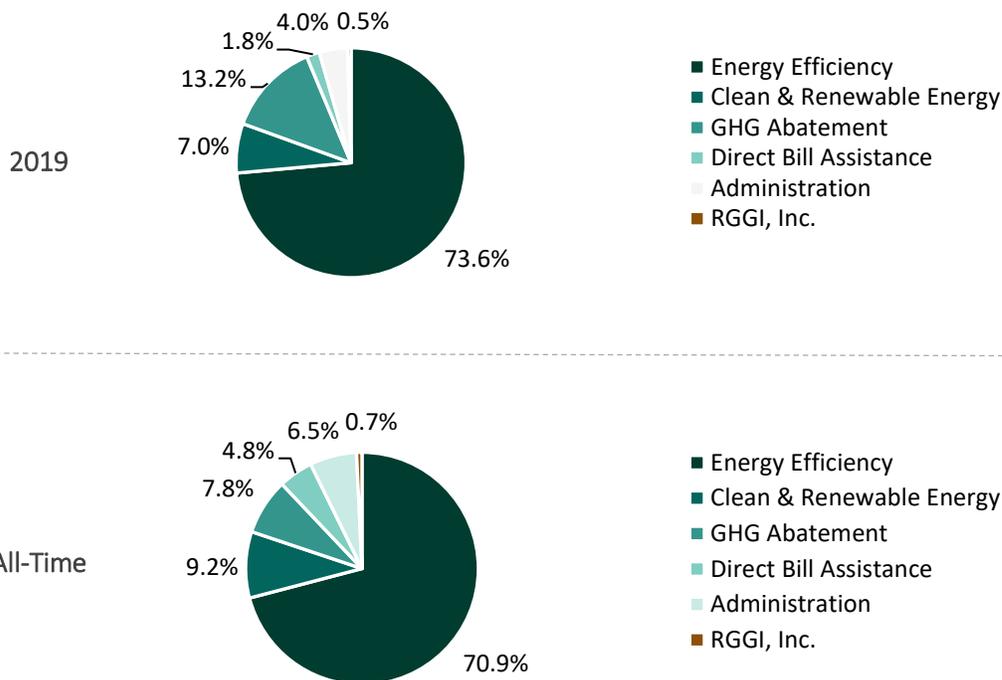
- [Energy Efficiency Board 2019 Programs and Operations Report](#)
- [Energize ConnecticutSM](#)
- [Home Energy SolutionsSM – Core Services](#)

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.

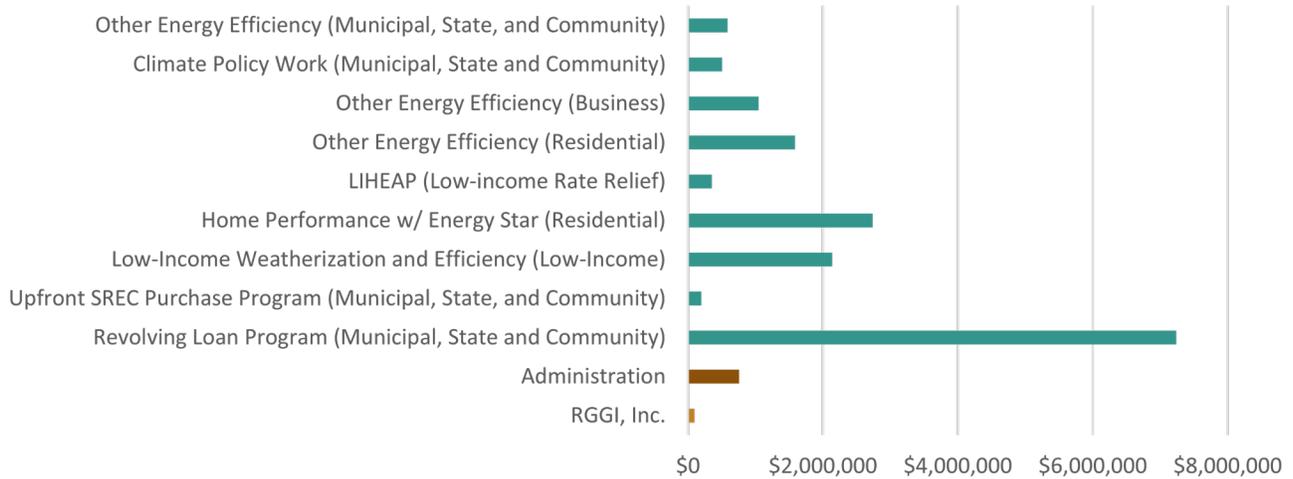
Delaware directs 65% of its allowance proceeds to the Delaware Sustainable Energy Utility (SEU). The SEU serves Delawareans by promoting the use of affordable, reliable, clean energy, and providing a variety of incentives for energy efficiency improvements. In addition, Delaware directs 10% of its allowance 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.

Chart 8: Delaware RGGI Investments by Category



Delaware received \$133.6M in proceeds from 2008-2019. RGGI investments represent \$19.2M in 2019, and \$132.7M cumulatively. \$0.9MM is committed to 2020 and future programs.

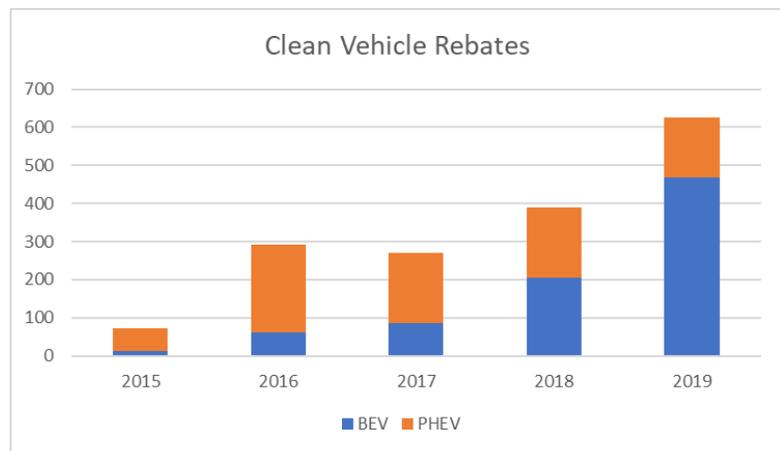
Chart 9: 2019 Delaware RGGI Investments by Recipient



Delaware's RGGI investments represent \$19.2M in 2019.

Program Highlight: Delaware Clean Transportation Rebate Program

The Delaware Clean Transportation Rebate Program provides residents and businesses rebates to offset the cost of all-electric and plug-in hybrid electric vehicles. One of the largest barriers to electric vehicle adoption is the comparatively high upfront cost of electric vehicles to traditional gasoline models. Monetary incentive programs provide support to consumers for purchasing vehicles and accelerate electric vehicle adoption. Research finds that with every \$1,000 offered in monetary incentive, average EV sales increase by 2.6%, suggesting that consumers are more motivated to buy an electric vehicle with appropriate incentives³. From 2015 to 2019, the program provided 1,659 rebates for the purchase of all-electric and plug-in hybrid electric vehicles (PHEV) amounting to a total 37,000 tons of lifetime CO₂ emissions avoided. Electric vehicle adoption has increased rapidly in the northern section of the state, with a small adoption increase in the south near the beaches.



Additionally, the rebate program partners with several Delaware dealerships to provide point of sale rebates to residents who purchase electric vehicles. While the rebate model is still effective in providing incentives to consumers, the best incentive is reducing upfront

³ Jenn, Alan & Springel, Katalin & Gopal, Anand. (2018). Effectiveness of electric vehicle incentives in the United States. Energy Policy. 119. 10.1016/j.enpol.2018.04.065.

costs at the point of sale. Partnership with the dealerships has increased the impact of the rebate program by encouraging consumers to consider electric prior to purchasing a new vehicle.

The Delaware Clean Transportation Rebate Program helps accelerate electric vehicle adoption by addressing the perceived barriers of consumer adoption. As a result, the increased sales and purchase of electric vehicles in the state reduces greenhouse gas emissions improving air quality and helping the state reach its carbon reduction goals.

Success Story: Delivering Electric Supplies with Electric Power

United Electric Supply in New Castle County, Delaware is transitioning their OnDemand delivery vehicles to fully electric. They received \$11,000 in rebate funding from Delaware’s Clean Transportation Incentive Program to assist with the purchase of four Chevrolet Bolts. The OnDemand delivery service brings electrical supplies to jobsites for contractors and electricians, reducing the time contractors must spend driving between store and site, saving valuable time and money. United Electric made the decision to transition to electric vehicles to save money on truck maintenance and fuel costs. They are also happy to reduce their carbon footprint by driving electric. Availability of rebates from the Clean Transportation Incentive Program was a key factor in their decision to transition their fleet.

Initially, some employees of United Electric were hesitant about the switch to electric vehicles. Many of the drivers have been in the business for decades and were used to larger, gas-powered vehicles. However, skepticism about electric vehicles was quickly changed once the drivers had an opportunity to drive the Bolts. They were immediately impressed with the vehicle’s quick acceleration, making them fun to drive, and by the company’s commitment to environmental stewardship. Additionally, customers have applauded the company’s new “green” approach to deliveries. Because of the success of the four initial electric vehicles, United Electric will continue to add electric vehicles to their fleet in coming years.



Resources:

- [Delaware Division of Climate, Coastal, and Energy: de.gov/dcce](https://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://de.gov/cleantransportation)

Maine

The Efficiency Maine Trust (Efficiency Maine) is the independent 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:

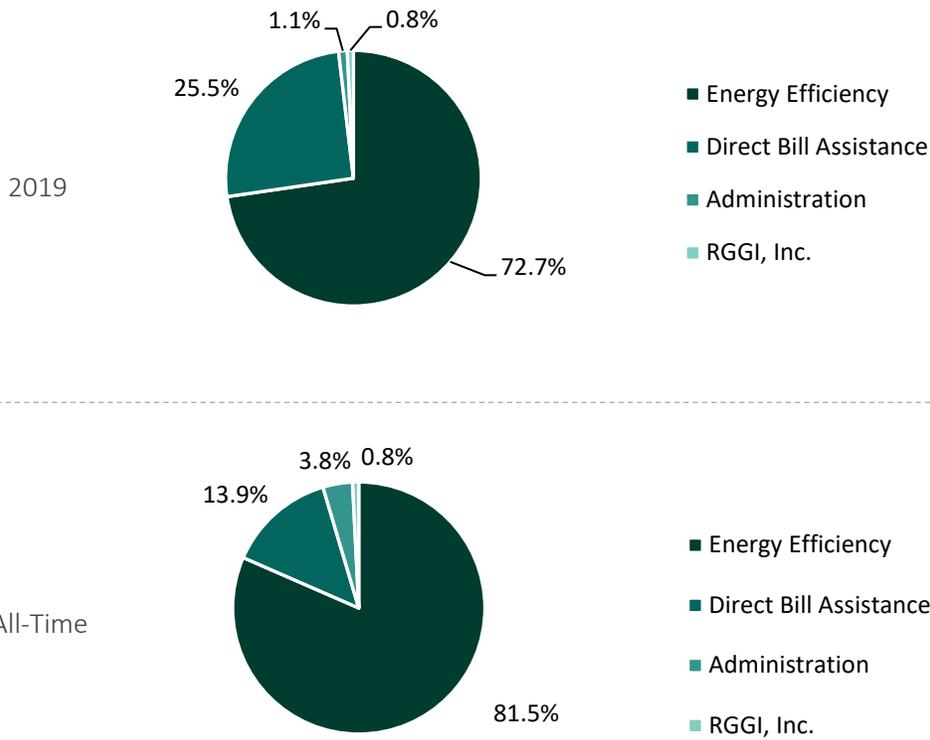
- *Provide uniform, integrated planning, program design and administration of programs;*
- *Reduce energy costs and improve security of the state and local economies;*
- *Administer cost-effective energy and energy efficiency programs to help individuals and businesses meet their energy needs at the 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 that reduce overall 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 2019 fiscal year (FY2019), Efficiency Maine invested over \$9.8 million in RGGI proceeds, directing approximately 98% towards a combination of energy efficiency programs and rate relief for large manufacturers; the remaining 2% went toward general administration. Though nearly all of Efficiency Maine's programs leveraged RGGI funding to some degree in FY2019, 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:* Targeted low-income customers by providing enhanced incentives for home weatherization (with an energy assessment) and high-performance heat pumps 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.

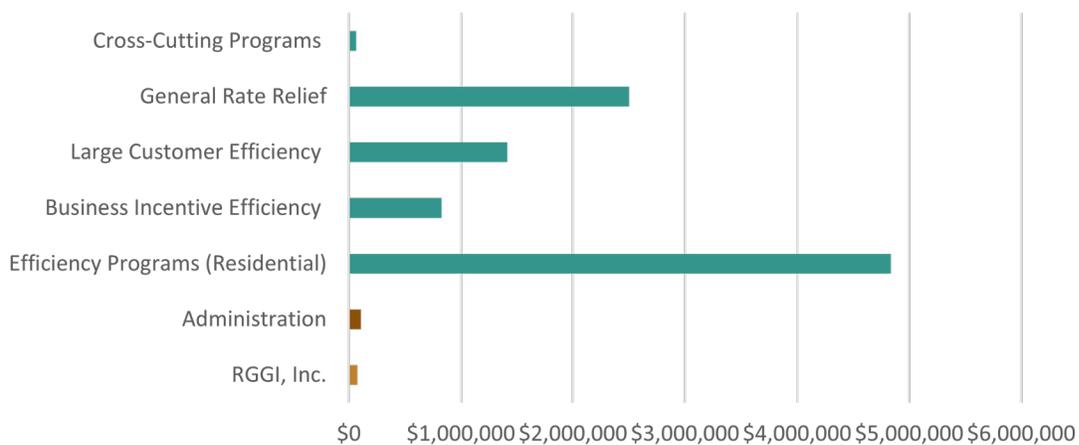
Over the lifetime of the investments made in FY2019, Maine's RGGI-funded efficiency measures are estimated to generate savings of over 4.6 million MMBtu in avoided consumption of natural gas and other heating or process fuels. These investments will lower participants' energy bills by more than \$36 million.

Chart 10: Maine RGGI Investments by Category



Maine received \$106.1M in proceeds from FY08-FY19. RGGI investments represent \$9.8M in FY19, and \$95.7M cumulatively. \$10.5M is committed to 2019 and future programs.

Chart 11: 2019 Maine RGGI Investments by Recipient



Maine RGGI investments represent \$9.8M in 2019.

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. Also using a market-based channel, Efficiency Maine targets low- and moderate-income customers by providing enhanced incentives for home weatherization (with an energy assessment) and heating systems through the Affordable Heat Initiative (AHI).

In the past, Efficiency Maine's ability to promote these tailored offerings to low-income households was limited; AHI required that participants be enrolled in the federally funded Low-Income Home Energy Assistance Program (LIHEAP). In 2017, the Maine State Housing Authority estimated that there are up to 176,000 low-income homes in Maine, yet only 40,000 were enrolled in LIHEAP.⁴ In FY2017, Efficiency Maine expanded eligibility criteria for this initiative to include low- and moderate-income customers enrolled in any state or federal income-based program, as well as owners living in mobile homes and those living in homes with assessed property values below a certain threshold. In that year, interested homeowners were required to conduct basic weatherization (worth \$600), with a \$50 co-pay, before being eligible for an enhanced rebate on a ductless heat pump. While HESP offered a \$500 incentive per heat pump for all residential customers, AHI paid 80% of the project cost up to \$2,000 for qualifying low- and moderate-income customers.

These changes helped drive dramatic growth in activity; participation rose from 40 homes in FY2016 to 674 homes in FY2017, 1,256 homes in FY2018, and 1,880 homes in FY 2019. Rebates for heat pumps covered 972 units over the course of FY2019, up from 664 units in FY2018 and 149 units in FY2017. The larger pool of potential customers and simplified criteria made this approach significantly easier for staff, contractors, and community organizations to promote AHI and for participants to access it. Meanwhile, the ductless heat pump promotion helped entice low-income customers participate in AHI more broadly with additional energy-efficiency upgrades. Overall, AHI leveraged \$1,968,584 in RGGI funds in FY2019, low-income Mainers save an estimated 27,440 MMBtu annually in avoided energy consumption associated with heating oil and other fuels.

Success Story: Pleasant River Lumber Company

Pleasant River Lumber owns five lumber manufacturing facilities, multiple log purchasing yards, two saw filing shops, and a trucking company spread out across the State of Maine. In 2018, as part of a significant facility expansion project supported by a grant from the Maine Technology Institute (MTI), the company committed to installing two new "progressive" or "continuous" kilns at two of its sawmills located in in Dover-Foxcroft and in Moose River.

In traditional batch kilns, green lumber is loaded into a single zone. The kiln cycles through several drying steps with varying temperature and humidity setpoints until the desired moisture content is obtained. With a continuous kiln, green lumber is loaded onto a track at one end and very slowly travels through multiple zones of the kiln. Each zone is maintained at different temperature and humidity conditions with varying levels of airflow. Setpoints are established based on the species and thickness of the wood to optimize the drying conditions and achieve the desired moisture content. The technology consumes significantly less overall thermal energy and requires less total boiler capacity to achieve the same overall level of production.

Because most of the moisture is released from green lumber during the early stages of drying, the hot air that is continuously exhausted from the initial zones in a continuous kiln has a high moisture content and contains large quantities of latent energy. This creates an excellent opportunity to recover thermal energy from this exhaust air and use it to preheat incoming make-up air, further reducing overall thermal energy consumption. When the continuous kiln vendor presented Pleasant River Lumber with the option to add a glycol-based energy recovery

⁴ Per personal correspondence with MaineHousing staff on August 31, 2017, based on the number of households that fall below 60% of the county median income level. LIHEAP has additional eligibility guidelines based on household size and resident health status.

package for its kilns, the company determined that the economic benefits of the incremental boiler fuel savings would not meet its return-on-investment criteria. Pleasant River Lumber contacted Efficiency Maine to see if the energy recovery options might be eligible for an incentive that would enable the company to move them forward.

Given the relatively complex, site-specific nature of the projects, Pleasant River Lumber worked with Efficiency Maine's Commercial and Industrial (C&I) Custom Program. The program was able to validate the predicted energy impacts and offer \$261,900 in RGGI-funded incentives. These awards defrayed a portion of the projects' combined \$838,600 capital cost, sufficiently reducing the simple payback from 6.9 years to 4.7 years. These investments will save Pleasant River Lumber approximately 2,564 tons of biomass boiler fuel annually, reducing the company's operating costs for years to come.

Resources:

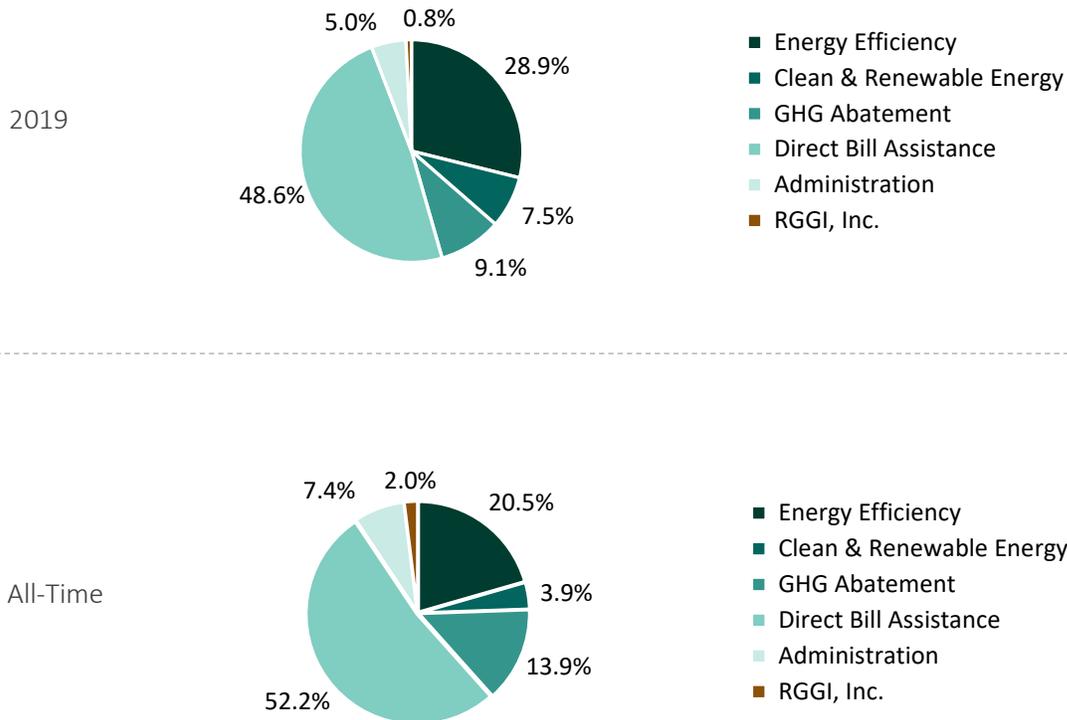
- Efficiency Maine website: <https://www.energymaine.com/>

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.

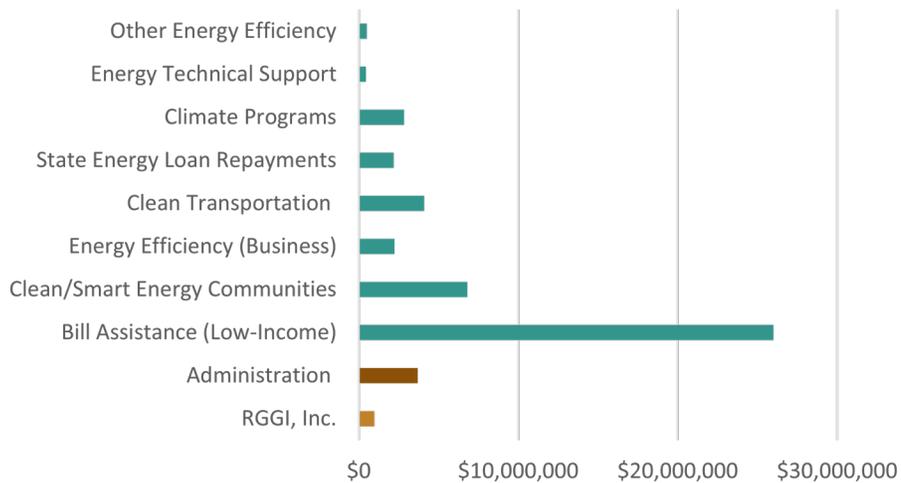
These programs are intended to reduce energy bills, create jobs in growing industries, help reduce greenhouse gas emissions, increase resiliency, and promote energy independence.

Chart 12: Maryland RGGI Investments by Category



Maryland received \$669M in proceeds from 2008-2019. RGGI investments represent \$49.8M in 2019, and \$656.3M cumulatively. \$12.7M is committed to 2020 and future programs.

Chart 13: 2019 Maryland RGGI Investments by Recipient



RGGI investments represent \$49.8M in 2019.

Program Highlight: Maryland Smart Energy Communities

The goal of the [Maryland Smart Energy Communities \(MSEC\)](#) program is to support local governments as they voluntarily adopt and commit to long term energy policies. Participating communities can benefit from sustained reduction of energy usage, cost savings, reduction in carbon footprint, and additional opportunities for renewable energy development.

The MSEC program is open to every incorporated town, city, and county in Maryland. Participating communities formally adopt at least two of three energy policy goals. These goals include:

- Energy efficiency - reduce energy consumption in government buildings 15%
- Renewable energy - meet 20% of electricity demand with distributed, renewable energy generation
- Transportation - reduce transportation-focused petroleum consumption by 20%

Participating MSEC communities can apply for grant funds to support projects that aid in achieving the adopted energy goals.

Through fiscal year 2019, a total of 76 Maryland communities have participated in the MSEC program.

Success Story: Town of Eagle Harbor

The Town of Eagle Harbor, located in Prince George's County, MD, became a MSEC community in 2019. Eagle Harbor adopted energy efficiency and renewable energy policies. The town then used the grant award from the MSEC program to implement lighting upgrades in town facilities, as well as upgrade the HVAC unit at the local community center. This project is anticipated to reduce Eagle Harbor's energy usage by about 35,000 kWh per year which is equivalent to saving about \$4,200 that the town can reinvest.



Resources:

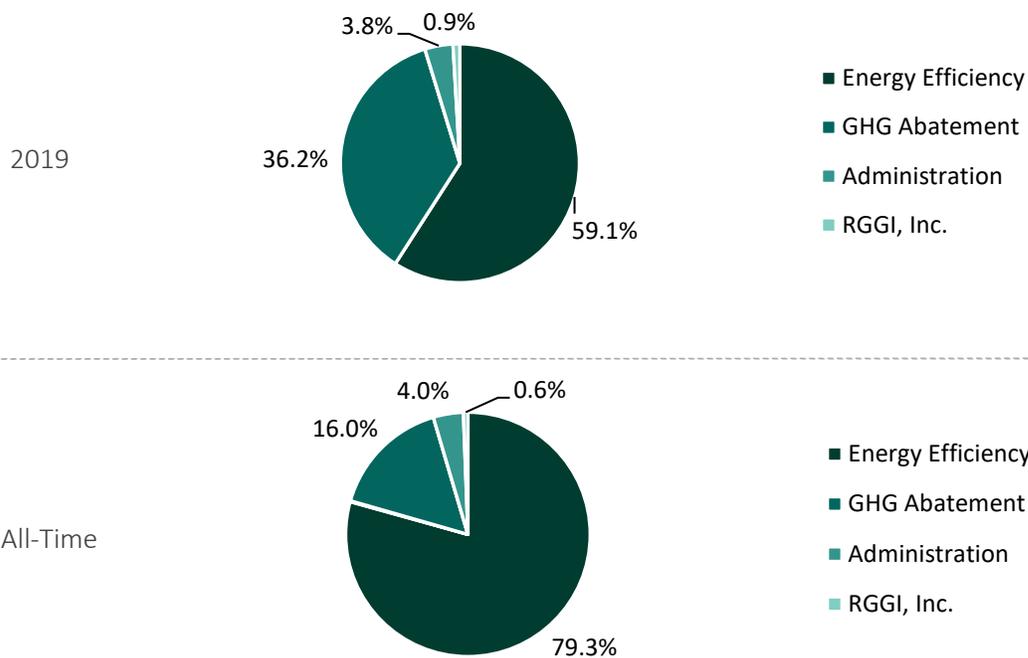
- [Maryland Energy Administration](#)
- [Maryland Energy Administration Incentives](#)
- [Maryland Energy Administration Success Stories](#)

Massachusetts

Since 2008, Massachusetts has invested more than \$526 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.

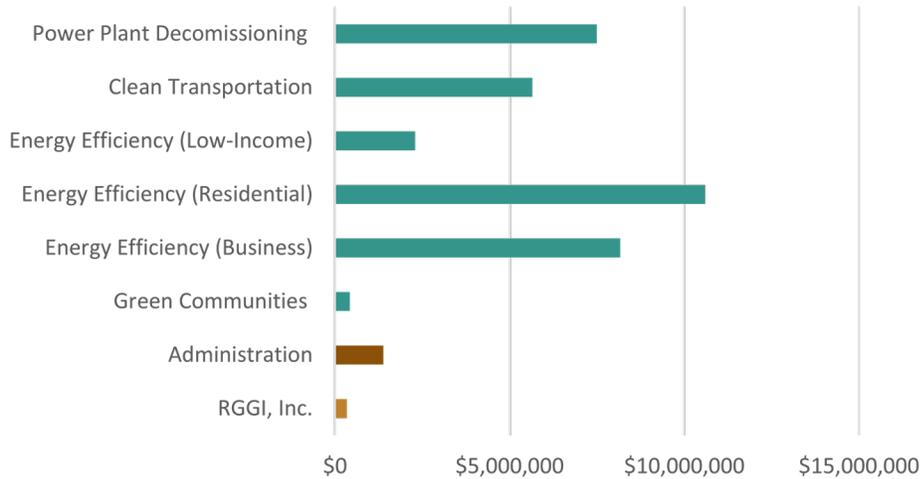
After administrative costs and required funding to communities affected by fossil fuel plant closures are allocated, 80% of remaining proceeds (net funding) are allocated to the statewide Energy Efficiency Investment Plans implemented through the Commonwealth's investor-owned utilities. These plans, 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.

Chart 14: 2019 Massachusetts RGGI Investments by Category



Massachusetts received \$559M in proceeds from 2008-2019. RGGI investments represent \$36.3M in 2019, and \$526.6M cumulatively. \$32.4M is committed to 2020 and future programs.

Chart 15: 2019 Massachusetts RGGI Investments by Recipient



Massachusetts RGGI investments represent \$36.3M in 2019.

Program Highlight: MOR-EV

The Massachusetts Offers Rebates for Electric Vehicles (MOR-EV) program is funded by the Executive Office of Energy and Environmental Affairs (EEA) and Department of Energy Resources (DOER) and is administered by the Center for Sustainable Energy (CSE). The program objective is to provide air pollution emission reductions for the Commonwealth by increasing the use of zero-emission vehicles (ZEVs). MOR-EV offers rebates of up to \$2,500 per electric vehicle and educates consumers and dealers about battery electric, plug-in hybrid electric and fuel cell electric vehicle rebates and benefits.

Launched in June 2014, MOR-EV supports the state's goals to reach 300,000 ZEVs on the roads by 2025. The program is designed to accelerate deployment of ZEVs in the Commonwealth by incentivizing residents to purchase or lease vehicles that will help

- Reduce greenhouse gas (GHG) emissions that contribute to climate change
- Protect public health and air quality by reducing transportation-related air pollution that contributes to smog formation and related health effects such as asthma and heart attacks
- Enhance energy diversity and security
- Save drivers money
- Promote economic growth in the Commonwealth

From the MOR-EV launch date, June 18, 2014, through September 10, 2019, the program issued/reserved rebates for 14,944 new ZEVs totaling \$30,496,700. MOR-EV experienced several changes during Program Year Five. DOER chose to reduce the program cap manufacturer's suggested retail price (MSRP). The new criteria went into effect on January 1st, 2019. Vehicles with a purchase price greater than \$50,000 were ineligible to receive a rebate. PHEV-class vehicles and ZEMs became ineligible for a rebate at the same time.

Due to funding issues, MOR-EV was closed from the end of September of 2019 to December 2019. Retroactive rebates were issued in 2020 for vehicles purchased during the lapse. Therefore, purchases made during the lapsed period will get rebates that come from the 2020 budget and have not been counted in this report.

In addition to helping the state work toward its goal of 300,000 ZEVs by 2025, the program's incentivized vehicles have directly avoided more than 37,000 metric tons of GHGs, which helps achieve program goals to reduce GHG emissions and other air pollutants.

Resources:

- <https://www.masssave.com/>

New Hampshire

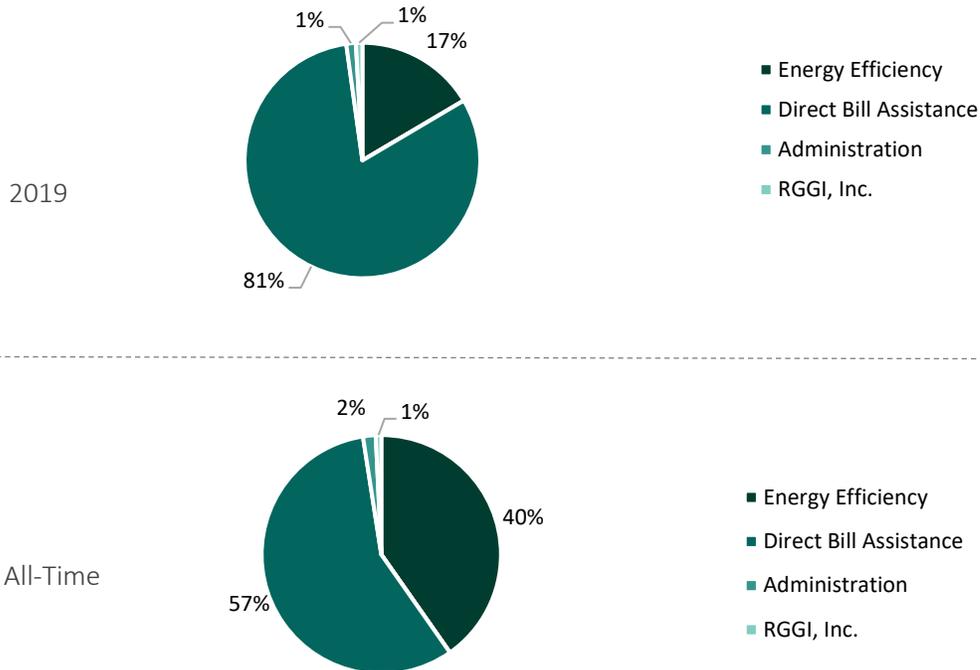
New Hampshire invests RGGI allowance proceeds in a variety of programs that reduce energy use in municipal and retail buildings, commercial and industrial facilities, and low-income households. RGGI allowance proceeds also provide direct bill assistance to reduce electric bills.

In 2019, New Hampshire received approximately \$16.6 million in RGGI allowance proceeds, of which approximately \$2.6 million was allocated to the Energy Efficiency Fund (EEF). The state's four electric utility companies administer energy efficiency fund programs through the EEF in combination with funds collected through the System Benefits Charge. Approximately \$13.5 million was used to provide direct bill assistance to New Hampshire electric consumers, \$0.2 million was allocated to specific energy efficiency program focusing on moderate income households, 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 2019, EEF funds were used to accomplish the following:

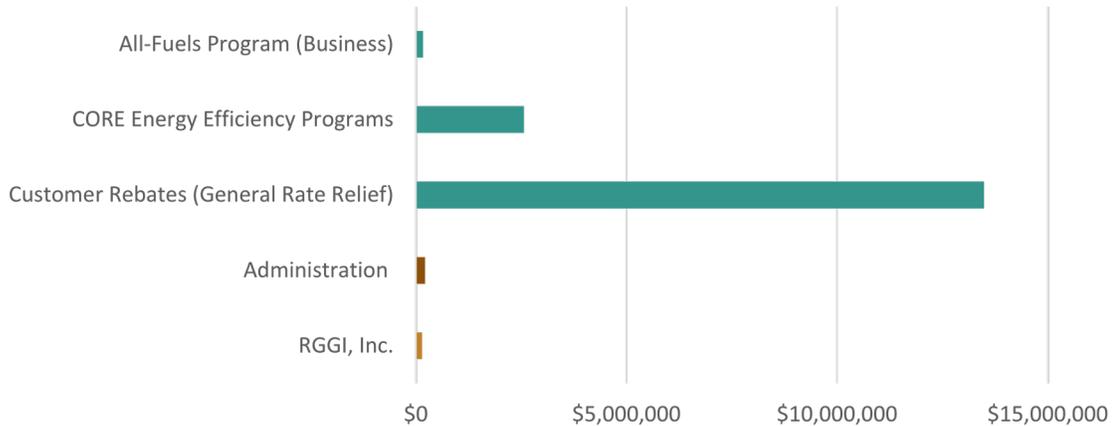
- Installed energy efficiency measures and efficient equipment in 185 municipal buildings;
- Weatherized 201 income-eligible homes; and
- Implemented energy efficiency measures and installed energy efficient equipment in 11 retail and large businesses.

Chart 16: New Hampshire RGGI Investments by Category



New Hampshire received \$157.3M in proceeds 2008-2019. RGGI investments represent \$16.6M in 2019 and \$157.1M cumulatively. Of the cumulative total, \$3.1M was transferred to the general fund and \$.2M is committed to future programs.

Chart 17: 2019 New Hampshire RGGI Investments by Recipient



New Hampshire RGGI investments represent \$16.6M in 2019.

Program Highlight: Efficiency Programs

The Home Energy Assistance and the Municipal programs will save approximately 61,612 megawatt-hours (MWh) of electricity and 199,608 million British Thermal Units (MMBtu) over the expected life of the energy efficient equipment improvements. Associated bill savings over the lifetime of these improvements is estimated to be \$13.9 million. The All-Fuels program will save approximately 258 MWh of electricity and 34,343 MMBtu over the expected life of the energy efficient equipment improvements. Associated bill savings over the lifetime of these improvements is estimated to be \$0.73 million.

The All-Fuels program was launched in 2016. From 2016 through 2018 the program received \$1.2 million of RGGI funding to support energy efficiency measures for retail businesses, and large commercial and industrial energy users. Beginning in 2019, the All-Fuels program supports energy efficiency measures for moderate-income residential energy users with household income of 200% to 300% of Federal Poverty Guidelines. Working with Community Action Agencies, the New Hampshire electric utilities will provide energy audits, and offer financial incentives for installation of energy efficiency measures. Beginning In 2019, this program will receive \$690 thousand of RGGI funding over a three-year period.

Success Story: Woodsville High School Energy Efficiency Project

A major renovation and addition to the Woodsville High School in Woodsville, New Hampshire presented an ideal opportunity for energy efficiency upgrades through the RGGI funded NHSaves Municipal Program. The project, which included 11,700 square feet of new space and renovation of 10,900 square feet of existing space, provided significant structural upgrades, safety and security features, and connection of previously separate buildings, bringing the original 1925 school up to current educational standards with a modernized layout, increased insulation, and other energy efficient features.

NHSaves provided \$39,492 in RGGI funded incentives. Efficiency measures included heating system upgrades, LED lighting retrofit and



controls, air source heat pumps, a high efficiency water heater, and variable frequency drives. These measures will save 2,719 gallons of propane, and electricity savings of 46,297 kWh per year. The measures also provide 14 kW in peak demand reduction.

The project also included many green features such as modernized storm water systems, new traffic loops with no idling policy, eco-friendly materials, increased daylighting in classrooms, low-flow plumbing, and improved building envelope design to meet specified air infiltration levels.

Supported by more than 80% of the voters in the community, the Woodsville High School project provides an excellent example of how energy efficiency can meet a variety of community needs, while ensuring reductions in energy use, carbon emissions, and energy bills for many years to come.



Resources:

1. [Energy Efficiency Program Regulatory Webpage](#)
2. [2019 System Benefits Charge and RGGI Results Report](#)

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, one of the most aggressive climate policies of any major economy. The State has already reduced electricity emissions by 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, focused on renewable generation deployment, and the ten-year, \$5 billion Clean Energy Fund, focused on buildings decarbonization, will continue to serve as a critical tool to reduce state-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. The EmPower New York program has used RGGI funds to provide no-cost energy efficiency services for thousands of low-income New Yorkers. In November of 2017, NYSERDA launched the Community Energy Engagement Program, which is co-funded through the Clean Energy Fund, to build awareness and increase uptake of local renewable and energy efficiency solutions.

Program Highlight: Community Energy Engagement

RGGI supports the Community Energy Engagement Program (CEEP), which deploys credible, local organizations as Community Energy Advisors to conduct energy awareness and education to residential, multifamily, and small business customers -- especially low- to moderate-income (LMI) households and communities. The focus of the engagement is reducing energy use and greenhouse gas emissions, with an emphasis on increasing the amount of funding and financing leveraged for the completion of clean energy projects and solutions. By engaging directly with residents, small businesses, and multifamily building owners, Community Energy Advisors help increase energy literacy and local understanding of the value of clean energy and reduced energy use.

Governor Cuomo announced CEEP in 2017, and since then, Community Energy Advisors have increased the uptake and participation in NYSERDA's clean energy programs and solutions. In 2019, Community Energy Advisors had assisted over 2,000 individual customers with applying for clean energy opportunities⁵, resulting in more than 3,900 expressed opportunities for clean energy interest in applying for programs. In addition, CEEP awarded over \$400,000 for Regionally Specific Initiatives that drive increased adoption of energy efficiency measures and other clean energy solutions for residents, multifamily, or small business customers. With the help from a Community Energy Advisor, one family in Peekskill, NY was able to receive energy efficiency upgrades including high-efficiency lighting, attic and wall insulation, and replacement of an old inefficient refrigerator, all at no cost to them. See the Feature Article in the Resources links below for more on this project.

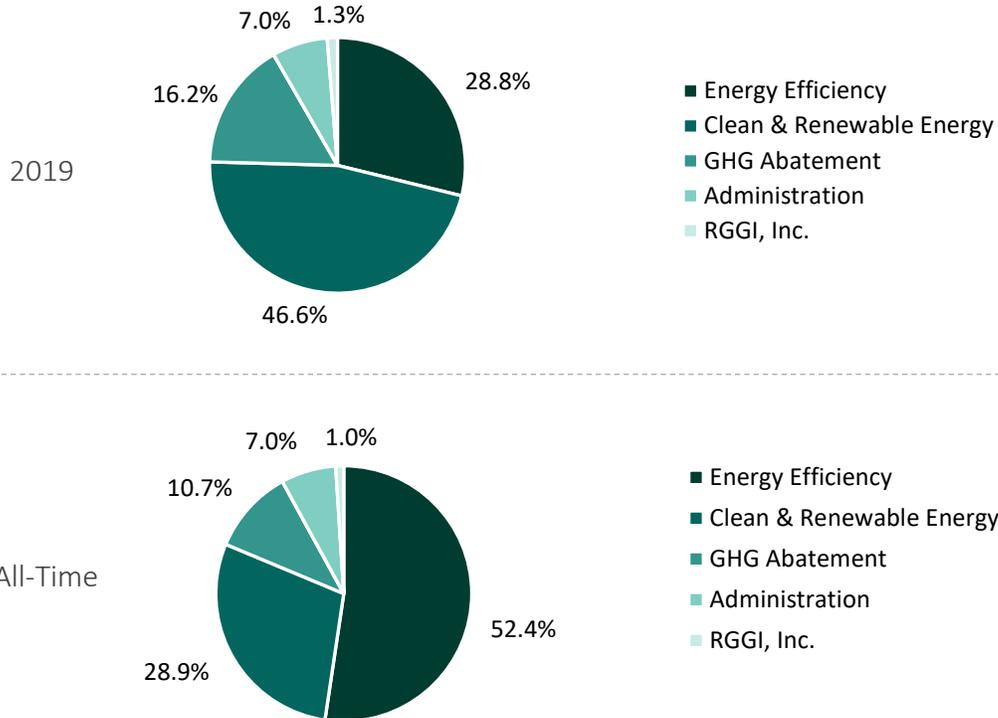
Success Story: EmPower New York

The EmPower New York program improves energy affordability for low-income New Yorkers by providing energy efficiency services for 1 to 4 family homes, including attic and wall insulation, air sealing, and health and safety measures. New York focuses RGGI funding for the EmPower program in municipal electric territories where, in 2019, the program served 40 households with \$147,871 and total realized yearly savings of 22 MBTU and 1094 kWh of savings per household. These energy savings reduced energy bills for these low-income consumers by an average \$495 a year. One family with electric heat living in Salamanca, NY received attic and wall insulation allowing for up to 19261 kWh of energy savings or \$2,964 on their utility bill. Another family on electric heat in Greene, NY was able to save an estimated 8225 kWh or \$808 in utility bill savings from similar building improvements. A third customer in Ilion, NY previously relied exclusively on kerosene heating, and had to buy their kerosene daily at the local gas station. They were able to save an estimated \$3,275 a year in heating costs through a combination of insulation, air sealing and installing a natural gas furnace. RGGI funding, through the EmPower program, serves as

⁵ Opportunities are referrals to NYSERDA or non NYSERDA clean energy programs that are self-reported by the Community Energy Advisors.

a vital source for enabling deep energy savings and significant bill savings for these energy over-burdened New Yorkers.

Chart 18: 2019 New York RGGI Investments by Category



New York received \$1.3B in proceeds from 2008-2019. RGGI investments represent \$65M in 2019, and \$917.5M cumulatively. \$271M is committed to 2020 and future programs.

Chart 19: 2019 New York RGGI Investments by Recipient



New York RGGI investments represent \$65M in 2019.

Resources:

- 2019 RGGI Operating Plan: <https://www.nysерda.ny.gov/Researchers-and-Policymakers/Regional-Greenhouse-Gas-Initiative/Useful-Documents>
- Clean Energy Industry reports: <https://www.nysерda.ny.gov/About/Publications/New-York-Clean-Energy-Industry-Report>
- RGGI Status Report: [Regional Greenhouse Gas Initiative \(RGGI\) Reports - NYSERDA](#)
- CEEP & EmPower Feature Article: <https://www.nysерda.ny.gov/-/media/Files/Publications/Case-Studies/communities-and-government/CEEP-midhudson-cs.pdf>

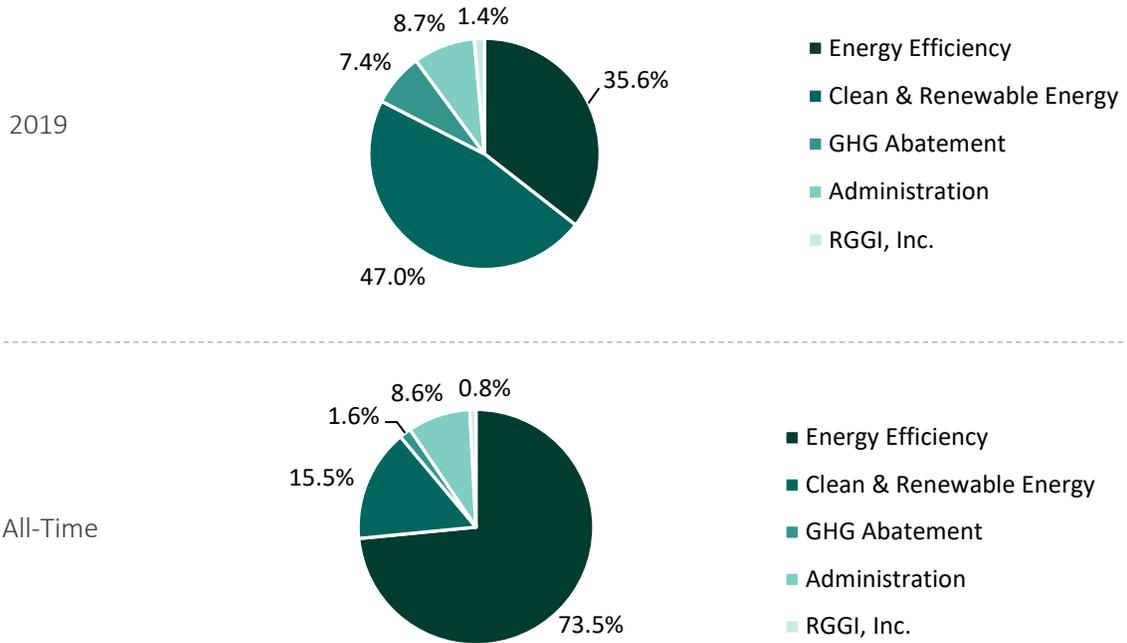
Rhode Island

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 2019, Rhode Island RGGI proceeds were allocated to support several important clean energy programs, including:

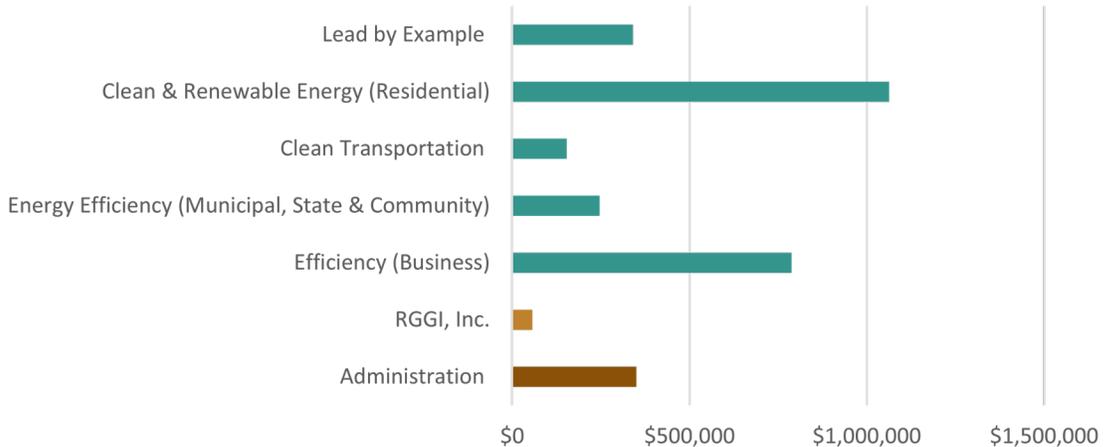
- Providing enhanced financial incentives to support Rhode Island municipalities with the conversion of local streetlights to high-efficiency LED technologies;
- Continued support for the Rhode Island Department of Environmental Management's Energy-Savings Trees program, which distributes trees to homeowners 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;
- Expanded cost-effective energy efficiency programs and incentives for utility customers located in the Pascoag Utility District;
- Support for the Rhode Island Infrastructure Bank's Efficient Buildings Fund (EBF). RIIB's EBF provides attractive, long-term financing to municipalities and quasi-public agencies for the completion of energy efficiency and renewable energy projects;
- Continued 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.

Chart 20: Rhode Island RGGI Investments by Category



Rhode Island received \$73M in proceeds from 2008-2019. RGGI investments represent \$4M in 2019, and \$50.8M cumulatively. \$22M is committed to 2020 and future programs.

Chart 21: 2019 Rhode Island RGGI Investments by Recipient



Rhode Island RGGI investments represent \$4M in 2019.

Program Highlight: Lead By Example

In 2015, the Governor issued Executive Order 15-17, which directs state agencies, cities and towns, quasi-public agencies, and state colleges and universities to “Lead by Example” by becoming more energy efficient and sourcing more of their power through renewable energy technologies.

Success Story: RI Army National Guard Rooftop Solar Array

The Rhode Island Army National Guard (RIARNG) installed a 207kW rooftop solar array on the 56 Troop Command Armory Building at Camp Fogarty in East Greenwich. The project is the largest rooftop solar array on a state facility in Rhode Island and is the ninth solar project contributing to the state’s Lead by Example initiative. The project is expected to generate \$45,700 in annual energy savings.

As one of the most critical facilities for the RIARNG, the armory houses several units that respond to natural disasters, pandemics, state of emergencies, and other critical events. With the building’s brand-new flat roof and a location free from shade, the armory was the perfect location for the RIARNG’s first solar project.



Resiliency is important to the RIARNG and implementing renewable energy will allow the organization to become more resilient. “The installation of a 207 kW-DC solar array on Camp Fogarty Armory made good organizational sense,” said Col. Sean McKiernan, CFMO. “The array is the largest rooftop solar array the State of Rhode Island has installed on a state facility to date. We all have a responsibility to safeguard our environment and serve as an example for others to follow.” *Photo courtesy of Newport Renewables*

This project was funded with RGGI proceeds in 2019 and 2020.

Resources:

- [Rhode Island RGGI Auction Proceeds Allocation Plans](#)
- [Rhode Island Office of Energy Resources September 2020 Newsletter](#)

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 2019 are estimated to result in lifetime energy savings of 4.4 million MMBtu. These programs are estimated to avoid the emission of over 260,000 short tons of CO₂, and to save participants over \$100 million on their energy bills over the lifetime of those investments. Vermont's RGGI-funded programs have served approximately 11,444 households and 650 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, the Home Energy Loan for residential customers, low-income energy efficiency services through 3E Thermal project management, custom commercial thermal efficiency projects, and technologies including woodstoves and heat pumps.

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 third in the nation in 2019, according to the American Council for an Energy Efficient Economy (ACEEE) State Energy Efficiency Scorecard

Program Highlight: Home Performance with ENERGY STAR and Home Energy Loan

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, and ventilation (heating systems improvements are also recommended). 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 \$4,000, 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.

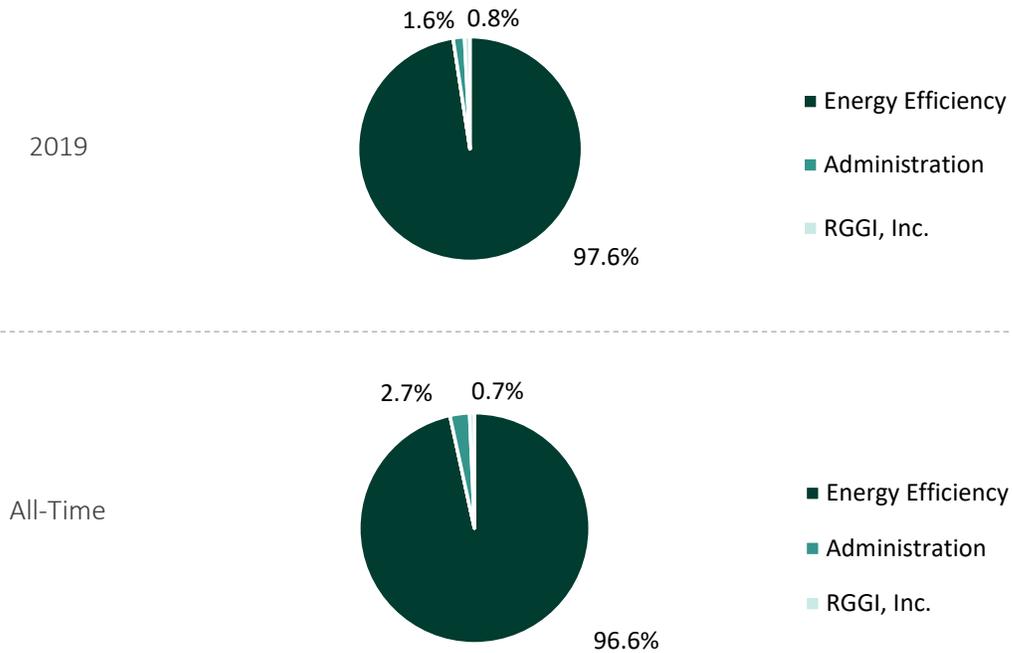
Home Performance with Energy STAR is a national brand managed by the U.S. Department of Energy (U.S. DOE). Across the US, 50 organizations sponsor local programs under this brand. Although local programs differ, they follow the same basic structure to ensure a comprehensive, whole-house approach to energy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



The RGGI funded portion of the Efficiency Vermont Home Energy Loan program provides residential customers financing for Home Performance with ENERGY STAR projects and other thermal efficiency projects, including woodstoves (pellet and cord wood), central pellet heating systems, and heat pump hot water heaters (when

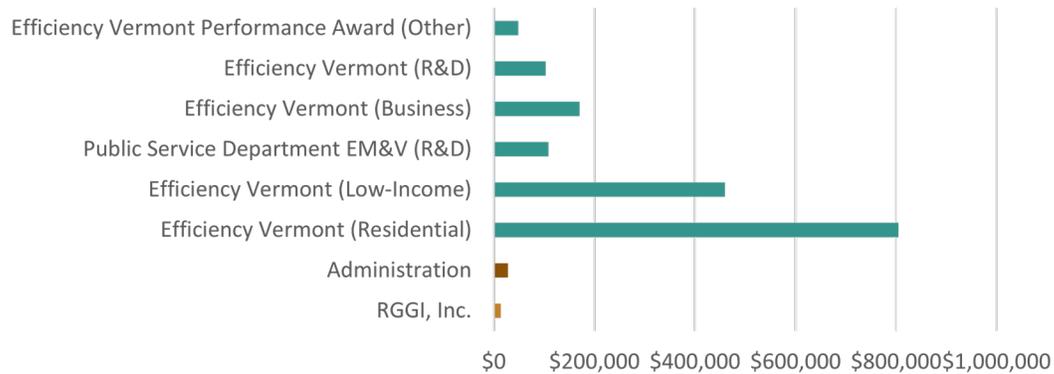
replacing fossil fuel heating systems), with income-based interest-rate buydowns and loan loss reserve support for participating lenders.

Chart 22: Vermont RGGI Investments by Category



Vermont received \$25.6M in proceeds from 2008-2019. RGGI investments represent \$1.7M in 2019, and \$23.5M cumulatively. \$2.2M is committed to 2019 and future programs.

Chart 23: 2019 Vermont RGGI Investments by Recipient



Vermont RGGI investments represent \$1.7M in 2019.

Success Story: Helping a moderate-income Vermonter weatherize her home

"This gives me comfort and a sense of security regarding heat and fuel." – Eva, a homeowner in Chester, VT

A lifelong Vermonter who grew up going to school in a one room classroom in Guildhall, Eva enjoys living simply, nurturing her garden and her family, and making things. Expensive energy bills pull her away from these simple joys and lead to stress. As summer faded into fall and winter loomed, Eva worried about getting through the winter's energy bills. After talking to Efficiency Vermont, she learned that she was eligible for Efficiency Vermont's new expanded incentives for weatherization of moderate-income households. Eva would get the maximum incentive of \$4,000 back for air sealing and insulating her basement and attic. She was also eligible for a zero-interest loan, funded by Efficiency Vermont, that would help break the remaining cost into monthly payments. The loan even helped cover the cost of a new roof the home needed, since the roof met insulation standards.

Eva worked with Vermont Foam Insulation to complete the weatherization project in November 2019, insulating and air sealing the basement and attic. HB Energy Solutions completed the roof installation, ensuring the new roof would meet high performance energy standards. Analyzing Energy acted as a General Contractor to coordinate the projects. All three are members of Efficiency Vermont's Efficiency Excellence Network of qualified contractors and partners. When she looked at the numbers, she knew she'd made the right choice. Based on her monthly oil costs, she estimates that weatherization will reduce her oil bills by at least \$70 per month. Those savings and the rebate help cover the monthly loan expenses. But money is just one piece of it. Eva is more comfortable this winter, and she is glad to let go of the stress she felt every time she looked at her bills.

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 2020 and beyond.

Current Period

The twelve-month period covered by this report, which may be either the fiscal year or calendar year 2019, as defined by each state.

Benefits and Statistics

Annual (2019)

A measure of one year's worth of benefits from all measures installed in 2019. Note that actual realized benefits in the year 2019 may differ slightly from the 2019 annual benefits, since measures may be installed at different times during the year.

Lifetime (2019)

The full benefits of measures installed in 2019, 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 2019 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.

Increased Employment

Total estimated job-years created as a result of RGGI funds invested, estimated on a regional basis based on literature review.

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.

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