The Regional Greenhouse Gas Initiative (RGGI)

An Initiative of the Northeast and Midatlantic States of the U.S.

Investment of RGGI Proceeds Through 2013

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www.rggi.org

Front Cover: this home in East Montpelier, Vermont, was one of many that received an energy-saving upgrade thanks to funds from RGGI.

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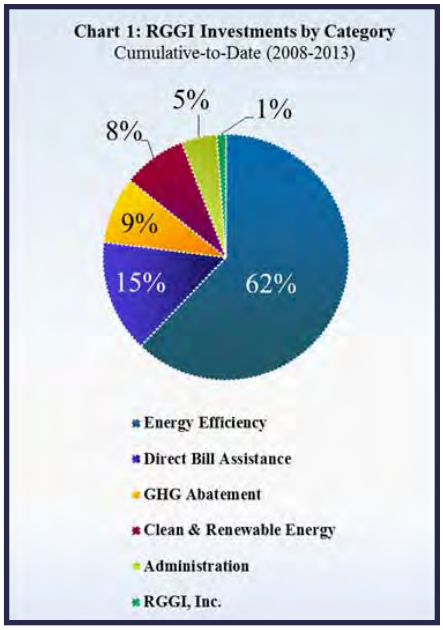
Executive Summary

The investment of proceeds from the Regional Greenhouse Gas Initiative (RGGI) has powered an investment of over $1 billion in the energy future of the New England and Mid-Atlantic states. This report reviews the benefits of programs funded through 2013 by RGGI proceeds, which have reduced harmful carbon dioxide (CO_2) pollution while spurring local economic growth and job creation.

Over their lifetime, these RGGI investments are projected to save more than 48.7 million mmBTU of fossil fuels and 11.5 million MWh of electricity, avoiding the release of approximately 10 million short tons of carbon pollution. As a whole, the RGGI states have reduced power sector CO_2 pollution over 40 percent since 2005, while their economies have grown 8 percent, adjusted for inflation.

RGGI programs also save consumers money and help support businesses. The investment of RGGI proceeds through 2013 is projected to return more than $2.9 billion in lifetime energy bill savings to more than 3.7 million participating households and 17,800 businesses.

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



Energy efficiency makes up 57 percent of 2013 investments and 62 percent of cumulative investments. Programs funded by these investments are expected to return more than $2.3 billion in lifetime energy bill savings to 1.2 million participating households and 17,550 businesses in the region.

Clean and renewable energy makes up 13 percent of 2013 investments and 8 percent of cumulative investments. RGGI investments in these technologies are expected to return more than $240 million in lifetime energy bill savings to 7,000 participating households and 250 businesses in the region.

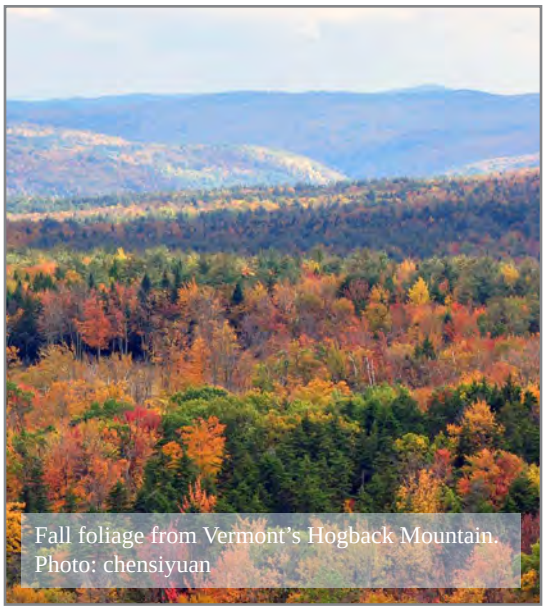
Direct bill assistance makes up 9 percent of 2013 investments and 15 percent of cumulative investments. Direct bill assistance programs have returned more than $140 million in bill savings to more than 2.4 million participating households.

Greenhouse gas abatement makes up 15 percent of 2013 investments and 9 percent of cumulative investments. RGGI investments in greenhouse gas (GHG) abatement are expected to avoid the release of 310,000 short tons of harmful CO_2 pollution into the atmosphere.

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

Introduction

The Regional Greenhouse Gas Initiative

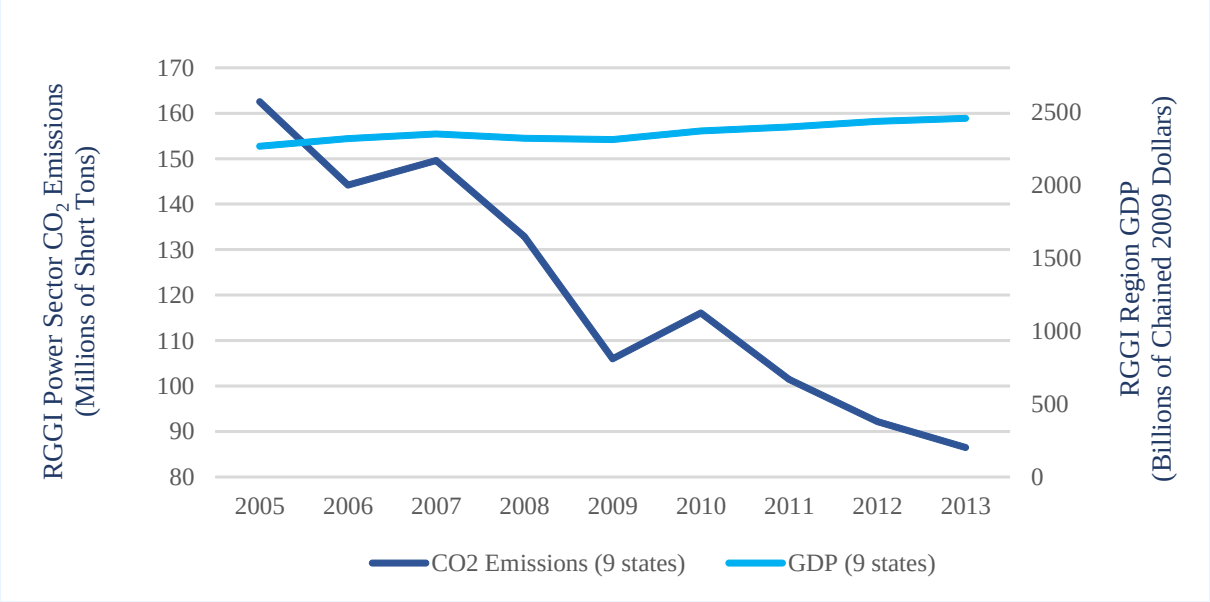

Fall foliage from Vermont's Hogback Mountain.
Photo: chensiyuan

RGGI is the nation's first mandatory GHG pollution reduction program for power sector CO_2 emissions. RGGI establishes a regional cap on the amount of CO_2 pollution that power plants can emit, by issuing a limited number of tradable CO_2 allowances. Each allowance permits a power plant to emit one short ton of CO_2.

RGGI is composed of individual CO_2 budget trading programs in each RGGI state, which together create a regional market for CO_2 allowances. This allows market forces to determine the most economic means of reducing emissions and creates market certainty needed to drive long-term investments in clean energy. The RGGI states also distribute almost all of the CO_2 allowances (approximately 90 percent) through regional CO_2 allowance auctions, generating proceeds for reinvestment in strategic energy and consumer benefit programs.

Each state's regulations are independent, and are based on the RGGI Model Rule. Each state issues CO_2 allowances in a pre-defined quantity that serves to cap CO_2 pollution, and establishes participation in quarterly regional auctions. Each state has complete discretion in the investment of RGGI auction and program proceeds, and all investment programs are independently administered and operated by the states.

Chart 2: RGGI Power Sector Pollution Reductions



Through 2015, the RGGI states have sold allowances in 27 quarterly auctions. Allowance prices have ranged from $1.86 to $5.41. These auctions have cumulatively raised over $2 billion for reinvestment.

The RGGI states have experienced a reduction of more than 40 percent in power sector CO_2 pollution since 2005, even as the regional economy has grown 8 percent (see Chart 2).[1] The RGGI states recently conducted a comprehensive program review to build upon this success and strengthen the program moving forward. These changes included a 45 percent reduction in the 2014 RGGI cap to 91 million tons.

This Report

This report is designed to inform the public on the use of funds generated by the auction of RGGI CO_2 allowances. It tracks investments made by the RGGI states (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont) through 2013.

Auction proceeds from a given year may not always be invested during the same year; when funds have been raised but not invested, they are referred to as “future committed” funds. See Table 1 for more clarification on the relationship between total investment and total proceeds within the context of this report.

Table 1: Investments as a Subset of Total Auction Proceeds

Description	Funds
Total proceeds through Dec. 31, 2013	**$1,567,758,635**
(-) New Jersey proceeds	$113,344,551
(-) Adjustment for fiscal reporting basis (MD, ME)	$56,382,681
(-) Transfers to general funds	$93,100,000
(-) Funds committed to 2014 and Future Programs	$288,310,611
Cumulative RGGI investments to date	**$1,016,620,792**

The data presented in the report is compiled using the output of state-based and program-based estimates for actual and projected savings and benefits. The methods of these analyses differ between states and between programs, which are each unique and operate independently. For example, a program offering discounts encouraging homeowners to use efficient lightbulbs would collect quite different data from a competitive-bid program offering grants to factories to install solar panels.

1. RGGI COATS. <https://rggi-coats.org/eats/rggi/>; Bureau of Economic Analysis, GDP by State 2005-2013. <http://www.bea.gov/regional/index.htm>.

Table 2: Cumulative Proceeds By State

State	Reporting Basis	Cumulative Proceeds Through 2013 Period
Connecticut	Calendar Year	$98,507,926
Delaware	Calendar Year	$45,883,979
Maine	Fiscal Year	$41,483,353
Maryland	Fiscal Year	$276,691,226
Massachusetts	Calendar Year	$252,877,181
New Hampshire	Calendar Year	$62,207,290
New York	Calendar Year	$583,366,397
Rhode Island	Calendar Year	$25,363,132
Vermont	Calendar Year	$11,650,918
RGGI Total		**$1,398,031,401**

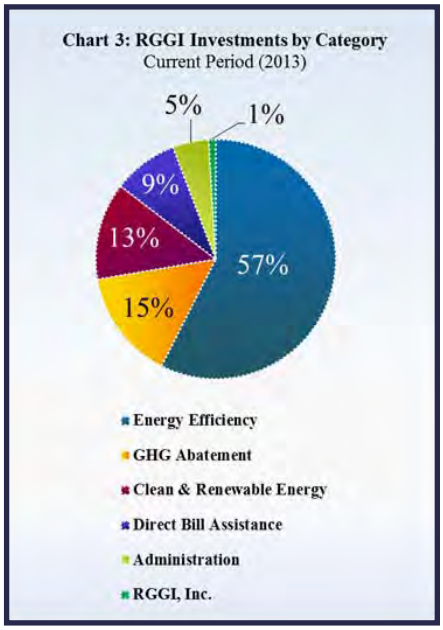
In some cases reporting also differs in its time schedule. As seen in Table 2, two states report program data according to the fiscal year (July 1 - June 30) rather than the calendar year.

To clarify these differences where they exist, an Appendix at the end of this document provides definitions of common terms, units, and categories (such as “Participating Households” or “MWh Saved”). Each definition generally discusses state-based or program-based variations. ✦

RGGI Investments

Total Investments

RGGI investments throughout the region cover a wide variety of programs, which divide into four basic categories: energy efficiency, renewable energy, direct bill assistance, and greenhouse gas abatement. Chart 3 displays how current period RGGI investments are divided between categories, and Charts 4 and 5 display the same information cumulatively for the program as well as differentiating more finely between program types.



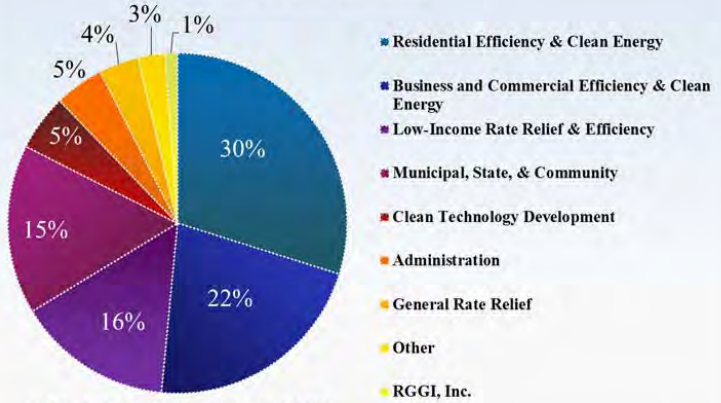
Overall, RGGI investments have benefited 3.7 million participating households and 17,800 participating businesses. These investments have saved participants money on their energy bills, created jobs, and reduced pollution. Over their lifetime they will save participants $2.9 billion on their energy bills and avoid the use of 11.5 million MWh of electricity and 48.7 million mmBTU of fossil fuel.

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 prices lower for everyone.
For more detail, see Table 3. ✦

Table 3: Programs Funded By Cumulative RGGI Investments

Participating Households To date: 3.7 million	**Energy Bill Savings** To date: $395 million Lifetime: $2.9 billion	**Short Tons CO_2 Avoided** To date: 1.3 million Lifetime: 10.3 million
Participating Businesses To date: 17,800	**Megawatt Hours Saved** To date: 1.8 million Lifetime: 11.5 million	**Equiv. Cars off Road** To date: 245,000 Lifetime: 1.9 million
Workers Trained To date: 3,700	**mmBTU Saved** To date: 2.9 million Lifetime: 48.7 million	

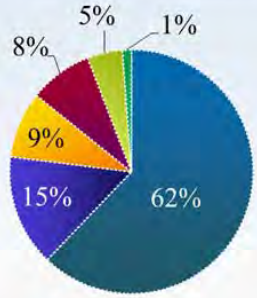
Chart 4: RGGI Investments by Program Type
Cumulative-to-Date (2008-2013)



TOTAL INVESTED: $1,016,620,792

A total of $1.39 billion in auction proceeds was received by the RGGI States through the period covered by this report. $1.01 billion was invested and $93.1 million was transferred to state general funds by acts of state legislatures. The remaining $288.3 million is committed to 2014 and future programs.

Chart 5: RGGI Investments by Category
Cumulative-to-Date (2008-2013)



Energy Efficiency

Electrical junction boxes and meters on a commercial building. Photo: David Tribble

Energy efficiency represents the largest portion of RGGI investments. More than 57 percent of 2013 RGGI investments, and approximately 62 percent of cumulative RGGI investments, have supported energy efficiency programs in the region.

Over the lifetime of the installed measures, these investments are projected to save participants $2.3 billion on energy bills, providing benefits to 1.2 million participating households and 17,550 participating businesses. They are also projected to avoid the release of more than 7.5 million short tons of CO_2 pollution (see Table 4).

These programs allow consumers and businesses to take full advantage of modern appliances, heating, and cooling, while using less energy and paying less on their energy bills. They accomplish this through measures such as upgrading appliances and lighting, weatherizing and insulating buildings, upgrading HVAC at offices, and improving industrial processes. For example, in Rhode Island RGGI funds enabled 67 nonprofits and community buildings to receive comprehensive efficiency upgrades, and in Maine RGGI proceeds helped retail customers to purchase over 1.9 million high-efficiency lightbulbs.

Table 4: Energy Efficiency Programs Funded By RGGI

Participating Households To date: 1.2 million	**Energy Bill Savings** To date: $240 million Lifetime: $2.3 billion	**Short Tons CO_2 Avoided** To date: 1.2 million Lifetime:7.5 million
Participating Businesses To date: 17,550	**Megawatt Hours Saved** To date: 1.7 million Lifetime: 8.9 million	**Equiv. Cars off Road** To date: 230,000 Lifetime: 1.4 million
Workers Trained To date: 3,700	**mmBTU Saved** To date: 2.8 million Lifetime: 47.8 million	

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.

Lowered energy costs create numerous benefits across the economy as families are able to invest savings in other priorities and businesses are able to grow. Thousands of jobs are estimated to have been sustained through increased business competitiveness across the region, and other programs such as home retrofits directly spur employment gains in housing and construction.

These investments, in concert with the broader energy policies in each RGGI state, have made an impact. Six RGGI states (Massachusetts, New York, Connecticut, Rhode Island, Vermont, and Maryland) once again ranked among 2013's top ten states for energy efficiency, according to a report by the American Council for an Energy Efficient Economy.[2] Another RGGI state, Maine, was ranked among the most improved. The carbon intensity of the RGGI states' energy sectors (in pounds per MWh) has also declined twice as fast as the country since 2005.[3] ✦

Efficiency Success Story: Hanlon/Hill Home

When Paul Hanlon and his partner Mimi Hill built their house near the base of Mount Worcester, VT in the late seventies, the modified saltbox design featured state-of-the-art energy efficiency components, such as two-by-six wall studs for more insulation, lots of south-facing windows, and a heat collector in the living room floor. Thirty-five years and several additions later, Paul and Mimi began wondering if they could further improve their home's performance. "We contacted Efficiency Vermont because we were interested in having an energy audit," says Paul.

William Fitzpatrick of Shelter Construction, a Participating Home Performance with ENERGY STAR® contractor, performed an energy audit and presented Paul and Mimi with an itemized break-down of the recommended energy efficiency improvements, complete with costs and estimated return-on-investment (ROI). Paul and Mimi decided on the following efficiency improvements:

• Air sealing throughout the attic, around bath and light fixtures, ceiling and base moldings, and in the basement and crawlspaces.

• Adding cellulose loose fill insulation to the open attic areas above the living room, kitchen, and master suite.

• Installing spray foam insulation and rigid board insulation to the basement/crawl space, above and below grade areas.

Paul and Mimi were delighted with the results and the project qualified for $1,121 of incentives provided by Efficiency Vermont. The estimated reduction in air leakage is 28%, and they're saving $750 annually on energy costs. "Our home is far more comfortable, especially the basement," adds Paul—which is great because that's where he spends countless hours year-round enjoying his model trains.

2. ACEEE, 2013. "The 2013 State Energy Efficiency Scorecard." < http://aceee.org/sites/default/files/publications/researchreports/e13k.pdf>.
3. EIA, Net Generation by State by Type of Producer by Energy Source, US Electric Power Industry Estimated Emissions, 2005-2012. <http://www.eia.gov/electricity/data/state/>.

Clean and Renewable Energy

Wind turbine in Massachusetts.
Photo: Teratornis

More than 13 percent of 2013 RGGI investments, and more than 8 percent of cumulative RGGI investments to date, fund clean and renewable energy programs in the region. Over the lifetime of the installed measures, these investments are projected to offset more than $240 million in energy expenses for 7,000 participating households and 250 businesses. They are also projected to avoid the release of more than 640,000 short tons of CO_2 pollution (see Table 5).

Many RGGI-funded clean energy (non-fossil fuel) programs provide grants or low-interest financing to businesses and homeowners seeking to install on-site renewable or clean energy systems. For example, they might deploy rooftop solar panels, farm-based wind turbines, or fuel-cell systems. These programs allow participants to minimize up-front expenses and use the savings generated by the installed measure each month to pay for the system.

Clean energy systems require labor to install, and many programs additionally require that components be manufactured in-state. This directly creates jobs and boosts local economic activity. Energy expenditures that otherwise might purchase out-of-state fossil fuel resources are kept within the region. Just like energy efficiency, “behind-the-meter” programs also contribute to lowering wholesale electricity prices by effectively lowering the demand for electricity at the wholesale level. As demand for electricity decreases, the most expensive power plants run less often, driving prices down for all consumers in the long run. When households and businesses (both those with and without clean energy systems) save money on their bills, this indirectly boosts the economy as the money can be spent or reinvested elsewhere.

Table 5: Clean and Renewable Energy Programs Funded By RGGI

Participating Households To date: 7,000	**Energy Bill Savings** To date: $14 million Lifetime: $240 million	**Short Tons CO_2 Avoided** To date: 40,000 Lifetime: 640,000
Participating Businesses To date: 250	**Megawatt Hours Saved** To date: 78,000 Lifetime: 980,000	**Equiv. Cars off Road** To date: 7,700 Lifetime: 120,000
	mmBTU Saved To date: 3,000 Lifetime: 63,000	

RGGI proceeds are just a small part of significant investments in clean and renewable energy in the region, and together these actions are having measurable impact on the energy mix. Since 2005 RGGI states have increased their non-hydro renewable generation by 47 percent. In 2012 the RGGI states derived 46 percent of total generation from clean or renewable sources.[4] ✦

New York RGGI Proceeds Help Drive Private Investment in Solar Development

RGGI proceeds are driving private investment into solar development on Long Island. More than 3,500 homes and 40 non-residential properties mark the beginning of RGGI-funded solar energy projects in the area through Governor Andrew M. Cuomo's NY-Sun initiative. When the projects are completed, they will produce close to 32 megawatts of electricity. A little more than $11 million in RGGI proceeds has helped leverage $125 million in private investment to fund these projects. Long Island has a strong history with solar; it has installed approximately 41 percent of all the solar projects in New York State and recently celebrated its 10,000th solar installation, adding clean, renewable solar energy and greatly reducing carbon emissions.

NY-Sun is a $1 billion initiative to advance the scale-up of solar and move the state closer to having a sustainable, self-sufficient solar industry. It provides a multifaceted approach to spur solar development, including incentives; training for solar installers; a standardized solar permit for communities; K-Solar, to help schools lower their energy costs by going solar; and Community Solar NY, which makes implementing solar easier and more affordable for communities.

4. EIA, Net Generation by State by Type of Producer by Energy Source, 2005-2012. <http://www.eia.gov/electricity/data/state/>

Direct Bill Assistance

Electricity bills are a part of the household budget.
Photo: Pixabay

Direct bill assistance returns money to consumers on their energy bills. More than 9 percent of 2013 RGGI investments, and more than 15 percent of cumulative RGGI investments to date, have funded direct bill assistance. RGGI investments in Direct Bill Assistance have returned more than $140 million in bill savings to more than 2.4 million participating households (see Table 6). The average participant saved $58.

These programs provide rate relief to electricity consumers in the RGGI region. Many programs provide specific assistance 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, and can provide an important resource to families struggling to afford fuel during the winter months.

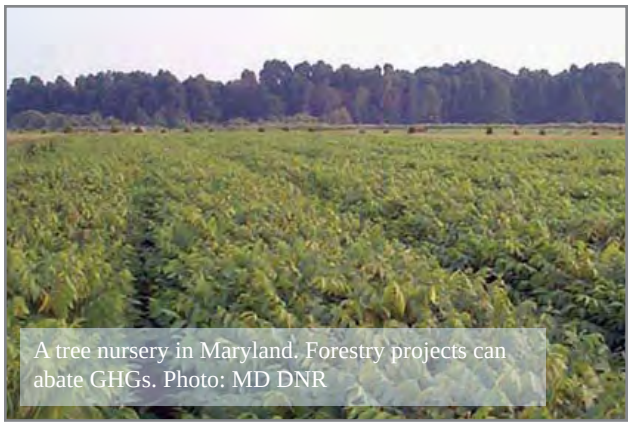
Direct bill assistance programs support economic activity by providing funds directly to consumers who can then spend those funds on other priorities. As they only provide benefits for the length of the bill-assistance program, and do not provide the ongoing benefits associated with energy efficiency improvements or renewable energy installations, bill-assistance programs have lower lifetime economic benefit than other programs. They also do not reduce or affect wholesale electricity prices.

Direct bill assistance programs are not designed to provide environmental benefits, as they do not directly reduce or offset fossil-fueled electricity use. RGGI proceeds provide only a small percentage of low-income direct bill assistance programs across the states. Other sources of funds come from on-bill system benefit charges and federal funds, in the case of LIHEAP programs. ✦

Table 6: Direct Bill Assistance Programs Funded By RGGI

Participating Households	Energy Bill Savings
To date: 2.4 million	To date: $140 million

GHG Abatement


A tree nursery in Maryland. Forestry projects can abate GHGs. Photo: MD DNR

GHG abatement programs promote the research and development of advanced energy technologies, the reduction of vehicle miles traveled, and the reduction of GHG emissions in multiple sectors. More than 15 percent of 2013 RGGI investments, and approximately 9 percent of cumulative RGGI investments to date, fund GHG abatement programs in the region. Over their lifetime these investments are expected to avoid the release of 310,000 short tons of harmful CO_2 pollution into the atmosphere (see Table 7).

These programs vary according to local needs. Some examples have included fuel-cell powered municipal buses, grants for industrial process improvements that reduce emissions from local industry, and forestry projects that enhance wildlife habitats while increasing carbon sequestration. Each program is designed to select and support specific projects that will significantly reduce GHG emissions.

GHG abatement programs vary in the types of economic benefit they provide. Many competitive projects reduce electricity and fossil fuel use as part of their efforts to reduce overall emissions. Certain programs generate economic benefits similar to those realized through energy efficiency and clean and renewable energy programs.

GHG abatement projects are generally optimized to reduce emissions, which may actually increase electricity use at a facility if it is determined that this energy source is less carbon-intensive than the current alternative (e.g. oil or propane) for certain industrial or HVAC processes. ✦

Table 7: GHG Abatement Programs Funded By RGGI

Participating Households
To date: 31,000

Energy Bill Savings
To date: $2 million
Lifetime: $14 million

Short Tons CO_2 Avoided
To date: 32,000
Lifetime: 310,000

mmBTU Saved
To date: 77,000
Lifetime: 770,000

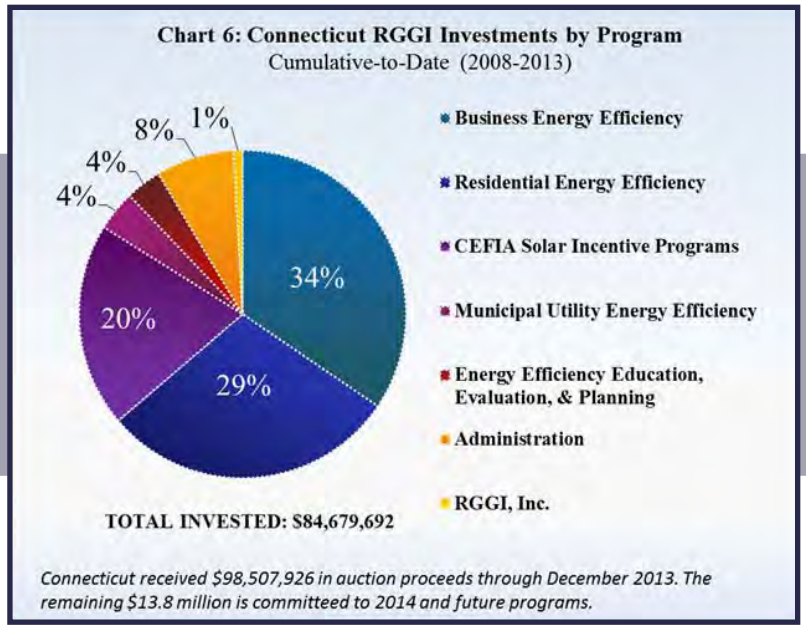
Equiv. Cars off Road
To date: 6,100
Lifetime: 59,000

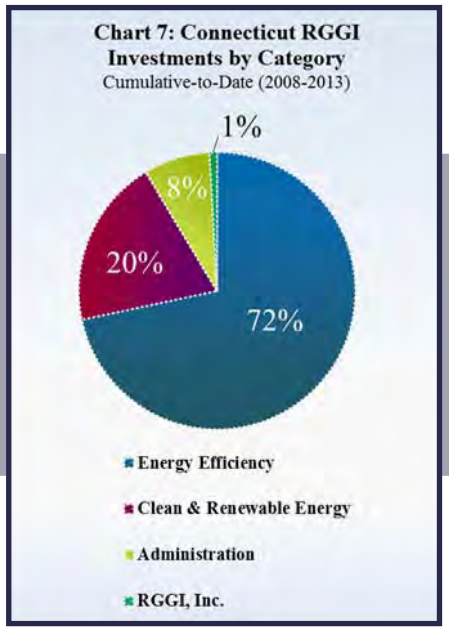
RGGI States

Connecticut

During 2013, Connecticut allotted 72 percent of its RGGI proceeds to the Connecticut Energy Efficiency Fund (CEEF) and just over 4 percent to the Connecticut Municipal Energy Cooperative (CMEEC). The CEEF is administered by the electric and local gas distribution companies (EDCs and LDCs) in the state, and both CEEF and CMEEC efficiency programs are under the direction of the Energy Efficiency Board (EEB).

The CEEF supports a portfolio of programs that provide services and incentives designed to enable the adoption of energy-efficient measures and behaviors by Connecticut's residents and businesses. These programs range from the flagship Home Energy Solutions (HES) program, which provides energy audits for households, to the Energy Opportunities program, which funds efficiency projects for large commercial and industrial customers. In 2013, through the investment of RGGI proceeds and additional ratepayer funds, CEEF's programs served over 39,000 homes and 4,040 businesses.





Through CMEEC, Member Electric Utilities (MEUs) provide a fully implemented portfolio of energy efficiency initiatives. During 2013, RGGI proceeds enabled energy audits of 1,031 homes or residential units through the Home Energy Savings program, and incentives for lighting projects at two apartment complexes and a nursing home through the C&I Existing Facility Retrofit program. Along with these energy efficiency investments, Connecticut invests 23 percent of its RGGI proceeds in renewable energy programs supported by the Connecticut Green Bank (formerly known as the Connecticut Clean Energy Finance and Investment Authority, or CEFIA). To attract and encourage private investment in clean and renewable resources in Connecticut, the Connecticut Green Bank leverages public funds, including its share of RGGI proceeds. The Connecticut Green Bank provides incentives and low-cost financing to clean energy and energy

efficiency projects. The Connecticut Green Bank invested its 2013 RGGI proceeds towards the development of solar photovoltaic (PV) and fuel cell installations in commercial, municipal, non-profit, and educational settings, and the installation of residential solar PV systems. A portion of the funds were used to partner with private capital partners to invest in commercial and industrial renewable energy through the Connecticut Green Bank's nationally recognized Commercial Property Assessed Clean Energy (C-PACE) program, earning a return on the RGGI dollars for Connecticut ratepayers.

Connecticut's energy programs have attracted the recognition of The American Council for an Energy-Efficient Economy (ACEEE) and the Department of Energy (DOE). ACEEE ranked Connecticut fifth in the nation on its 2013 State Energy Scorecard, and distinguished the CEEF's HES, Residential New Construction, and Small Business Energy Advantage programs as noteworthy in its Fourth National Review of Exemplary Programs. Along with other awards, the DOE recognized the CEEF as the 2013 ENERGY STAR® Partner of the Year in Energy Efficiency Program Delivery.

Program Highlight: Clean Energy Communities

The Clean Energy Communities program, also partially funded by RGGI, is a partnership between CEEF and the Connecticut Green Bank that encourages Connecticut cities and towns to reduce their municipal building energy consumption. The program aims for participants to incrementally reach a 20 percent reduction by 2018, and to purchase 20 percent of their municipal electrical needs from renewable energy sources. In 2013, The Connecticut Light and Power Company and The United Illuminating Company launched the Energize Waterbury and Energize Hamden campaigns to introduce residents and businesses to available programs, financial options and other resources. Together, the two campaigns reached more than 4,300 homes and businesses, saving a projected 1.76 million in kilowatt hours (kWh) and over $579,000 annually.

Success Story: Energy Saving Measures at the Calabro Cheese Corporation

The Calabro Cheese Corporation (Calabro Cheese), a family-owned manufacturer in East Haven, Connecticut, has been making quality Italian cheeses for 60 years, using only fresh, locally obtained ingredients and traditional old-world recipes. Calabro Cheese turned to The United Illuminating Company to help identify energy upgrades for cost-saving benefits to its 74,000-square foot facility.

Through the CEEF's Energize Connecticut programs, Calabro Cheese completed several energy-saving measures in 2013, including an exterior and interior lighting retrofit; refrigeration motor replacement and evaporator fan controls; steam trap repair and replacement; insulated steam trap jackets; and a new compressed air distribution system. Annual energy savings of 148,949 kWh of electricity and 62,556 ccf of natural gas are expected as a result. These measures were supported by a $56,457 incentive, partially funded by RGGI proceeds.

With the incentive, the measures are expected to pay for themselves over the next ten years by providing an estimated savings of $95,769 annually.

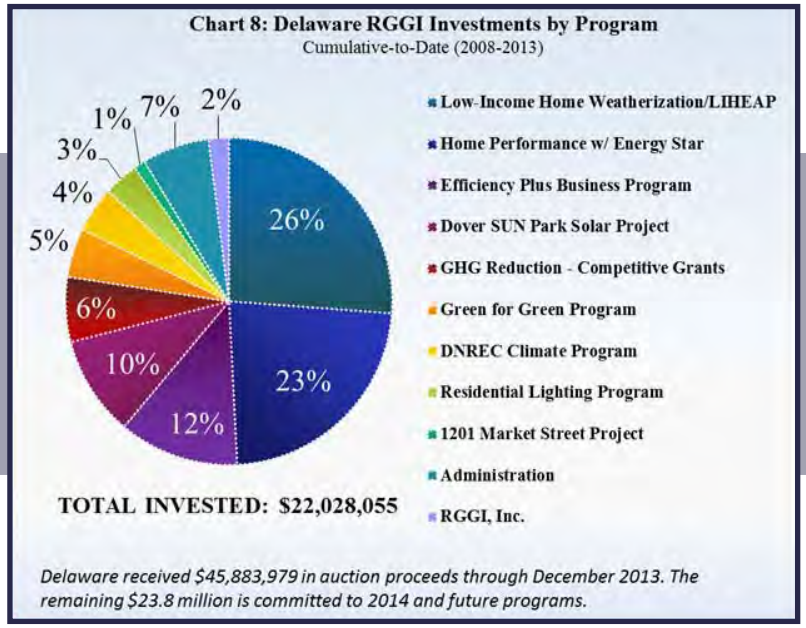
Resources:

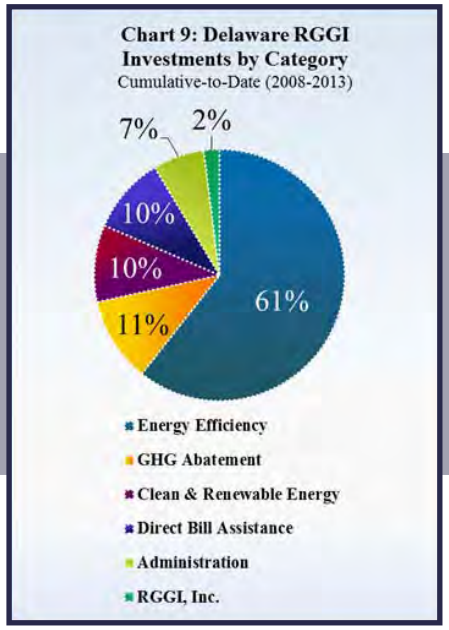
- Connecticut Energy Efficiency Fund 2013 Report
- EnergizeCT
- The Connecticut Green Bank

Delaware

Delaware has invested the majority of its CO_2 allowance proceeds in energy efficiency and renewable energy programs. The Delaware Sustainable Energy Utility (SEU) hosts a variety of programs for residents, Delaware-based businesses, and non-profit organizations. All programs administered by the SEU are dedicated to increasing on-site energy efficiency, energy conservation, and the deployment of clean energy.

In 2013, the SEU reinvigorated the Green for Green program as well as launching the Energy Assessment Program for Non-Profits. The Green for Green Program is a residential construction program offering incentives for home buyers that purchase energy and water efficient, sustainably built homes. Between 2010 and 2013, the Green for Green Program has served over 350 new homes in the State of Delaware. The Energy Assessment Program for Non-Profits is an innovative program that provides experiential learning collaboration between the Sustainable Energy Utility and The University of Delaware.





Delaware invests proceeds into projects that directly reduce GHG emissions and promote innovative climate policy. To date Delaware has invested approximately 11 percent of RGGI proceeds into GHG reductions and policy development. In 2013, the State of Delaware used RGGI funds to assist in the deployment of Executive Order 41, which was directed at reducing GHG, increasing resilience to climate change and flood, and sea level rise avoidance. The Executive Order has resulted in the development of a state GHG emissions target, over 150 climate change adaptation recommendations, and specific guidance for state investments to avoid areas subject to flooding and future sea level rise.

Home weatherization and heating assistance to low-income Delawareans is also a key area for RGGI proceeds investments. Delaware has invested approximately 61 percent of its cumulative-

to-date investments in low-income home weatherization and low-income heating assistance, implemented by the Delaware Division of Energy and Climate housed in the Department of Natural Resources and Environmental Control (DNREC).

Program Highlight: The Energy Assessment Program for Non-Profits

The Sustainable Energy Utility's (SEU) new Energy Audit for Non-Profits Program is an innovative partnership with the University of Delaware's Industrial Assessment Center. This program allows University of Delaware students studying energy efficiency technologies to gain real world experience with energy audits and energy improvements. This program targets buildings that are home to Delaware non-profit and governmental organizations. To date this program has completed 20 audits of community centers, fire houses, non-profit social service agencies, churches, schools, and local government buildings. The recommendations provided through the audits can save these organizations up to 25% off of their annual utility bills. The SEU pays 90% of cost of audit and also follows up with funding and financing assistance for the improvements identified in the audit. Follow-up surveys are done after one year to determine actual implemented savings. The audits have found over $11.5 million in lifetime energy savings potential and over twenty graduate students are gaining hands on experience.

Success Story: The Delaware Green for Green Program

The Green for Green program is a residential "green" construction program first offered in the summer of 2010 that provides homebuyer rebates after the purchase of a certified green home. The Green for Green program leverages existing national green certification programs to promote the construction of new green homes through customer rebates. The program offers incentives ranging from $1,000 to $4,500 to customers who purchase newly constructed homes certified by the by the National Green Building Standard (NGBS), Leadership in Environmental and Energy Design (LEED), or that have a Home Energy Rating System (HERS) of 59 or less. The program is implemented by the Home Builders Association of Delaware (HBADE) with funding from the Delaware SEU.

The Green for Green program has supported over 160 rebates which have totaled over $516,000. The energy and water efficiency and weatherization measures that are installed in these homes will save residents $3 million on their bills over the lifetime of the home. Currently, there are 17 home builders certified in the program and over 50 Delaware communities have participated. The Central Delaware and New Castle Habitats for Humanity programs are enrolled in this program, saving low-income Delawareans energy and money.

"Our goal is to transform the homebuilding culture in Delaware by creating demand for energy efficient homes, this has been a popular program for home buyers," said Tony DePrima, DESEU Executive Director.

Resources:

- Energize Delaware
- Delaware Weatherization Assistance Program

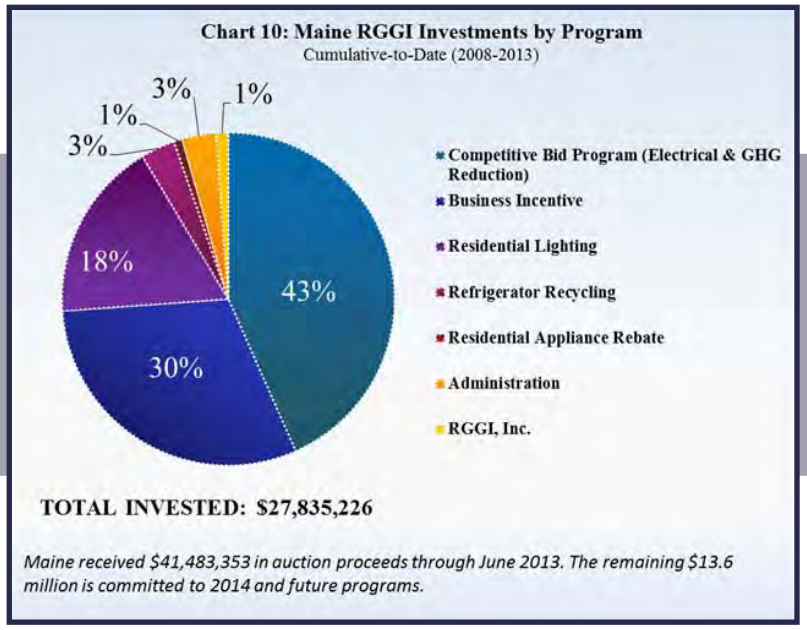
Maine

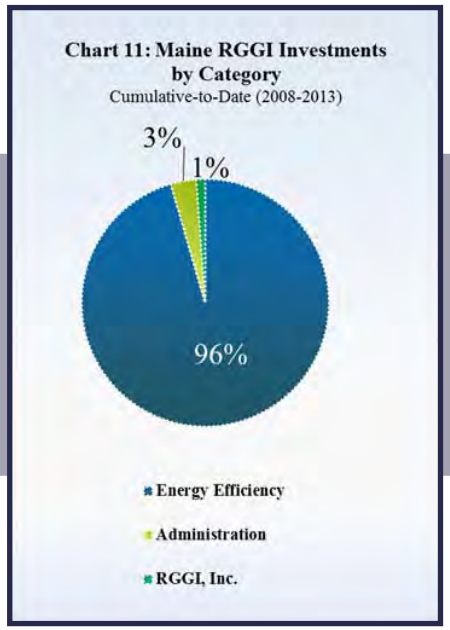
Starting in July 2012, Maine invested 95 percent of its CO_2 allowance proceeds directly in residential and commercial energy efficiency programs and grants for large-scale industrial energy efficiency and conservation projects. The Maine Department of Environmental Protection (DEP) and Efficiency Maine are authorized to use a portion of proceeds to support program administration, as well as carbon offsets research.

Efficiency Maine is the independent, third-party administrator for all programs in Maine that help to promote all-fuels energy efficiency for Maine residents and businesses. In aggregate, 2013 investments in electric efficiency programs have conserved 1.49 billion kilowatt hours of electric consumption and lowered present and future electric costs for participants in Maine by more than $142 million. 2013 programs funded by RGGI include a highly successful retail lighting and appliance rebate program, a rapidly expanding business incentive program, and industrial and large commercial competitive bid programs that are helping Maine businesses sustain jobs and stay competitive. Most Efficiency Maine programs are funded by a combination of system benefit charges, forward capacity market proceeds and RGGI proceeds.

Maine's statutory 10- and 20-year energy savings targets include:

- Capturing all cost-effective energy efficiency resources available for electric and natural gas utility ratepayers
- Achieving electricity, natural gas and heating oil savings of 20 percent within a decade
- Substantial weatherization of all homes by 2030





Program Highlight: Retail Programs

Compact fluorescent light bulbs (CFLs) and Light-Emitting Diodes (LEDs) use 75% less electricity for the same light output and last longer than traditional incandescent bulbs. Yet the higher initial cost of efficient bulbs – both CFLs and LEDs -- results in most consumers continuing to buy

incandescent bulbs. Efficiency Maine's Retail Lighting Program works to overcome first-cost barriers by collaborating with ENERGY STAR lighting manufacturers and retailers to lower the price of CFLs and LEDs. The program also educates consumers about the benefits of efficient lighting. This program is used by customers of all income levels.

Partially funded by RGGI and continuing the program performance of the past two years, in 2013, 1,995,685 high- efficiency bulbs, including 37,987 LEDs, were purchased or distributed through the program. 168,960 CFLs were distributed through the Good Shepherd Food Bank to low-income households throughout the state.

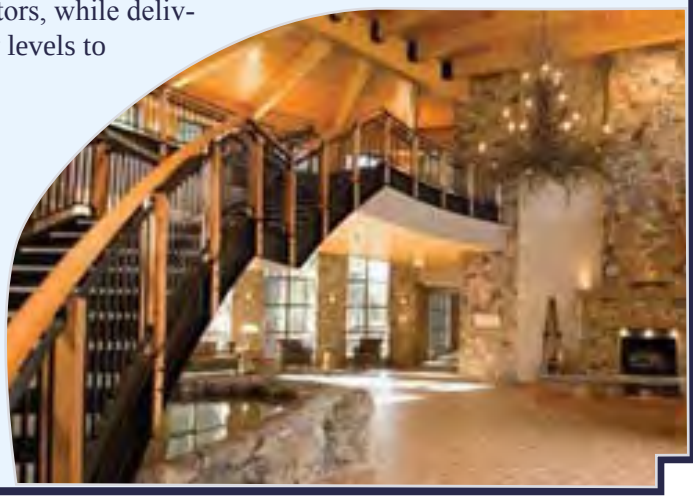
Efficiency Maine has worked with appliance retailers throughout the state to educate sales staff on the benefits of ENERGY STAR electrical appliances and offer rebates for customer purchases of new, qualified units. At the beginning of the fiscal year, these appliances included refrigerators, clothes washers, and dehumidifiers. The list was expanded mid-year to include water heaters, freezers, air conditioners, and air purifiers. Through incentives partially funded by RGGI, Mainers purchased more than 20,000 energy-efficient refrigerators, clothes washers, room air conditioners, room air purifiers, freezers, water heaters and dehumidifiers saving millions of dollars through avoided energy costs.

Success Story: Medical Arts Center at Franklin Community Health Network

The new Medical Arts Center at Franklin Community Health Network in Farmington is designed to look like an old-fashioned Maine woods lodge. But in this new building—and the renovated main hospital—state-of-the-art technology is hard at work to save energy while delivering critical medical care. Efficiency Maine provided $59,532 in incentives to help the hospital make several improvements:

- High-efficiency fluorescents now provide all the lighting, with occupancy and daylight sensors to turn them off when they're not needed.
- HVAC systems use highly efficient motors, while delivering precise temperature and humidity levels to operating rooms.
- Variable-speed drives now cut motor power consumption in half.

These energy-efficiency measures reduce Franklin Community Health Network's electric bills by 28%. With incentives from Efficiency Maine, they'll pay back in less than 6 months; estimated annual savings will be over $45,000 in electricity and $3,000 in labor.



Resources:

- Efficiency Maine 2013 Annual Report

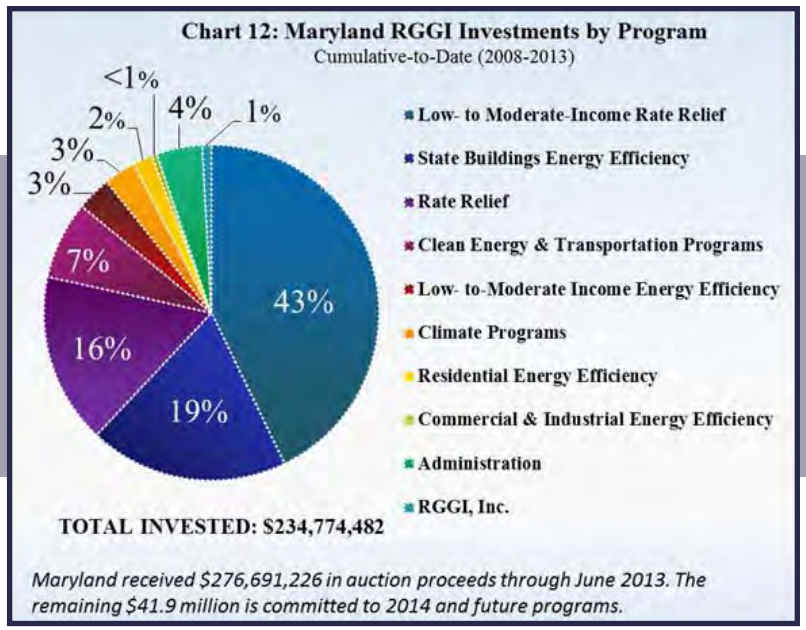
Maryland

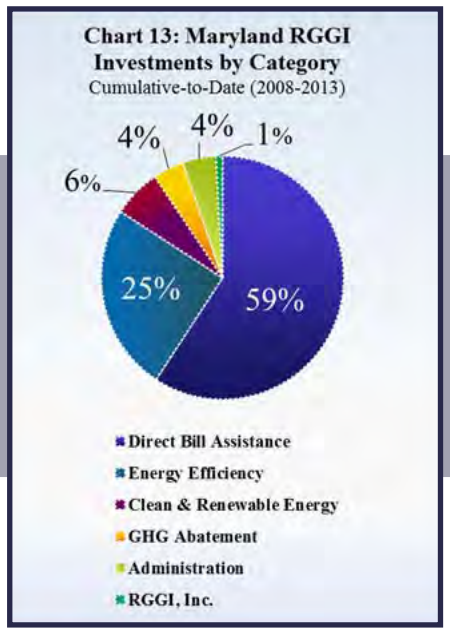
Maryland invests proceeds from the sale of CO_2 allowances into the State's Strategic Energy Investment Fund (SEIF), a special, non-lapsing fund administered by the Maryland Energy Administration (MEA). MEA deploys SEIF funds to promote affordable, reliable and clean energy across all of Maryland's diverse regions and communities. These programs have reduced household bills, created new jobs in growing industries, and promoted energy independence. The programs have also significantly reduced the energy costs of Maryland's businesses.

Maryland's energy efficiency investments have:

- Supported energy efficiency upgrades at 11,880 low- to moderate-income households;
- Funded technical assistance, energy assessments, and rebates for energy efficiency equipment at 369 farms;
- Provided energy efficiency job training to 900 workers; and
- Saved Marylanders nearly $119 million in estimated lifetime energy savings.

RGGI allowance proceeds have also helped 5,206 families and 201 businesses in Maryland install solar, wind, and geothermal systems. In addition to offsetting the need for more than 553,632 MWh of electricity generation over their lifetimes, these new distributed renewable energy systems over their lifetimes are estimated to save Marylanders more than $82 million on their electricity bills. In addition, the State has returned more than $38.5 million directly to ratepayers through its on-bill rate relief program and has used more than $100.5 million to help 215,800 low-income households pay their energy bills.





Program Highlight: EmPOWERing Clean Communities Program

Since its inception in 2009, Maryland's RGGI-funded EmPOWERing Clean Communities program has provided energy efficiency grants to 173 local governments and non-profits across all regions of the State to provide 11,880 low-to-moderate income families with energy efficiency improvements on their homes. This program has enabled organizations ranging from Habitat for Humanity to the Boys and Girls Club to local housing authorities to implement energy efficiency initiatives.

In all, the EmPOWER Clean Communities program will help avoid the consumption of 173,355 MWh of electricity and 2,728,929 mmBTU of fuel oil, propane, and natural gas. These savings will provide program participants with more than $61 million in estimated lifetime energy savings.

Success Story: Maryland businesses thrive with upgrades from RGGI-funded program

Thanks to assistance from the Jane E. Lawton Conservation Loan Program, the Buccini/Pollin Group (BPG) completed approximately $1,031,500 in energy and cost-saving improvements at its BWI Hilton facility located in Linthicum Heights, Maryland. The improvements were designed to save money, increase operational efficiencies, and reduce the environmental impact of the hotel.

BPG partnered with Trane Energy Services to complete a formal audit of the facility to identify energy conservation measures (ECM). The measures included installation of lighting retrofits, engineered common area controls, and guest room occupancy controls. The installed solutions are projected to save at least $158,400 in energy costs annually.

The project was financed through a combination of a rebate program and a loan program. A $500,000 rebate was obtained through BG&E's Smart Energy Savers Program in connection with the EmPOWER Maryland initiative. The remaining $531,500 was financed through a low-interest loan through Maryland Energy Administration's Jane E. Lawton Conservation Loan Program, which was partially capitalized using RGGI revenue.

"We are absolutely thrilled with the savings and our guests and associates are benefitting from the improvement in building temperature comfort and lighting" says Christie Blomquist, Director of Facilities, PM Hospitality Strategies.

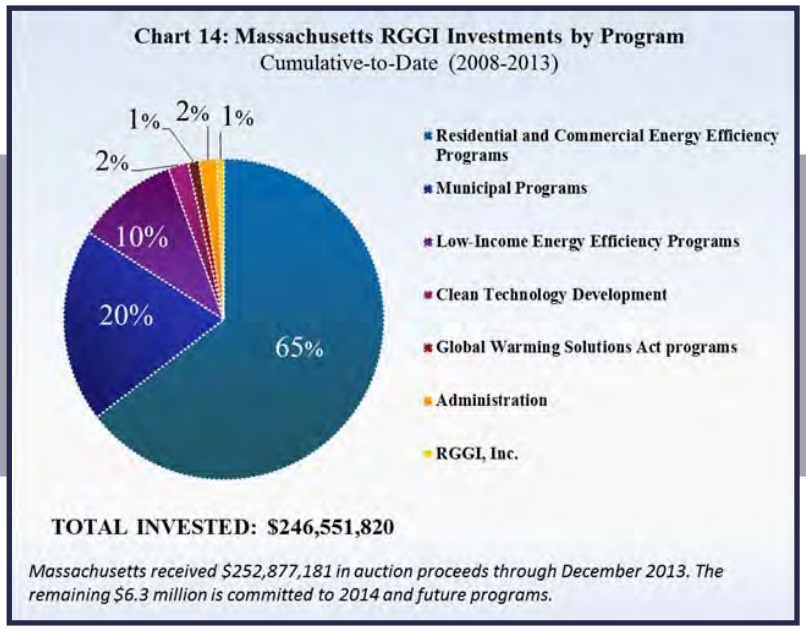
As a result of the energy-saving improvements, the BWI Hilton will save 1,181,406 kWh of electricity and 30,914 Therms of heating fuel per year. This energy savings equates to a reduction of 1,089 short tons of CO_2 or CO_2 equivalent emissions annually.

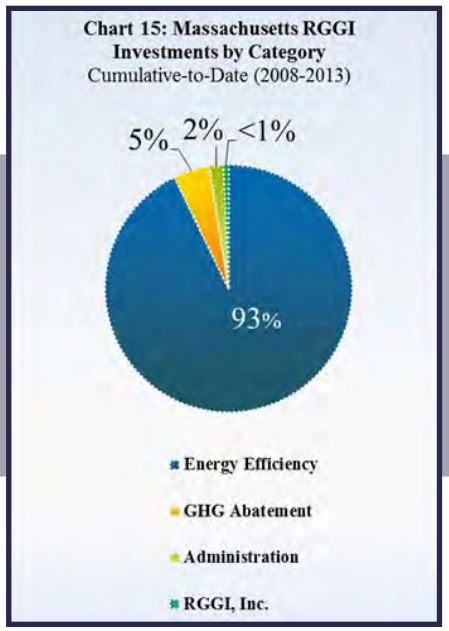
Resources:

- Maryland Energy Administration
- Maryland Energy Administration Success Stories

Massachusetts

Massachusetts has put its RGGI allowance proceeds to work advancing the Commonweath's energy goals. Since 2008, Massachusetts has received more than $252 million in RGGI proceeds, and more than 90 percent of these funds have been directed into strategic energy programs and initiatives. Two top programs are the Energy Efficiency Investment Plans delivered statewide through Mass Save®, and the Green Communities Designation and Grant Program providing funds to communities that meet ambitious energy criteria. These programs reduce harmful pollution, build the Commonweath's clean energy economy, and increase the predictability of energy costs for homes and businesses.





Through 2013, investor-owned utilities and energy efficiency providers delivered Mass Save® statewide energy efficiency programs to Massachusetts residences and businesses, generating a total of $2.8 billion in lifetime benefits. These programs have received nearly 70% of all cumulative RGGI investments, and gain additional funding through the state's Energy Efficiency Reconciliation Factor (EERF), system benefit charges, and regional forward capacity market auction proceeds.

Mass Save programs provide energy assessments, air sealing and weatherization, and rebates for highly efficient lighting, boilers, furnaces and air conditioning. They incentivize the implementation of combined heat and power, and enable industrial facilities to improve process efficiency. RGGI proceeds also support incentives to promote the development of markets for energy-efficient technologies. This can include building code consultations, community-based initiatives, public education and outreach, and other programs helping to develop and commercialize energy-efficient products and practices.

Massachusetts' energy policies, and programs including those funded in part by RGGI proceeds, have made Massachusetts the nation's top state for efficiency according to the American Council for an Energy Efficient Economy's 2013 Scorecard.

Program Highlight: Low-Income Energy Efficiency Program

RGGI proceeds supported low-income energy efficiency programs in 2013, which successfully exceeded savings goals. These programs targeted low-income residential and multi-family homes, addressed barriers to energy efficiency, and implemented energy-saving measures that resulted in direct economic, environmental, and health benefits. In total, these programs resulted in over 37,000 short tons of avoided greenhouse gas emissions with more than 20,000 households receiving electricity improvements, including energy efficiency lighting upgrades.

Success Story: Gloucester, Massachusetts

RGGI auction proceeds have enabled the historic seaport of Gloucester, Massachusetts to cut greenhouse gas emissions and significantly reduce energy consumption and costs. Gloucester was designated a "Green Community" by way of achieving five statutory clean energy benchmarks, and has accessed RGGI funds through grants available to all 136 designated municipalities. In particular, the four projects highlighted below leveraged approximately $198,200 in Green Communities funds and gained an additional $156,664 in utility incentives. RGGI funds contributed primarily to controls and lighting upgrades.

At Gloucester High School, the city completed two efficiency projects using both Green Communities grant funding and utility financing. The school upgraded its boiler controls, improving efficiency by allowing pumps and the boiler to be enabled and disabled on command. Automated building controls were replaced, allowing for better building scheduling and demand control ventilation. Combined, these two projects are projected to reduce natural gas use by 17,180 therms annually.

At O'Maley Middle School, RGGI funds allowed the school to upgrade to automated controls for air handling units. This is estimated to reduce electric and fuel oil consumption 5 percent annually at one of the city's top four energy consumers.

A fourth project at the Sawyer Free Library involved retrofitting or replacing the building's interior and select exterior lighting. This measure alone is projected to reduce electric consumption for another of Gloucester's top energy consumers by 20 percent.

Realizing these energy savings through energy efficiency projects is "exciting because it's part of being a Green Community," said Tom Daniels, the city's community development director. "It saves money, and it's good for the environment," he said.

Resources:

- MassSave
- Massachusetts Dept. of Energy Resources' Green Communities Program

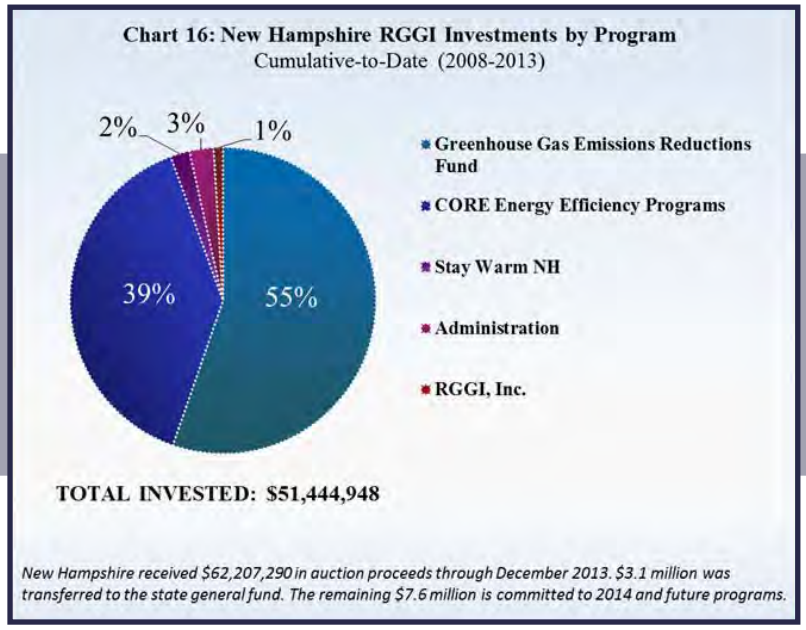
New Hampshire

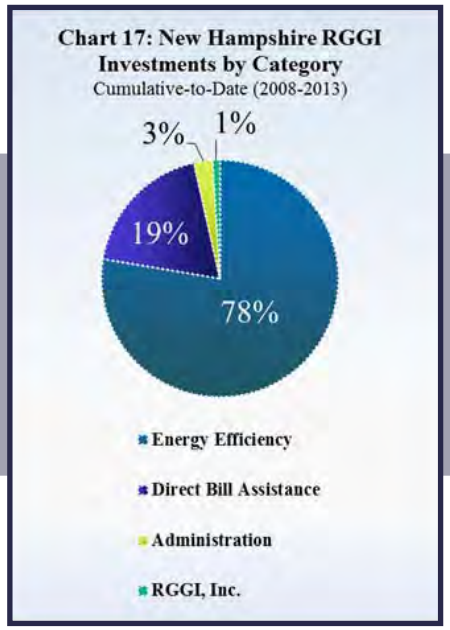
In 2013, New Hampshire invested approximately $9.1 million in RGGI allowance proceeds to its Energy Efficiency Fund (EEF), which, in conjunction with the System Benefits Charge, funds efficiency programs administered by state's electric utility companies. Legislative changes beginning in 2013 revised the state's RGGI proceeds investment plan leading to approximately $9.7 million providing direct bill assistance to NH electric consumers.

In 2013, $8.2 million from the Energy Efficiency Fund was used to expand programs run by the four New Hampshire electric utilities, enabling them to:

- Weatherize 444 income-eligible homes and 141 high energy use homes.
- Work with builders to certify 113 of their new homes as ENERGY STAR.
- Incent the purchase of 137 high-efficiency appliances.
- Help New Hampshire residents purchase and install 77,172 CFL or LED light bulbs.
- Upgrade to highly efficient equipment at 455 businesses and municipalities.
- Host workshops throughout the state educating code officials, home builders, homebuyers, realtors and more on the energy code and how to build above code.

These projects will save 281,313 MWH of electricity and 829,256 MMBtus over the expected life of the energy efficient equipment improvements. Projected lifetime energy savings due to 2013 spending is expected to be approximately $83 million.





Program Highlight: Income Eligible Weatherization Projects

Income-eligible weatherization in New Hampshire receives funding from the federal Department of Energy Weatherization Assistance Program and from the Energy Efficiency Fund. In 2013, New Hampshire increased the per home weatherization cap from $5,000 to $8,000 to ensure the state-wide programs could completely service the homes.

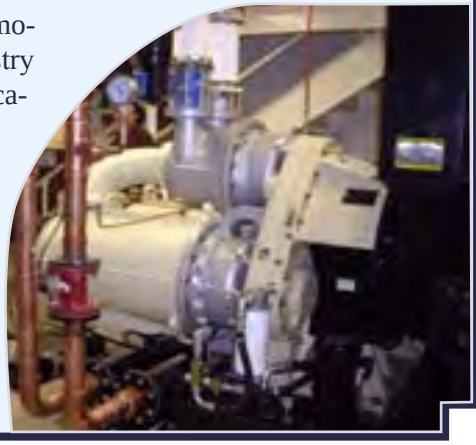
The expanded income-eligible weatherization program utilized $2.4 million from the EEF to weatherize an additional 444 homes owned or occupied by income-eligible customers. In addition, if these homes had a failed heating system, it was replaced during the weatherization project. The success of the expanded program was due to a collaborative effort among the NH Office of Energy & Planning, NH Community Action Agencies, the NH Public Utilities Commission, and the NH electric utilities who implemented the program.

The weatherization services provided residents with an estimated savings of 150 gallons of heating oil per year, worth nearly $500 at $3.25 per gallon. “The Energy Efficiency Funds, along with the program enhancements, created significant energy savings that helped participating customers live more comfortably in their homes and enabled them to use the dollar savings for other living expenses,” said Ryan Clouthier, Southern NH Services Community Action Agency.

Success Story: Manufacturing LED Head Lights Becomes More Energy Efficient

Osram Sylvania located in Hillsboro, New Hampshire manufactures automotive lighting, including LED lighting products for the automotive industry. The manufacturing process utilizes a significant amount of compressed air. Replacing two compressors rated at 850 HP with one 800 HP 3-stage centrifugal air compressor with a variable frequency drive resulted in savings of 269,000 kilowatt-hours annually. In addition, this improvement resulted in better overall system control as the existing compressors had incompatible controllers, making it difficult to optimize the sequencing during startup and normal operation.

The Osram Sylvania Hillsborough facility, which is the Automotive Lighting’s lamp headquarters, has many first-in-the-industry products to its credit, including red neon for brake light applications; amber neon for turn signals; fluorescent for auto interior; high-intensity discharge headlights; plastic headlights; halogen innovations; miniature lights with a wedge base for improved reliability; and many others. The facility also houses a laboratory devoted to new innovations in automotive lighting. Also, the Hillsborough facility is ISO 14001 certified, showing a deep commitment to management of environmental issues.



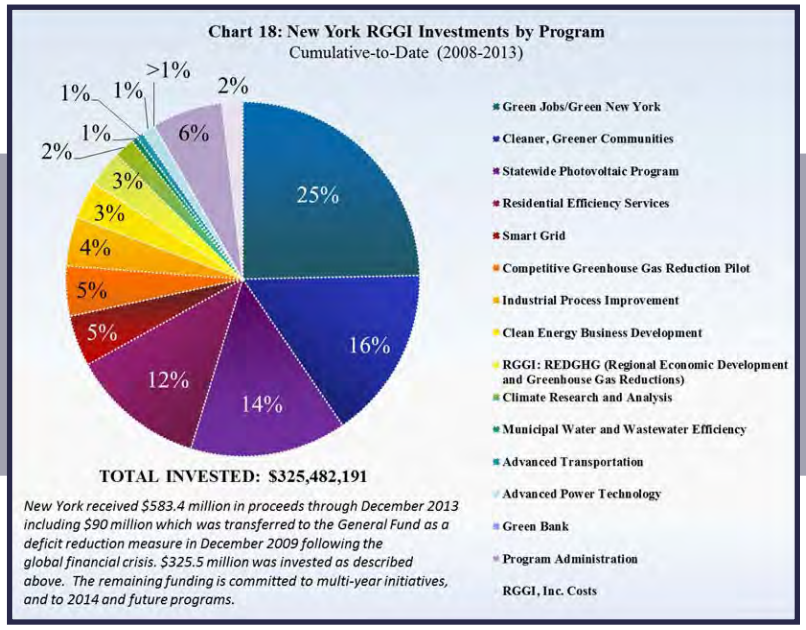
Resources

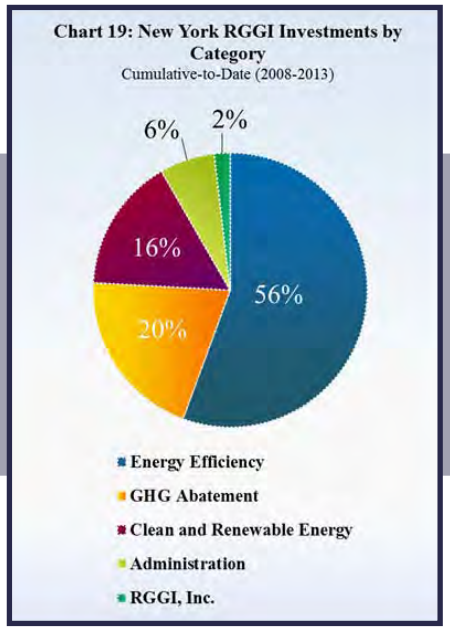
- 2013 RGGI Annual Report to NH Legislature
- New Hampshire Public Utilities Commission Greenhouse Gas Emissions Reduction Fund

New York

New York State invests RGGI proceeds to support comprehensive strategies that reduce global climate change and pollution through energy efficiency, renewable energy, and carbon abatement technology. The strategic goals of RGGI investment in NY are five-fold: reducing NY's GHG emissions through energy efficiency and renewable energy projects, building NY's capacity for long term carbon reduction, empowering communities to transition to cleaner energy, stimulating entrepreneurship and growth of clean energy companies in NY, and, creating innovative financing to increase adoption of clean energy.

NY's innovative approach spans the entire green energy economy. RGGI funds are invested in transformative activities to remove barriers and enhance adoption of carbon reduction practices. One way that New York is advancing these goals is by empowering communities through programs like Cleaner, Greener Communities, Climate Smart Communities and Community Solar NY. These programs provide support for sustainability planning and project aggregation that helps communities to lower GHG emissions and capture economic and societal co-benefits.





The Cleaner, Greener Communities program was launched in 2012 by Governor Andrew M. Cuomo as a $100 million statewide initiative to invest in reducing GHG pollution through smart growth planning and sustainability. Phase one invested $10 million in the development of regional sustainability plans. Phase two (in progress) will award $90 million for projects that have the most impact on carbon abatement in the regions. Examples of projects selected to date include: rapid bus transport demonstrations, deployment of EV charging stations, biogas initiatives, development of multi-modal transportation hubs, support for energy efficient buildings, and community renewable energy projects. Estimated lifetime GHG savings from projects selected to date are 1.9 million tons of CO_2.

The Climate Smart Communities program further helps local governments by providing a Guide to Local Action with how-to's and case studies to help communities implement the Climate Smart Communities pledge (taken by 151 communities to date). Finally, Community Solar NY is an initiative to make implementing solar easier and more affordable for communities across the state. It supports "Solarize" campaigns aimed at getting a critical mass of area homes and businesses to install solar electric systems to obtain competitive pricing, and lower system cost.

Program Highlight: EmPower New York Program

RGGI funding is used to deploy commercially available renewable and energy efficiency technologies across all sectors to target GHG emission reductions from electricity and other energy sources. In the residential sector NYS has made a significant impact especially among middle and lower income residents. Among New York's residential programs, EmPower New York and Assisted Home Performance with Energy Star target energy efficiency building improvements for income-eligible residents. These improvements are one of the best ways to reduce GHG emissions, as a building that runs more efficiently uses less energy for heating and cooling.

The EmPower program offers no-cost energy efficiency services to low-income homeowners and renters, provided by Building Performance Institute (BPI) GoldStar contractors. EmPower also responds when low income homes are in a no-heat situation by providing heating equipment repair and replacement. To date, EmPower New York has eliminated 4.1 million tons of carbon dioxide-equivalent emissions through more than 100,000 completed projects.

NYSERDA also offers an Assisted Home Performance with ENERGY STAR program, which serves customers whose income is too high for EmPower New York but below 80 percent of the median income. Two- to four-unit residential homes with income-eligible residents may qualify for a discount of up to $10,000. To date, the program has eliminated 7.1 million tons of carbon dioxide-equivalent emissions through more than 17,821 projects.

Success Story: NY Family Reduces GHG Emissions with EmPower New York Program

New York State used RGGI proceeds to help Susan Konstanty reduce GHG emissions at her fam¬ily home and make the home more comfortable. The Cape Cod-style home in Gasport, NY was drafty and wasted energy. After it was determined the Konstantys were income-eligible for the EmPower New York program, a contractor who was sent to inspect the home identified a need for and installed better insulation in the basement and roof and provided tips to reduce electricity use.

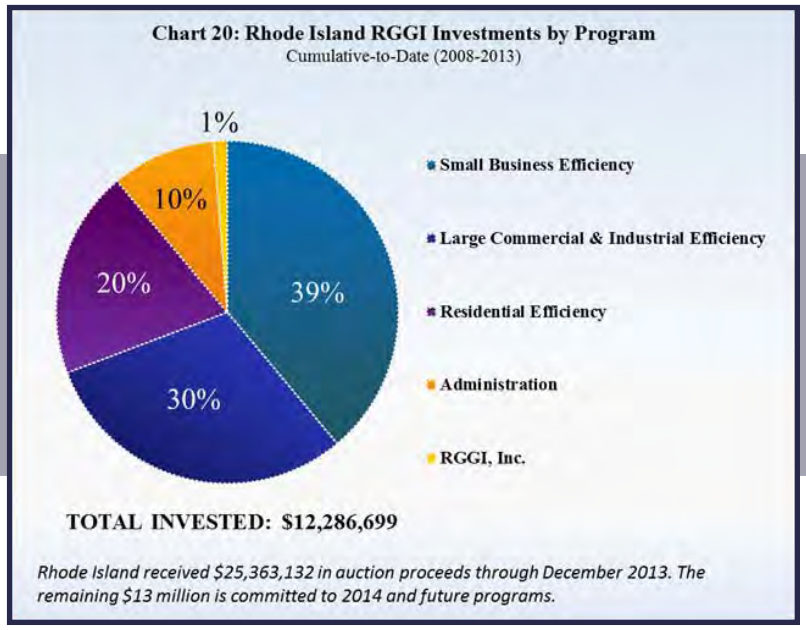
Susan Konstanty said that now she can set the thermostat at 65 degrees during the day without impacting the family's comfort level, rather than the previous 68-degree setting. The home's fuel consumption is lower as a result, avoiding 10,483 pounds of greenhouse gas emissions the family would have emitted without the energy efficiency measures. Susan's story is one example of how $39 million invested through Residential Efficiency Services Programs have helped improve the energy efficiency of more than 18,000 homes in NYS through 2013.

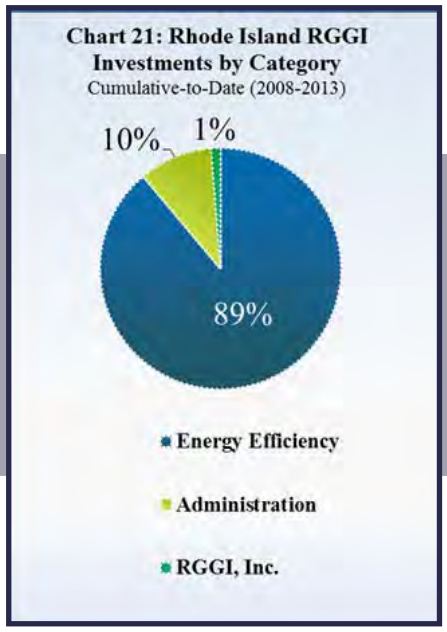
Resources:

- 2013 Operating Plan for Investments in New York under the CO2 Budget Trading Program and the CO2 Allowance Auction Program
- New York's RGGI-Funded Programs Status Report, Quarter Ending December 31, 2013

Rhode Island

Rhode Island has primarily invested RGGI CO_2 allowance proceeds in energy efficiency and conservation of energy. In 2013, the Rhode Island Office of Energy Resources has continued to work in conjunction with the state's primary electric utility, National Grid, to expand energy efficiency programs to deliver maximum benefits to residential, commercial, and industrial consumers; low-income households; local governments; and also to provide education programs. These and other energy efficiency programs helped to make Rhode Island sixth in the nation in energy efficiency investments in 2013, according to the American Council for an Energy Efficient Economy.





Cumulatively, Rhode Island's energy efficiency investments have served 24,341 participating homes and 1,049 participating businesses, avoiding the use of 86,520 MWh.

In 2013, RGGI funds were invested in energy efficiency programs dedicated to community buildings. These community buildings work with National Grid to install upgrades such as lighting upgrades, lighting occupancy sensors, walk-in cooler efficiency measures, and site-specific custom projects.

A significant portion of 2013 RGGI funds were also allocated towards future use in another new program, the Rhode Island Public Energy Partnership. The program aims to achieve an average of 20% energy savings in designated municipal and state facilities, and brings together a diverse coalition of partners to identify and mitigate future barriers to increasing energy efficiency. Through the end of 2013, National Grid had hired a public sector liaison and facilitated a number of scoping studies, but no RGGI funds were yet disbursed, as projects had not been fully completed by the end of 2013.

Program Highlight: Community Buildings

National Grid incentives can cover up to 70% of the cost of installation of energy-efficiency measures. However, even providing 30% of the cost can be a barrier for some nonprofit organizations on limited budgets. Recognizing this, the 2012 Plan for the Allocation and Distribution of RGGI Proceeds allocated $372,288 to efficiency projects at community buildings. These buildings house nonprofit organizations including boys and girls clubs, community healthcare centers, and may also be used for other public or community purposes.

Through the end of 2013, 67 energy efficiency projects at community buildings had been supported with supplemental incentives totaling $303,851 from the RGGI allocation. These supplemental incentives allowed projects that would not have been otherwise completed due to lack of customer funds to have been completed and contributed 1,487,685 kWh of electricity savings. Projects such as efficient air distribution and energy management systems also had secondary benefits of gas savings.

Success Story: Wakefield YMCA

At the South County YMCA in Wakefield, all interior and exterior lights at the site were converted to LED technology. In all, 75 interior linear fluorescent units were changed to LED fixtures; 43 interior "high bay" metal halide lights were converted, and 23 parking lot and exterior fixtures were replaced. Lighting occupancy controls were installed in selected areas, and a web-based Energy Management System took the place of existing standalone thermostat. The EMS allows the customer to monitor all of their HVAC equipment, enable CO_2 based demand control ventilation, set temperature and schedules, and facilitate holiday turndowns.

The total project cost was $95,207 at no out-of-pocket cost to the facility. 70% of the cost was covered by the National Grid Direct Install program, while OER funds provided the difference. With estimated savings of 111,115 kWh and 954 therms, this upgrade will save the YMCA over $18,000 annually.

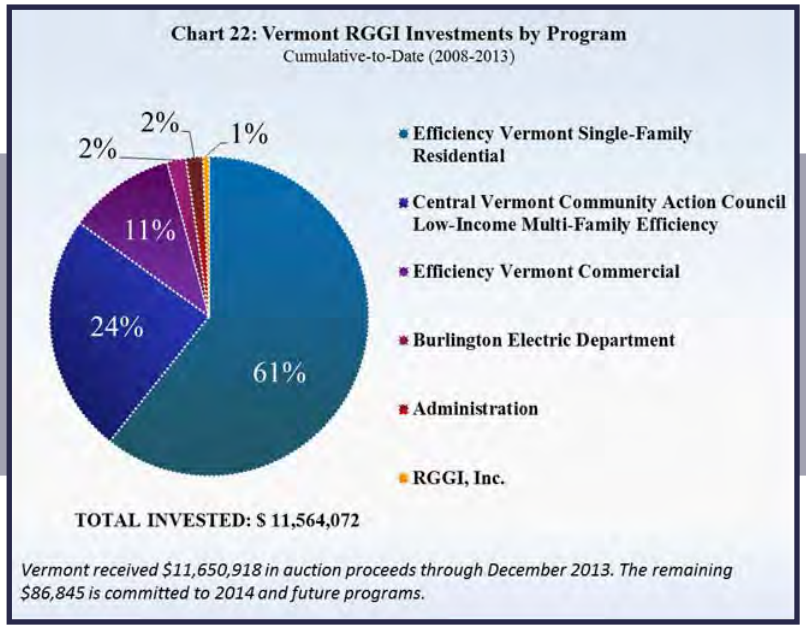
Resources

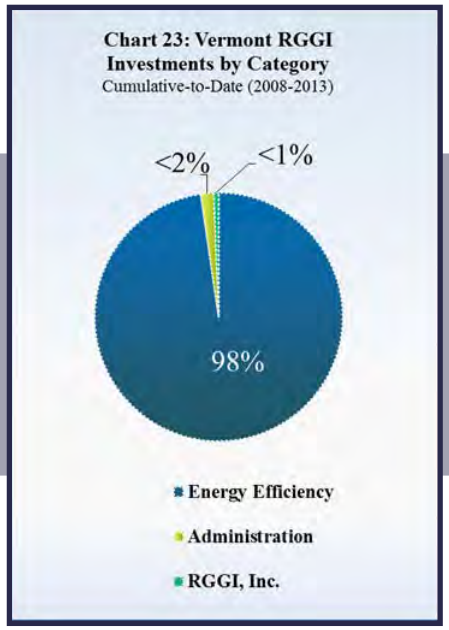
- National Grid Residential Energy Efficiency Resources
- National Grid Business Energy Efficiency Resources
- National Grid Efficiency Programs 2013 Year-End Report
- 2012 Plan for the Allocation and Distribution of RGGI Auction Proceeds

Vermont

Vermont invests the majority of its CO_2 allowance proceeds in programs managed by Efficiency Vermont and the Burlington Electric Department. RGGI funds allow these entities to expand their electrical energy efficiency programs to include thermal energy and process fuel efficiency programs. Efficiency Vermont's participation in the regional grid's forward capacity market also provides funds for this program expansion.

Vermont's thermal energy and process fuel efficiency programs funded by RGGI through 2013 are projected to result in incremental energy savings of more than 1.4 million mmBTUs, and avoid the emission of an estimated 105,000 short tons of CO_2. These programs have served 3,363 households and 206 businesses, and are projected to save them an estimated $111 million on their energy bills over the lifetime of those investments.





Programs currently supported by CO_2 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 the Vermont Fuel Efficiency Partnership, a low income multifamily retrofit initiative.

Efficiency Vermont, the nation's first ratepayer-funded energy efficiency utility, is overseen by the Vermont Public Service Board. 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 seventh in the nation in energy efficiency investments in 2013, according to the American Council for an Energy Efficient Economy (ACEEE) State Energy Efficiency Scorecard.

Program Highlight: Vermont Fuel Efficiency Partnership

The Vermont Fuel Efficiency Partnership is a low income multifamily retrofit initiative coordinated by Capstone Community Action (formerly CVCAC), the state's Weatherization Assistance Program (WAP), the Office of Economic Opportunity, and nonprofit affordable housing providers. VFEP provides financial and technical support for the deeper level of energy retrofit sought by Vermont's nonprofit affordable housing providers to achieve long-term housing affordability for low-income Vermonters.

Efficiency Vermont's support of VFEP is designed to leverage WAP funding to significantly increase the energy performance beyond that typically achieved through WAP alone. In addition to offering deeper measures, VFEP supports project management for complicated multi-unit properties. Through increased incentives and project management, VFEP overcomes challenges faced by tenants and property owners who must confront "split incentives"—situations in which the property owners who fund energy efficiency investments do not benefit from long-term energy efficiency savings. That is, the tenants benefit from the savings, when the investment is the burden of property owners. ✦

Success Story: Vermont Rural Apartment House

The local housing agency was spending $16,500 per year for heat and hot water in this 5-unit, 130-year-old farmhouse with 40-year-old additions adding up to 6,000 SF. The house used nearly 3,500 gallons of oil for heat and 20,300 kWh electricity for hot water annually for the building. With technical assistance and cash incentives from Vermont Fuel Efficiency Partnership (VFEP), and participation of the Weatherization Assistance Program, virtually every wall, ceiling, and foundation surface was upgraded. The 73% oil boiler was swapped out for a 93% condensing propane unit. Windows and doors were replaced. All heating and hot water lines were insulated. Automatically controlled bathroom exhaust fans were added for ventilation. Estimated post-retrofit energy use is about 1,825 gallons of propane and 18,300 kWh electricity, an energy savings of 58%, and cost savings of $8,000 annually. VFEP assists owners of all types of affordable apartment housing statewide and is funded primarily though Efficiency Vermont, the state's energy efficiency utility, using RGGI and Forward Capacity Market revenues.

Resources

- Efficiency Vermont Residential Programs
- Efficiency Vermont Business Programs
- Efficiency Vermont 2013 Highlights

Appendix: Glossary of Terms

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: wind, solar, fuel cell, biomass, and hydroelectric power.

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

Energy Efficiency
Programs designed to improve energy efficiency by reducing overall energy use without degrading functionality. This includes programs directed at assisting low-income families and small business. Program costs include evaluation and measurement. Examples: Home Energy Audit Programs, Home and Building Weatherization, Energy Efficient Appliance or Industrial Equipment Rebate Programs, Compact Fluorescent Light Bulb Programs, and Energy Efficiency Workforce Training Programs.

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

RGGI, Inc.
Funds provided to RGGI, Inc. to support and implement state CO_2 Budget Trading programs.

General Terms

RGGI Investments
RGGI Investments are the proceeds generated by RGGI CO_2 allowance auctions that have been invested by the RGGI states in the programs discussed in this report. These investments do not include New Jersey proceeds or investments, as New Jersey withdrew from the program effective Jan 1, 2012. These investments also do not include transfers to state general funds or Future Committed funds.

Future Committed
Future Committed are the proceeds generated by RGGI CO_2 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 2014 and beyond.

Current Period (2013)
The twelve-month period being reported, which may be either the fiscal year or calendar year 2013, as defined by each state. See table 2 on page 6 for state-by-state reporting periods.

Cumulative-to-Date (To-Date)
The elapsed time from the inception of the RGGI auctions (Sept. 2008) through the end of the Current Period (i.e. past and present).

Lifetime
The full length of time (past, present, and future) over which effects from each Receiving Program will be realized. Varies by program.

Benefits and Statistics

Funds Invested – Current Period (2013)
Total dollar amount of RGGI proceeds invested in each program for the Current Period (e.g. Calendar year 2013). For programs that are partially funded by RGGI, only the amount provided by RGGI funds is included. Remaining data on these programs is prorated based on the percentage of the program funded by RGGI. For example, if 30 percent of a program's total funding comes from RGGI, 30 percent of the households served by the program are reported under "Participating Households" in this report.

Funds Invested – Cumulative-to-Date (To-Date)
Total dollar amount of RGGI proceeds invested in each program from RGGI's inception through the Current Period. For programs that are partially funded by RGGI, only the amount provided by RGGI funds is included. Remaining data on these programs is prorated based on the percentage of the program funded by RGGI. For example, if 30 percent of a program's total funding comes from RGGI, 30 percent of the households served by the program are reported under "Participating Households" in this report.

Participating Households – Cumulative-to-Date (To-Date)
Measured in: Number of Households
Number of households that have directly received assistance as a result of each program (e.g. number of homes weatherized, number of families receiving direct bill assistance, number of households receiving home energy audits, etc…) from inception through the Current Period. 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 is considered to be a household. "Participating Households" may include households whose services have been approved and confirmed, but not yet completed in some states.

Participating Businesses – Cumulative-to-Date (To-Date)
Measured in: Number of Businesses
Number of "end-user" businesses and government entities 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) from inception through the Current Period. 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” may include businesses whose services have been approved and confirmed, but not yet completed in some states.

Workers Trained – Cumulative-to-Date (To-Date)
Measured in: Number of Workers
Total number of training seats filled directly by the program from inception through the Current Period. This measure accounts for the fact that some workers may have attended more than one training course as they seek to expand their skills.

MWh Avoided – Cumulative-to-Date (To-Date)
Measured in: MWh
Estimated total MWh avoided cumulatively from inception through the Current Period as a direct result of Funds Invested from inception through the Current Period (i.e. the total past and present MWh avoided by all Funds Invested to date). Calculated using program-specific savings, as defined by each state.

MWh Avoided – Lifetime
Measured in: MWh
Estimated total MWh projected to be avoided over the total lifetime of the program as a direct result of cumulative Funds Invested from inception through the Current Period (i.e. the total past, present, and future MWh avoided by all Funds Invested to date). This does not include projected effects from funds not yet expended. Calculated using program-specific savings, as defined by each state.

mmBTU Avoided – Cumulative-to-Date (To-Date)
Measured in: mmBTU
Estimated total mmBTU avoided from inception through the Current Period as a direct result of Funds Invested from inception through the Current Period (i.e. the total past and present mmBTU avoided by all Funds Invested to date). Calculated using program-specific savings, as defined by each state.

mmBTU Avoided – Lifetime
Measured in: mmBTU
Estimated total mmBTU projected to be avoided over the total lifetime of the program as a direct result of cumulative Funds Invested from inception through the Current Period (i.e. the total past, present, and future mmBTU avoided by all Funds Invested to date). This does not include projected effects from funds not yet expended. Calculated using program-specific savings as defined by each state.

Energy Bill Savings – Cumulative-to-Date (To-Date)
Measured in: Current Year Dollars
Estimated gross amount saved from inception through the Current Period by the total number of households and/or businesses participating in the program as a result of cumulative Funds Invested from inception through the Current Period (i.e. the total past and present savings by all program participants to date). Calculated using program-specific savings, as defined by each state. Initial investment in installed measures is not deducted.

Energy Bill Savings – Lifetime
Measured in: Current Year Dollars
Estimated gross amount projected to be saved over the total lifetime of the program by the households and/or businesses participating in the program as a result of cumulative Funds Invested from inception through the Current Period (i.e. the total past, present, and future savings by all program participants to date). This does not include projected effects from funds not yet invested. Calculated using program-specific savings, as defined by each state. Initial investment in installed measures is not deducted.

CO_2 Emissions Avoided – Cumulative-to-Date (To-Date)
Measured in: Tons of CO_2
Estimated total number of short tons of CO_2 avoided cumulatively from inception through the Current Period as a direct result of cumulative Funds Invested from inception through the Current Period (i.e. the total past and present CO_2 emissions avoided by all Funds Invested to date). Calculated using a program-specific formula, as defined by each state.

CO_2 Emissions Avoided – Lifetime
Measured in: Tons of CO_2
Estimated total number of short tons of CO_2 projected to be avoided over the total lifetime of the program as a direct result of cumulative Funds Invested from inception through the Current Period (i.e. the total past, present, and future CO_2 emissions avoided by all Funds Invested to date). This does not include projected effects from funds not yet expended. Calculated using a program-specific formula, as defined by each state.

Cars Taken Off the Road
Measured in: Cars
Estimated number of cars that would need to be taken “off the road” for one year to reduce CO_2 emissions by the same amount as the RGGI-funded measures. Calculated using average annual CO_2 emissions for passenger cars (10,582 pounds or 5.29 short tons of CO_2), as published by the U.S. Environmental Protection Agency. View conversion rates at: http://www.epa.gov/cleanenergy/energy-resources/calculator.html. ✦

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