The Regional Greenhouse Gas Initiative

An Initiative of Eastern States of the United States

# The Investment of RGGI Proceeds in 2022

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## **Executive Summary**

Proceeds from the Regional Greenhouse Gas Initiative (RGGI) have powered significant investment in the energy future of the participating states. This report reviews the benefits of programs funded in 2022 by \$364 million in RGGI investments, which have reduced harmful carbon dioxide (CO<sub>2</sub>) emissions while spurring local economic growth. The lifetime effects of 2022 RGGI investments are projected to avoid the release of 7.5 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 2022 are estimated to return \$1.8 billion in lifetime energy bill savings to 246,000 households and over 2,600 businesses that participated in programs funded by RGGI proceeds, while over 45,000 households and 38,000 businesses received direct bill assistance in 2022. As a whole, the RGGI states have reduced power sector CO<sub>2</sub> emissions by about 50% since 2005, while the region's gross domestic product has continued to grow.

The benefits tracked in this report arise from RGGI investments in energy efficiency, clean and renewable energy, beneficial electrification, 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 five major categories:

**Energy efficiency** makes up 49% of 2022 RGGI investments and 61% of cumulative investments. Programs funded by these investments in 2022 are expected to return about \$1.5 billion in lifetime energy bill savings to more than 189,000 participating households and over 2,000 businesses in the region and avoid the release of 6.5 million short tons of CO<sub>2</sub>.

**Clean and renewable energy** makes up 7% of 2022 RGGI investments and 6% of cumulative investments. RGGI investments in these technologies in 2022 are expected to return over \$139 million in lifetime energy bill savings and avoid the release of more than 660,000 short tons of CO<sub>2</sub>.

**Beneficial electrification** makes up 12% of 2022 RGGI investments and 4% of cumulative investments. RGGI investments in beneficial electrification in 2022 are expected to avoid the release of 315,000 short tons of CO<sub>2</sub> and return over \$97 million in lifetime savings.

**Greenhouse gas abatement and climate change adaptation** makes up 3% of 2022 RGGI investments and 8% of cumulative investments. RGGI investments in greenhouse gas (GHG) abatement and climate change adaptation (CCA) in 2022 are expected to avoid the release of more than 11,000 short tons of CO<sub>2</sub>.

**Direct bill assistance** makes up 21% of 2022 RGGI investments and 15% of cumulative investments. Direct bill assistance programs funded through RGGI in 2022 have returned over \$77 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 initiative to reduce power sector  $CO_2$  emissions. The RGGI states (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont) establish a regional cap on the amount of  $CO_2$  emissions that power plants can emit by issuing a limited number of tradable  $CO_2$  allowances. Each allowance represents an authorization for a regulated power plant to emit one short ton of  $CO_2$ . Individual  $CO_2$  budget trading programs in each RGGI state together create a regional market for  $CO_2$  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.

Over RGGI's history there have been nine consistently participating RGGI states (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont). New Jersey participated in RGGI from 2009 to 2011 and resumed its participation starting in 2020. Virginia participated in RGGI during the fifth control period, from 2021 through 2023. Pennsylvania initiated participation in 2022 but is prevented from distributing allowances or enforcing compliance due to ongoing litigation regarding the state's RGGI regulation. RGGI investments in this report include the 2022 investments reported by the ten fully participating RGGI states in 2024.<sup>1</sup> Each state's independent regulations are based on the RGGI Model Rule. **Chart 1** shows the change in CO<sub>2</sub> emissions compared with GDP since RGGI's inception for the ten states included in this report.

The RGGI states have distributed 90% of CO<sub>2</sub> 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.



<sup>&</sup>lt;sup>1</sup> While Virginia participated in RGGI from 2021 through 2023, the state was no longer participating during development of this report in 2024, and so VA investments are not reported here. For more information on investment of RGGI proceeds in Virginia, reach out to the VA Department of Environmental Quality.

## 2022 RGGI Investments

This report estimates the benefits, such as energy bill savings and avoided CO<sub>2</sub> emissions, that arise from \$364 million in 2022 RGGI investments. RGGI investments as defined within this report include investments in energy efficiency, clean and renewable energy, beneficial electrification, greenhouse gas abatement and climate change adaptation, and direct bill assistance, as well as administrative costs associated with these programs. This report focuses on 2022 annual investments. RGGI investments throughout the region cover a wide variety of programs.

**Chart 2** shows 2022 RGGI investments divided among major program categories. **Chart 3** illustrates the same 2022 funds divided 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 and CCA includes a wide variety of program types, including research funding, community flood preparedness, 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%.

In 2022, 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 \$1.8 billion on energy bills and avoid the emission of 7.5 million short tons of harmful  $CO_2$  emissions. For details, see **Table 1**.

RGGI investments benefit more than just those who directly participate in RGGI-funded programs. 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, which reduce carbon emissions by replacing direct fossil fuel use with electric power. Often, these programs result in an increase in MWh, but do reduce carbon emissions overall. As the grid becomes cleaner, the emissions from electrified appliances become cleaner, as opposed to the fixed emissions intensity of fossil-powered appliances.

Avoided MWh continues to be a relevant metric for energy efficiency and clean and renewable energy programs and will be reported in the tables associated with these respective investment categories.

Table 1: Benefits of 2022 RGGI Investments					
Category		Annual Benefits of 2022 Investments	Lifetime Benefits of 2022 Investments		
	Short Tons CO <sub>2</sub> Avoided	383,305	7,507,128		
	Energy Bill Savings	\$133,844,052	\$1,808,879,901		

One of RGGI's strengths is the discretion held by each state to invest RGGI auction proceeds according to statespecific 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.

## **Environmental Justice and Equity Focused Investments**

Each of the RGGI states is committed to advancing principles of equity and environmental justice (EJ). Across the RGGI states, auction proceeds are invested in a variety of programs focused on EJ and equity to deliver benefits directly to EJ communities. For example, this can include providing targeted bill assistance, installing weatherization and energy efficiency upgrades in low-income households, offering incentives for clean vehicles and renewable energy, investing in electrification infrastructure in EJ communities, and more.

Each RGGI state reports EJ and equity investments according to its own specific criteria and definitions. The EJ and equity investments included in this report represent the sum of the states' individual reporting, totaling approximately 30% of all RGGI proceeds invested by the participating states in 2022. For more information on how each state defines and invests in EJ and equity programs, reach out to the Program Contacts found on page 49 of this report.

Chart 4 shows how 2022 RGGI investments into EJ and equity programs were divided among the major program categories. Chart 5 shows how the same funds were divided according to the type of end-user benefiting from the funding.



Over their lifetime, investments into EJ & equity programs in 2022 are expected to deliver \$380 million in bill savings to residents and avoid the emission of 1.4 million tons of CO<sub>2</sub>. For details, see **Table 2**.

	Table 2: Benefits of 2	2022 RGGI EJ & Equity Inv	vestments
Category		Annual Benefits of 2022 Investments	Lifetime Benefits of 2022 Investments
	Short Tons CO <sub>2</sub> Avoided	74,376	1,456,881
	Energy Bill Savings	\$18,865,362	\$380,042,926

In addition to proceeds directed to EJ- and equity-focused programs, a variety of other programs supported by RGGI proceeds provide benefits to EJ communities. For example, investments in clean energy and energy efficiency programs both improve air quality and mitigate climate change impacts which disproportionately affect disadvantaged communities.

The states are continually working to improve the reporting of RGGI investments, including with respect to investments in EJ communities and the distribution of benefits created by RGGI investments. Future reports will seek to update and expand on the reporting included here.

## **Energy Efficiency**

Energy efficiency remains the largest portion of 2022 RGGI investments, at 49%. Over the lifetime of the installed measures, 2022 RGGI investments in energy efficiency are projected to save participants over \$1.5 billion on energy bills, providing benefits to more than 189,000 participating households and 2,000 participating businesses. They are also projected to avoid the release of 6.5 million short tons of  $CO_2$  (see **Table 3**).

Та	able 3: Benefits of 202	2 RGGI Investments in E	nergy Efficiency
Category		Annual Benefits of 2022 Investments	Lifetime Benefits of 2022 Investments*
	Participating Households	189,654	n/a
•	Participating Businesses	2003	n/a
*	Increased Employment	n/a	261 job years**
	Short Tons CO <sub>2</sub> Avoided	331,835	6,520,413
	Energy Bill Savings	\$77,580,775	\$1,531,727,751
0	MMBtu Saved	1,833,912	39,361,978
(V)	MWh Saved	488,764	8,095,600

\*For each investment category, states use assumptions about the lifespan of their investments in terms of years, and calculate lifetime benefits based on assumptions about their ISO's carbon intensity, energy cost, etc. over the lifespan of an investment.

\*\*Estimated job-years created. This estimate was created by applying job factors used in the 2021 NYSERDA Clean Energy Industry Report to corresponding programs receiving RGGI investments. These estimates represent direct job-years created only, excluding indirect and induced job creation estimates which were included in previous reports. For more information, see Increased Employment in the Glossary and Methodology section of this report.

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

Energy efficiency also creates jobs. Programs such as home retrofits directly spur employment gains in housing and construction, with 2022 RGGI investments projected to create an estimated additional 261 direct 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. Seven RGGI states once again ranked among 2022'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 7% of 2022 RGGI investments in the region. Over the lifetime of the projects installed in 2022, these investments are projected to offset \$139 million in energy expenses. They are also projected to avoid the release of over 660,000 short tons of  $CO_2$  emissions (see **Table 4**).

Table 4: Benefits of 202         Category         Short Tons CO2 Avoided		Annual Benefits of 2022 Investments	Lifetime Benefits of 2022 Investments
		29,544	660,408
Ŷ	MWh Avoided*	67,598	1,436,520
$\diamond$	MMBtu Avoided	22,711	558,786
	Energy Bill Savings	\$5,686,657	\$139,328,567

\*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 127%. In 2022 the RGGI states derived 47% of total generation from clean or renewable sources.

### **Beneficial Electrification**

Beneficial electrification refers to programs that reduce carbon emissions by displacing direct fossil fuel use with electric power. In contrast to energy efficiency programs, which reduce electricity or fuels usage, beneficial electrification programs can increase MWh consumption, but result in a net reduction in carbon emissions. Examples include programs that promote the use of electric vehicles, reducing oil consumption, or the installation of electric heat pumps, reducing heating fuel and natural gas consumption.

Beneficial electrification represents 14% of 2022 RGGI investments in the region. Over their lifetime, the investments in beneficial electrification made in 2022 are expected to avoid 315,000 short tons of CO<sub>2</sub> emissions and result in over \$97 million in customer bill savings (See **Table 5**). Beneficial electrification investments will yield even greater emissions reduction benefits over time, as renewables take up a larger portion of the electric grid composition. Investments in beneficial electrification programs, and the resulting bill savings, also lead to job creation and spur local economic activity.

In addition, some programs reported as energy efficiency, clean and renewable energy, or greenhouse gas abatement may include beneficial electrification components, but the outcomes of these projects are not reported under beneficial electrification.

Table 5: Benefits of 2022 RGGI Investments in Beneficial Electrification					
Category		Annual Benefits of 2022 Investments	Lifetime Benefits of 2022 Investments		
	Short Tons CO <sub>2</sub> Avoided	19,872	315,226		
	Energy Cost Savings*	\$10,542,744	\$97,789,707		
•	MMBtu Saved	273,659	4,319,628		
	MWh Increased	9,761	150,550		

\*Energy cost savings is the net result of increased MWh costs from beneficial electrification combined with the decrease in avoided fuel costs (i.e. heating oil, gasoline).

## Greenhouse Gas Abatement and Climate Change Adaptation

Greenhouse gas (GHG) abatement and climate change adaption (CCA) is a broad category encompassing other ways of reducing greenhouse gases, apart from energy efficiency and clean and renewable energy, as well as projects that focus on preparing for and addressing the impacts of climate change on local communities. Approximately 3% of 2022 RGGI investments supported GHG abatement and CCA programs. Over their lifetime, the investments made in 2022 are expected to avoid the release of over 11,000 short tons of CO<sub>2</sub> (see **Table 6**).

Programs in the GHG abatement and CCA category may vary significantly and may drive GHG emission reductions in multiple sectors. For example, technology, research, and development programs are tracked as GHG abatement and CCA, as they may lead to advancements resulting in the reduction of greenhouse gases. Climate change policy research, coastal resilience, and flood preparedness programs are also tracked as GHG abatement and CCA.

GHG abatement and CCA 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.

Programs related to climate change adaptation represent a new and growing focus of programs receiving RGGI investment. Because of this, the RGGI states are considering how best to report the benefits of investment in these programs which might not be captured by the metrics used in this report. The states continue to develop their reporting of RGGI investments and look to more comprehensively capture the variety of benefits created by investment in these programs.

Category Participating Households		Category	Annual Benefits of 2022 Investments	Lifetime Benefits of 2022 Investments
		Participating Households	2,926	n/a
K		Participating Businesses	59	n/a
		Short Tons CO <sub>2</sub> Avoided	2,054	11,080

### **Direct Bill Assistance**

Direct bill assistance returns money to consumers as a rebate on their energy bills. Approximately 21% of 2022 RGGI investments have funded direct bill assistance. RGGI investments in direct bill assistance in 2022 returned \$77 million in bill savings to energy consumers in over 45,000 households and 38,000 businesses (see **Table 7**)

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 7: 2022 RGGI Investments in Direct Bill Assistance				
Ca	ategory	Annual Benefits of 2022 Investments		
	Participating Households	45,359		
0	Participating Businesses	38,825		
	Energy Bill Savings	\$77,408,993		

## **Cumulative Uses of Auction Proceeds**

While this report focuses primarily on 2022 data, information on cumulative RGGI investments is provided in this section as an overview of RGGI's track record. **Chart 6**, below, shows the percentage of all-time RGGI investments directed to each of the major program categories.





RGGI investments are themselves a subset of total proceeds. Most RGGI proceeds through 2022 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 7**, 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.



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 8** 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 CO<sub>2</sub> avoided. Note that as the program's track record grows longer, all-time numbers may include changes in states' methodologies from year to year.

Table 8: All-Time Benefits of RGGI Investments				
	Category		Lifetime Benefits of All RGGI Investments	
		Participating Households	7,947,694	
	•	Participating Businesses	374,791	
		Short Tons CO <sub>2</sub> Avoided	60,170,134	
	(y)	Megawatt-Hours Saved	94,822,626	
	$\diamond$	MMBtu Saved	330,997,102	
		Energy Bill Savings	\$17,532,362,391	

Previously reported cumulative data plus 2022 data may not sum exactly to updated cumulative data. This is due to state adjustments or corrections to prior cumulative calculations.

# Connecticut

Connecticut reserves RGGI auction proceeds for investment towards programs resulting in energy efficiency improvements and for financing for renewable energy projects. The allocation of auction proceeds for 2022 is as follows:

- 69.5% of its auction proceeds (\$24.3 million) 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).
- 23% to the Connecticut Green Bank (\$8.05 million) to fund development of Class I renewable energy sources.
- 7.5% to the Department of Energy and Environmental Protection (\$2.63 million) for administrative purposes.

Connecticut has cumulatively invested \$288 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 ninth in its 2022 State Energy Efficiency Scorecard, which evaluated 2021 state energy efficiency efforts. Connecticut continues to rank in the top ten states on this scorecard as it has since its inception. Connecticut's ranking is determined in part by the state's commitment to strengthen its building codes and steps taken to hasten EV adoption through generous rebates and building up the state's public EV charging network as well as the beginning of Connecticut's Equitable Energy Efficiency (E3) proceeding in 2020. The E3 proceeding launched with the goal of focusing greater equity in decision making as well as developing greater tracking of equity indicators in energy efficiency programs





## Program Highlight: Home Energy Solutions – Income Eligible (HES-IE)

For customers in families with gross annual incomes below 60% of the median state income, the Home Energy Solutions – Income Eligible (HES-IE) program is an alternative to the standard HES program. HES-IE provides a no-cost home energy audit for qualifying households. Services provided include:

- Blower door testing
- Department of Energy Home Energy Score
- Air leak and duct work sealing.

After the home energy audit, customers may be provided with incentives to install energy saving measures such as:

- Improved insulation
- ENERGY STAR® certified appliances
- ENERGY STAR® windows where single-pane windows need replacement
- HVAC upgrades

In the case where a home qualifies for additional energy saving upgrades, the HES-IE contractor will coordinate with the customer for installation. In some cases, the building landlord may be asked to share the costs of these energy saving upgrades.

#### Success Story: Multi-Family Initiative.

In July 2022, Governor Lamont announced the allocation of \$3.5 million of RGGI funds to low-income energy efficiency programs and for some of that funding to be distributed to multifamily through the Multifamily Initiative. This program provides support for multifamily developments through incentives and financing in order to support energy-saving measures including:

- Air sealing
- Upgrades to insulation
- Common and exterior area lighting controls
- HVAC system upgrades including heat pump installations

- ENERGY STAR appliance replacements
- Window upgrades and more.

Properties containing five or more residential units may be eligible including:

- Condominiums and co-ops
- Mixed-use residential and commercial properties
- Senior housing

Multifamily initiative incentives available may cover up to 65% of the project costs for comprehensive energyefficiency upgrades in market rate housing and incentives increase to up to 90% of the project cost for incomeeligible projects.

# Delaware

Delaware invests RGGI allowance proceeds in a variety of programs that allow Delaware families and businesses to make 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 (Energize Delaware). Energize Delaware serves Delawareans by promoting the use of affordable, reliable, clean energy, and providing a variety of incentives for energy efficiency improvements. Delaware directs ten percent of its allowance proceeds to the Delaware Department of Natural Resources and Environmental Control (DNREC). DNREC administers innovative programs to reduce greenhouse gas emissions such as the Clean Transportation incentive program and infrastructure grants. Ten percent of proceeds is 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 directed Delaware Department of Health and Social Services to a program to reduce energy bills for low-income customers. The remaining ten percent is reserved for administration of programs.





#### Program Highlight: Energize Delaware New Programs

In 2022, Delaware cumulatively invested over \$215 million in RGGI allowance proceeds toward programs and services dedicated to the deployment of emissions reduction and energy efficiency measures to improve Delaware's environment, improve human health, and lessen energy bills for Delawareans. 2022 happens to be the year that

most Energize Delaware programs made a comeback from the COVID-19 pandemic. Energize Delaware's total annual energy savings portfolio grew by 140%, while annual greenhouse gas emission avoided increased by 45%. It is also the sixth year that Energize Delaware won the Partner of the Year award for Sustained Excellence from the U.S. Department of Energy (DOE) for the Home Performance with Energy Star Program. Also this year, the ZeMod Program, offering highly energy efficiency appliances in solar powered modular homes, won the DOE Zero Energy Home's Housing Innovation Award. Additionally, the Commercial Property Assessment Clean Energy (CPACE) financing and Energy Service Performance Contracting (ESPC) funded the manufacturing plant Delmarva Corrugated Packaging.



#### Success Story: Better Serving Low- and Moderate-Income Households

Energize Delaware is better serving low- and moderate-income communities through new and expanded programs such as the Home Energy Counseling and Checkup (HEC2) Program, Affordable Multifamily Program, and Pre-Weatherization (Pre-WAP) Program. The HEC2 program ensures low- and moderate-income households are taking advantage of all incentives and rebates offered. In 2022, 545 households participated in the program leading to over 130 metric tons of GHG emission avoided. This year, Energize Delaware increased the Affordable Multifamily program incentives and began offering direct install measures such as LED light bulbs, faucet aerators and low-flow showerheads to income-qualified residents. The program also established a growing partnership with the Delaware State Housing Authority to offer low-interest construction loans for new construction and rehabilitation projects that exceed the building energy code. Finally, Energize Delaware's Pre-Weatherization program is allowing low-income families in Delaware to become "weatherization ready" for the Weatherization Assistance Program. In 2022, Pre-WAP continued to expand its impact with 75 percent of weatherization projects first utilizing pre-weatherization.

The Efficiency Maine Trust (Efficiency Maine) is the independent, quasi-state agency established to plan and implement energy efficiency programs in Maine. Through its suite of nationally recognized programs, Efficiency Maine provides consumer information, marketing support, demonstration pilots, discounts, rebates, loans, and other initiatives to promote high-efficiency equipment and operations that help Maine's homes, businesses, and institutions reduce their energy costs and lower their greenhouse gas emissions. The result is job growth, better grid reliability, improved energy independence, a stronger local economy, and critical progress toward meeting the State's climate change goals. The organization's purposes include the following:

- Consolidating under one roof the funds for Maine's consumer-focused efficiency and alternative energy programs for all fuel types, including electric, natural gas, and unregulated fuels;
- Procuring distributed energy resources (such as efficiency and alternative energy) that cost less than traditional energy to help individuals and businesses meet their energy needs at the lowest cost; and
- Helping transform the energy market in Maine so that energy-efficient products, alternative energy equipment, and related energy services are more accessible and affordable to end-use customers.

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 2022 fiscal year (FY 2022), Efficiency Maine invested over \$14 million in RGGI proceeds, directing approximately 96% towards a combination of energy efficiency and beneficial electrification programs; the remaining 4% went towards general administration. Though nearly all of Efficiency Maine's programs leveraged RGGI funding to some degree in FY 2022, the bulk of funds were invested through the following five programs:

- *Home Energy Savings Program:* Drove market-based home weatherization and heat pump space heating by offering rebates and loans, providing customer education, and developing and maintaining a vendor network.
- *Low-Income Initiatives*: Targeted low-income customers by providing enhanced incentives for home weatherization and high-performance heat pumps within the market-based channel and by offering free heat pump water heaters through a direct-install channel.
- Small Business Initiative: Rebated heat pump retrofits in small businesses.
- Commercial and Industrial (C&I) Prescriptive Program: Provided fixed-price incentives for a prescriptive suite of "off-the-shelf" energy efficiency and beneficial electrification 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 FY 2022, Maine's RGGI-funded measures are estimated to generate savings of 27,456 MWh and over 3.1 million MMBtu in avoided consumption of electricity, natural gas, and other heating or process fuels. These investments will avoid energy costs of more than \$58.6 million.

### Program Highlight: Residential Weatherization

Efficiency Maine leveraged RGGI funds to drive a significant ramp-up in residential weatherization activity in FY 2022. These funds were instrumental in helping both the Home Energy Savings Program and Low-Income Initiatives increase weatherization rebates and expand marketing efforts, leading to record-breaking demand for building envelope improvements.





Overall, activity across both programs increased by 23%; Efficiency Maine weatherized a total of 1,807 homes in FY 2021 and 2,230 homes in FY 2022. The acceleration of activity in Low-Income Initiatives was particularly notable; the program weatherized 103 homes in FY 2021 and 391 homes in FY 2022, representing a 281% increase. Activity in the Home Energy Savings Program increased by 8%; the program weatherized 1,704 homes in FY 2021 and 1,839 homes in FY 2022.

This RGGI-funded ramp-up in FY 2022 helped set the stage for a significant influx of federal funds for weatherization in FY 2023. The Maine Jobs and Recovery Plan allocated \$25 million in American Rescue Plan Act (ARPA) funds to the Trust to support energy efficiency upgrades in low- and moderate-income homes. Upon receiving these dollars in FY 2023, the Trust was able to hit the ground running at the accelerated pace required to invest them by the spending deadline. This new pace also helps put Maine on track to meet its Climate Action Plan goals of weatherizing 35,000 homes and businesses by 2030, with at least 10,000 of such weatherization projects completed in low-income households.



HEAT RECOVERY VENTILATOR (CENTER) WITH SUPPLY AIR DUCTING AND OXYGENATORS (BLACK TANKS) ON EITHER SIDE.

### Success Story: American Unagi

American Unagi is a startup eel aquaculture operation based in Waldoboro, Maine. The company is the first and only producer and processor of locally sourced American eel in the U.S. Historically, elvers – or baby eels – have been caught in Maine, shipped to Asia to be raised to their adult size, and then sold to restaurants around the world. American Unagi's mission is to offer a traceable alternative to existing imported eel products for the U.S. market.

In 2022, the American Unagi completed construction of its new 27,000-square foot facility. The company's consultant (Aquaculture Consultancy & Engineering) worked with Efficiency Maine to identify two value-added equipment options that would reduce energy costs for the facility. One incentive was awarded for specialized energy recovery ventilators designed to operate in the high-humidity conditions of an indoor aquaculture environment. The other incentive was awarded for high-efficiency oxygenation equipment that delivers pumping energy savings.



Given the relatively complex, site-specific nature of the projects and the associated specialized equipment, American Unagi worked with Efficiency Maine's C&I Custom Program. The program was able to validate the predicted energy impacts and offer a total of approximately \$130,000 in incentives, roughly \$62,000 of which was funded with RGGI dollars. These investments will lead to considerable electricity and propane savings for American Unagi, reducing the company's operating costs for years to come.

- Additional cost for high-efficiency options: \$265,000
- Combined incentive award: \$132,000
- Estimated annual energy savings: 214,000 kWh (electricity) and 2,600 MMBtu (propane)

# Maryland

Maryland allocates proceeds from the sale of CO<sub>2</sub> 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.





### Success Story: Green & Healthy Homes Initiative Case Study

The Green & Healthy Homes Initiative, Inc. (GHHI), is a national non-profit organization committed to addressing the social determinants of health and the advancement of racial and health equity through the creation of healthy, safe and energy efficient housing. GHHI Baltimore, the original GHHI site, commenced housing intervention services in 1997 and since has been providing low-income families with the opportunity to have a healthy, safe, and efficient home, delivering both economic and social benefits to individuals and communities in need. Working with the Maryland Energy Administration's Low-to-Moderate Income Grant Program (MEA LMI) from 2009-2020, GHHI's Baltimore location has integrated energy efficiency upgrades into their "healthy housing interventions" to more than 535 MEA-funded homes throughout Baltimore City and Baltimore County.

For GHHI, investing in energy efficiency, weatherization, and health and safety measures provides a long-term and equitable solution to the energy insecurity facing so many American families. The GHHI integrated model links

energy and health to take a comprehensive approach to identify and remediate environmental health hazards (e.g., lead-based paint, radon, asthma triggers, injury risks, volatile organic compounds, and others) providing a better place to live for lowincome residents and reducing client deferral rates for weatherization programs. As a part of the comprehensive approach and using MEA funding along with other sources of funding, the GHHI "housing interventions" deliver energy upgrades that lower utility bills and improve home performance and comfort, while also providing health upgrades through indoor air quality improvements and other hazard reduction interventions that help reduce asthma episodes and prevent lead poisoning and household injury.



Under two MEA grant awards, GHHI conducted energy audits, provided weatherization and energy efficient upgrades, as well as health and safety measures to over households in Baltimore County and Baltimore City. The MEA LMI Program funds have enhanced funding from other sources by providing energy audits, weatherization services, and installing cost effective energy efficient upgrades to appliances, HVAC, and lighting, enabling them to expand the energy and health benefits of their comprehensive building upgrades. Across the two grants, the completed energy efficiency measures included:

- duct and air sealing, as well as attic, roof, and wall insulation to improve the building envelope;
- installation of LED light bulbs and low flow showerheads and faucets;
- replacement of dated and inefficient HVAC equipment with high-efficiency condensing furnaces, air source heat pumps, and central air conditioners;
- and high-efficiency gas water heaters and hot water pipe insulation.

The 2019-2020 GHHI grant awards funded by the MEA LMI Program are helping to provide healthier, safer, and more efficient homes.

# Massachusetts

Massachusetts continues to lead the nation with bold and transformative policies and practices to address climate change. In 2008, Massachusetts passed two landmark statutes, the Green Communities Act which authorized participation in the Regional Greenhouse Gas Initiative and directed the investment of auction proceeds, and the Global Warming Solutions Act, which set greenhouse gas emission reduction goals. In 2021, *An Act Creating a Next Generation Roadmap for Massachusetts Climate Policy* further committed the Commonwealth to fighting climate change and codified its goal to achieve net zero emissions in 2050.<sup>2</sup> In 2022, Massachusetts passed *An Act Driving Clean Energy and Offshore Wind,* which accelerated its clean energy transition by stimulating clean energy development, supporting transportation and heating electrification, and promoting decarbonization and economic development.<sup>3</sup>



In June 2022, the Massachusetts Executive Office of Energy and Environmental Affairs (EEA) issued its Clean Energy and Climate Plan (CECP) for 2025 and 2030.<sup>4</sup> The plan set emission reduction targets of 33% below 1990 levels by 2025 and 50% below 1990 levels by 2030. The 2025/2030 CECP provides details on the actions the Commonwealth will undertake, to ensure the 2025 and 2030 emissions limits are met. In December 2022, EEA released its 2050 CECP, which details how the state plans to achieve net zero GHG emissions in 2050 in an equitable and just manner.<sup>5</sup> The plan sets sector-specific strategies and emissions limits for 2050 that equal the required gross greenhouse gas emissions reductions of at least 85% below 1990 levels and proposes carbon sequestration goals to supplement reductions and meet the net zero requirement.

<sup>&</sup>lt;sup>2</sup> <u>https://malegislature.gov/Laws/SessionLaws/Acts/2021/Chapter8</u>

<sup>&</sup>lt;sup>3</sup> <u>https://malegislature.gov/Laws/SessionLaws/Acts/2022/Chapter179</u>

<sup>&</sup>lt;sup>4</sup> <u>https://www.mass.gov/info-details/massachusetts-clean-energy-and-climate-plan-for-2025-and-2030</u>

<sup>&</sup>lt;sup>5</sup> Massachusetts Clean Energy and Climate Plan for 2050

In Massachusetts, RGGI proceeds primarily support its Green Communities programs, electric vehicle rebates, and the promotion of energy efficiency, conservation, and demand response. In 2022, DOER provided \$12,170,217 to municipalities, \$9,552,142 for EV rebates, and \$49,752,781 for implementing the Mass Save energy efficiency programs, of which \$7,108,194 was targeted for low-income recipients.



### Success Story: Green Communities

DOER's Green Communities Division provides grants, technical assistance, and local support to help municipalities reduce their energy use by implementing clean energy projects in municipal buildings, facilities, and schools. The Green Communities Division serves all 351 Massachusetts cities and towns and helps them find clean energy solutions that reduce long-term energy costs and strengthen local economies. In 2022, DOER awarded \$12,170,217 for municipalities to implement various energy efficiency and clean energy projects.

Since becoming designated as a Green Community in 2017, the City of Malden (Malden) has received over \$1 million in competitive grants and implemented impactful energy-saving and greenhouse gas emissions (GHG) reduction projects. The entire city is a Massachusetts Environmental Justice (EJ) population area, and these projects help lower emissions and energy use in areas most vulnerable to climate change impacts. In 2022, Malden used \$122,249 in Green Communities Competitive Grant funding to partially fund the acquisition of four electric vehicles and complete energy conservation measures at two municipal buildings.

#### Electrifying the Fleet

Malden worked through shipping and supply chain delays to purchase four Chevy Bolt electric vehicles to replace three inefficient SUVs and a truck in its facilities department. The project is anticipated to save over 900 gallons of gasoline and over \$1,600 in fueling costs per year. Furthermore, Malden is adopting a new model of allowing staff to sign out the vehicles rather than assigning the vehicles to staff. The old vehicles will be taken out of service and removed from the fleet.

#### MacDonald Field House

Malden upgraded the attic insulation and installed air source heat pumps in the MacDonald Stadium Field House, a 5,800



sq. ft. brick building that serves as locker rooms and office space for the stadium. The projects improved both the comfort and energy savings in the building. The retrofit is expected to save 1,800 therms of natural gas annually.

#### **District 3 Fire Station**

Malden completed weatherization and a heating system upgrade at the District 3 Fire Station. First, weatherstripping around the bay doors plugged energy leaks, keeping warmth indoors. Then, outdated gas unit heaters were swapped for high-efficiency models. The two projects at the Fire Station are expected to save over 3,700 therms of natural gas per year.

Overall, the city's Green Communities Competitive Grant projects will save an estimated \$7,000 per year in energy costs. These projects are also expected to save over 650 MMBtu of energy and 40 tons of GHGs annually.

### Energy Efficiency Program Highlight: Income Eligible - Deep Energy Retrofits

*The Mass Save Income-Eligible Coordinated Delivery Initiative* provides cost-effective, energy efficiency products and services to income-eligible residential customers in a fuel-blind approach. Income-eligible is defined as at or below 60 percent of the state median income level for 1–4-unit buildings and having at least 50 percent of units be at or below 60 percent of the area median income level for 5+ unit buildings. Customers that qualify for the utility discount rate are also considered income-eligible. Customers qualify for the utility discount rate by meeting Low-Income Home Energy Assistance (LIHEAP) eligibility or by meeting the eligibility requirements for other meanstested programs, such as Chapter 115 Veterans' Service Benefits, Supplemental Security Income, and Supplemental Nutrition Assistance Program (SNAP) services. The Initiative is administered in coordination with the Low-Income Energy Affordability Network (LEAN) and implemented by local Community Action (CAP) agencies. The Initiative leverages other sources of funding, including the Massachusetts Executive Office of Housing and Livable Communities' Weatherization Assistance Program (WAP), and the Heating Emergency Assistance Retrofit Task Weatherization Assistance program (HEARTWAP). This approach provides a seamless, integrated experience leveraging all applicable funding sources for income-eligible participants with no co-payments required from customers.<sup>6</sup>

Beginning in 2022, the Income-Eligible Coordinated Delivery Initiative included a "*Customized Deep Energy Retrofit Approach*" to address an emerging submarket of income-eligible, multifamily decarbonization retrofit projects. These projects are integrating a range of the latest high-performance building technologies that go beyond a typical retrofit project, such as structurally insulated exterior cladding, continuous insulation or targeted exterior air sealing, ventilation with energy recovery ventilators, variable refrigerant flow systems, heat recovery ventilators, and heating system conversions from delivered fuels or natural gas to high efficiency electric heat, all with the intent to achieve deeper energy savings and decarbonization. These technologies are often part of larger projects associated with a refinancing process and/or significant capital improvement renovations.<sup>7</sup> Typically, various sources are used to fund these projects, thus maximizing the GHG reduction impact of each funding stream. Each year, RGGI proceeds support Mass Save programs like the Income-Eligible Coordinated Delivery Initiative.

<sup>&</sup>lt;sup>6</sup> https://ma-eeac.org/wp-content/uploads/Exhibit-1-Three-Year-Plan-2022-2024-11-1-21-w-App-1.pdf, p. 108

<sup>&</sup>lt;sup>7</sup> https://ma-eeac.org/wp-content/uploads/Exhibit-1-Three-Year-Plan-2022-2024-11-1-21-w-App-1.pdf , pg. 113.

# **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 2022, New Hampshire received approximately \$43.2 million in RGGI allowance proceeds, of which approximately \$2.5 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 from all ratepayers through the System Benefits Charge. Approximately \$40.0 million was used to provide direct bill assistance to New Hampshire electric consumers, \$0.3 million was allocated to the all-fuels grant program, 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 supported by RGGI funds include a Municipal program; an income-eligible Home Energy Assistance program; and an All-Fuels weatherization program targeting moderate-income households. In 2022, EEF funds were used to accomplish the following:

- Installed energy efficiency measures in 97 municipal buildings;
- Weatherized and/or provided weatherization self-install "kits" to 236 income-eligible homes; and
- Worked closely with Community Action Agencies to develop moderate-income program details, outreach methods, and to identify eligible households for targeted outreach, and completed 10 projects with 2 more in development.





### Program Highlight: Efficiency Programs

For the measures installed in 2022, the Home Energy Assistance and Municipal programs will save approximately 47,293 megawatt-hours (MWh) of electricity and 27,470 million British Thermal Units (MMBTU) over the expected life of the energy efficient equipment improvements. Associated bill savings over the lifetime of these improvements installed in 2022 is estimated to be \$7.7 million.

The All-Fuels program was launched in 2016. For the most recent All-Fuels grant award, the All-Fuels programs will save approximately 191 MWh of electricity and 11,305 MMBtu over the expected life of the energy efficient equipment improvements installed in 2022. 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 supported 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 provided energy audits, and offered financial incentives for installation of energy efficiency measures. Beginning In 2019, this program received a total of \$690 thousand of RGGI funding over a three-year period. The All-Fuels program experienced implementation challenges during 2020 and 2021 due to pandemic related factors; therefore, the program was extended through 2024.

#### 2022 RGGI Funded Energy Efficiency Project – Meriden Library

The new construction of the Meriden Library on 22 Bean Road presented an ideal opportunity for energy-efficient new construction through the RGGI funded NHSaves Municipal Program and partner utility Liberty. The project included demolition of the 1965 building with a new 3700 square foot, energy-efficient building on the same piece of land. The old library was not in compliance with accessibility standards and had poor occupancy comfort.

The town adopted a "Ready for 100" (R100) initiative in 2018, which is a commitment for town facilities to move to electricity from 100% renewable sources by 2030, and 100% of all energy from renewables by 2050. To meet the R100 goals, the new building would be fully operated from electricity. Liberty, through the NHSaves program, provided construction and technical assistance incentives for design modeling enabling value-based tuning of the design to meet the R100 goals.

The project began in November 2021 with the abatement and demolition of the old library. By the end of 2021, the new site had been excavated and foundation, footings and walls poured. Construction began in the spring of 2022. The library opened its doors on April 10, 2023.

The new library met energy efficiency goals by being well-insulated, installing high efficiency windows and doors, LED lighting, three thermal zones including air-sourced heat pumps and energy-recovery ventilators. Liberty provided over \$13,800 in RGGI funded incentives for construction and \$2,400 towards technical assistance. The estimated energy savings are 18 MWh per year and lifetime savings of 276 MWh.

Additional project highlights include improved safety for pedestrians and vehicles including curbing and sidewalks, two wheelchair-accessible bathrooms, a 30-person community room, a smaller meeting room, and an abundance of natural light. The building not only serves as a library but as a community meeting space.

This project provides an excellent example of how energy efficiency can be integrated into projects that meet a variety of community needs, ensuring reductions of energy use, carbon emissions and energy bills for many years to come.



#### **Resources:**

- <u>NH Energy Efficiency Program Plan</u>
- <u>2022 Systems Benefit Charge Report to New Hampshire Legislature (including Annual Report on RGGI grant)</u>
- <u>2023 Systems Benefit Charge Report to New Hampshire Legislature (including Annual Report on RGGI</u> grant)
- RGGI Annual Reports to the Legislature

## **New Jersey**

New Jersey invests its Regional Greenhouse Gas Initiative (RGGI) auction proceeds in programs and projects designed to help meet the State's climate, clean energy, and environmental justice goals. New Jersey's 2022 RGGI investments are guided by its triennial Strategic Funding Plan <u>RGGI Strategic Funding Plan: Years 2020 through 2022</u>. This plan directs the investment of the State's auction proceeds for its first three years of participation in RGGI, ensuring cross-agency coordination for maximum collective impact.

By law, New Jersey's RGGI funding is allocated by percentage to three state agencies (60% to the New Jersey Economic Development Authority, 20% to the New Jersey Board of Public Utilities and 20% to the New Jersey Department of Environmental Protection) and each agency is required to spend funds within specific programs areas. The 2020-2022 Plan primarily invests proceeds towards programs dedicated to clean transportation (75%), deployment of a New Jersey Green Bank (15%) and carbon sequestration projects (10%). New Jersey joined RGGI in 2020 and is continuing to actively establish programs and internal mechanisms to facilitate the disbursement of auction proceeds that complement the State's emissions reductions, clean energy, and environmental justice priorities.



During 2022, New Jersey invested RGGI Auction Proceeds in the following programs:

#### New Jersey Zero-Emissions Incentive Program

Initially launched in April 2021, the New Jersey Economic Development Authority New Jersey Zero-Emission Incentive Program (NJ ZIP) has shown continued success. NJ ZIP is a voucher program for businesses and organizations purchasing new, electric, class 2b to class 6 vehicles. The program offsets the costs of purchasing electric medium-and heavy-duty vehicles by offering vouchers with base values ranging between \$25,000 to \$100,000. Additional bonuses are available for small businesses; women-, minority-, and veteran-owned businesses; vehicles that were manufactured in New Jersey; small businesses that scrapped their eligible gas- or diesel-powered medium- and heavy-duty vehicles; and vendors that invest in driver education and training. The Economic Development Authority broadened the access to NJ ZIP beyond the greater Newark and Camden area to include overburdened communities in the greater New Brunswick area, and later allocated additional funding to include the greater shore area.

#### Medium & Heavy-Duty Vehicle Electrification Grant Program

The New Jersey Department of Environmental Protection's Medium & Heavy-Duty Vehicle Electrification grant program funds projects associated with the incremental costs of purchasing new, medium-and heavy-duty electric vehicles including school buses, garbage trucks, transit, and shuttle buses along with associated charging stations. The program's award recipients include local governments and contractors that provide services to residents.



Projects were identified through a series of open solicitations with priority given to projects in overburdened communities that demonstrate the best greenhouse gas cost effectiveness.
# Program Highlight: Implementation of the New Jersey Zero-Emission Incentive Program

# Project: ENAT Transportation & Logistics

Located in Ridgefield Park, ENAT Transportation & Logistics, was one of the first businesses approved for support under NJ ZIP program and one of the first awardees to receive its vehicles. ENAT is on its way to transitioning its entire commercial fleet to electric vehicles within the next five years. Through NJ ZIP vouchers totaling \$407,000, ENAT was able to purchase an electric medium-duty pickup truck and three electric delivery step vans for their fleet. The new vehicles are estimated to avoid a total of 413 metric tons of CO<sub>2</sub> emissions, 260 pounds of NOx emissions, and avoid the use of 3,919 MMBtu of energy over the course of a fifteen-year vehicle lifetime.

# **Resources:**

- New Jersey Zero Emission Incentive Program
- NJEDA Expands NJ Zip Voucher Program
  - o EDA's Press Release

# **New York**

New York's robust record of climate action includes helping to establish RGGI as North America's first marketbased program to reduce carbon emissions. The state affirmed its role as a climate leader with enactment of the Climate Leadership and Community Protection Act (Climate Act), one of the most aggressive climate policies of any major economy. The State has already reduced electricity emissions by 51% since 1990 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.





# Program Highlight: Climate Resiliency

In February 2022, the New York State Energy Research and Development Authority (NYSERDA) announced a total of \$3 million available to assist municipal electric utilities and electric cooperatives to better provide decarbonized and resilient energy services so that they can more effectively respond to stress events resulting from climate change and extreme weather. This initiative will provide support for three different types of projects: 1) demonstrations of net-zero emissions and deep decarbonization solutions, 2) climate impact vulnerability assessments and resilience planning, and 3) technical analysis or feasibility studies for renewable energy innovation. This program allows municipalities and members of public power associations the opportunity to access financial and technical support for energy decarbonization and resiliency where other funding sources are not available. Details on the request for proposals (RFP), which closed on May 25, 2022 are available through the solicitation portal.<sup>8</sup>

More information on this program announcement can be found on the NYSERDA website.9

# Success Story: Scoping Plan for Climate Act Adopted

In December 2022, the New York State Climate Action Council announced the approval and adoption of the Scoping Plan, which includes recommendations to meet the State Climate Act's goals and requirements.<sup>10</sup> The Scoping Plan is the framework for how New York will reduce greenhouse gas emissions and achieve net-zero emissions, through increased renewable energy and scaled electrification in buildings and transportation, and ensure all communities equitably benefit in the clean energy transition. <sup>11</sup> RGGI proceeds are used to support the comprehensive, science-based integration analysis of the benefits and costs of the recommendations outlined in the Scoping Plan.

<sup>&</sup>lt;sup>8</sup> Net-Zero Resilience Preparation for Municipal and Rural Electric Providers Request for Proposal (RFP) 4942 (ny.gov)

<sup>&</sup>lt;sup>9</sup> <u>NYSERDA Announces \$3 Million to Assist Municipal Electric Utilities and Rural Cooperatives With Providing Decarbonized</u> and Resilient Energy Services - NYSERDA

<sup>&</sup>lt;sup>10</sup> New York State Climate Action Council Finalizes Scoping Plan to Advance Nation-leading Climate Law - NYSERDA

<sup>&</sup>lt;sup>11</sup> <u>Scoping Plan - New York's Climate Leadership & Community Protection Act (ny.gov)</u>

This Scoping Plan provides recommendations for both sector-specific and economywide actions to achieve the Climate Act's goals and requirements. New York's climate action strategy is fundamentally driven by the need to deliver on climate mitigation, justice, economic opportunity, and long-term job opportunities for New Yorkers. The Scoping Plan sets the course for New York to create new job opportunities, support healthier communities and ensure that all New Yorkers will benefit from investments in the State's growing green economy. This Scoping Plan also provides examples for other states and the nation to follow, to mitigate the effects of climate change and adapt to climate change risks while protecting workers and uplifting historically marginalized populations. With the continued support from RGGI proceeds, programs like Climate Mitigation and Resilience Research will expand on the analysis underlying the Scoping Plan which will shape and refine New York's climate action strategy for years to come.

# Rhode Island

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, its 2021 Act on Climate, and broader state energy and environmental policy goals.

In 2022, 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;
- Continued support for a Farm Energy Program that links local farms to energy efficiency and solar PV opportunities;
- Support for the Zero Energy for the Ocean State (ZEOS) program through collaboration with Rhode Island Housing and National Grid. This program is designed to help provide energy savings to low and moderate income (LMI) customers in Rhode Island;
- Support renewable development on Brownfields through Rhode Island Commerce Corporation's Renewable Energy Fund;
- Furthering solar PV adoption by Rhode Island homeowners and small businesses through continued support of the state's Renewable Energy Fund;
- Support for the launch of an Affordable Solar Access Pathways Program for direct incentives for solar customers with a low and moderate income focus;
- Continued support for the installation and operation of air-source heat pumps; and
- Continues support for low-income utility customers enrolled in the A-60 rate class for electric bill credits.



\$75.1M cumulatively. \$45.8M is committed to 2023 and future programs.



# Program Highlight: Lead by Example

In May 2023, Executive Order 23-06 was signed which directed, "State Agencies to Lead by Example in Energy Efficiency and Clean Energy." This Executive Order updates the targets and responsibilities of the "Lead by Example" program within the Office of Energy Resources (OER) "to oversee and coordinate efforts at State agencies to reduce energy consumption and greenhouse gas emissions".

# Success Story: Public School Energy Equity Program

In 2021, the RI Public School Energy Equity Program began its journey with a pioneering LED lighting upgrade at Calcutt Middle School in Central Falls. This initial step marked the commencement of an ambitious endeavor to enhance energy efficiency across Rhode Island's public schools, particularly focusing on high-need communities. As a vital part of the "Lead by Example" (LBE) initiative, which includes a parallel program for state agencies, this program has rapidly evolved into a key driver for energy-efficient practices in the public sector.

From its inception, the program has broadened its reach to encompass ten school districts, integrating additional initiatives like the Building Automation Accelerator and the Heat-Pump Water Heater Accelerator. These expansions build upon the foundational success of the initial Lighting Accelerator, illustrating the program's adaptability and responsiveness to evolving energy needs.

The program's success is measured in concrete terms: significant reductions in energy consumption and costs, creation of clean energy jobs, and the transformation of school environments with better lighting and temperature control. Achieving these milestones has been possible due to the comprehensive support offered by the program, encompassing technical assistance, procurement support, implementation oversight, and substantial financial incentives, often fully covering project costs.

A testament to the program's impact is the improvement of 28 schools, encompassing an area of 2,298,983 square feet. These improvements have led to a lifetime estimated energy saving of 43,238,884 kWh, paralleling the energy usage of 554 households over 13 years. Financially, this translates to an avoided cost of approximately \$8 million over the 13-year lifespan of the installed equipment. Environmentally, the program contributes significantly to reducing carbon emissions, with an annual reduction of approximately 1,160 metric tons of CO<sub>2</sub>, amounting to 15,087 metric tons over 13 years.

The real power of the RI Public School Energy Equity Program lies not just in its impressive statistics but in its enduring impact on the learning environments of Rhode Island's youth. The improved schools not only benefit from reduced operational costs and enhanced energy efficiency but also offer students a more conducive learning environment. Currently, with 13 schools benefitting and 15 more in the pipeline, the program is expanding its scope to include building automation system upgrades, signaling a commitment to even deeper energy savings.

In conclusion, the RI Public School Energy Equity Program is more than just an energy initiative; it's a commitment to a sustainable, equitable future. Its success not only aligns with Rhode Island's environmental goals but also sets a benchmark for similar programs nationwide, highlighting the profound impact that focused, well-executed energy initiatives can have on communities and future generations.

# Vermont

Vermont invests the majority of its CO<sub>2</sub> 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 2022 are estimated to result in lifetime energy savings of 601,971 MMBtu. These programs are estimated to avoid the emission of 18,255 short tons of CO<sub>2</sub>, and to save participants \$9.4 million on their energy bills over the lifetime of those investments. Vermont's RGGI-funded programs have served approximately 1,775 households and 98 businesses. Programs currently supported by CO<sub>2</sub> 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 (including multi-family rental properties), the Home Energy Loan for residential customers, low-income energy efficiency services through 3E. Thermal project management, custom residential and commercial thermal efficiency projects, off-grid residential new construction, technologies including woodstoves and heat pumps, retail do-it-yourself (DIY) and weatherization kits, and development and support services.

Efficiency Vermont, the nation's first ratepayer-funded energy efficiency utility, is overseen by the Vermont Public Utility Commission, and implemented by the Vermont Energy Investment Corporation (VEIC). Efficiency Vermont's programs have a proven track record of saving energy and money for commercial, industrial, and residential consumers. These and other energy efficiency programs helped to rank Vermont fourth in the nation in 2022, according to the American Council for an Energy Efficient Economy (ACEEE) State Energy Efficiency Scorecard





# Program Highlight: Home Performance with ENERGY STAR ® and the Home Energy Loan

The Efficiency Vermont Home Performance with ENERGY STAR service is an incentive-based program for Vermont residences with 1-4 units, to lower utility bills and increase home comfort and safety by installing insulation, air sealing, and health and safety components. Vermont households can access comprehensive thermal efficiency retrofits, incentives to offset project costs, and low-to-no interest rate financing. Customers hire a participating Efficiency Excellence Network, Building Performance Institute-certified contractor. In 2022, this allowed customers to receive incentives up to \$3,000, which requires the contractor to meet 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 U.S., 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 low-to-no interest rate financing for Home Performance with ENERGY STAR projects and other thermal efficiency projects, including woodstoves (pellet and cord wood,) and central pellet heating systems with income-based interest-rate buydowns and loan loss reserve support for participating lenders.

# Success Story: RGGI funding provides comprehensive weatherization for Vermont households, and supports the businesses and workforce making critical efficiency and decarbonization upgrades

The COVID-19 global health crisis showed signs of receding in 2022. Light could be glimpsed at the end of the pandemic tunnel thanks to widely available vaccines, a restarting economy, and loosening public health restrictions. Vermonters nonetheless faced record-high heating fuel prices due to lingering pandemic disruptions and growing

global demand for fossil fuels. Then the Russian invasion of Ukraine saw a growing energy crunch explode into a global energy crisis. Gasoline prices jumped past \$4 per gallon. Fuel oil prices soared from \$2.64 per gallon in May 2021 to \$5.97 per gallon by May 2022—a more than 126% increase. For the roughly 60% of Vermonters who heat their homes with fossil fuels, extremely expensive heating bills were becoming all too common.

These energy burdens spurred interest in comprehensive weatherization and other efficiency upgrades. In 2022, there were 464 households that completed Efficiency Vermont Home Performance with ENERGY STAR weatherization projects, including 112 low- or moderate-income households.

One customer who decided to act lives outside St. Albans, a city in northwest Vermont. A member of both Vermont Electric Cooperative and the Energy Co-op of Vermont, this customer said the pandemic, inflation, and the war in Ukraine combined to paint a grim picture for his energy costs. "My fuel oil bill skyrocketed. It was beyond sustainable," he told Efficiency Vermont. After nearly 50 years in his home, the customer knew his energy needs well, using just over 1,000 gallons of oil each year, but record-high fuel prices raised new questions about affordability. "I always saved. And I knew I couldn't sustain this."

The Energy Co-op performed a home energy audit of the three-story house. The customer undertook comprehensive air sealing and insulation of the attic and crawl space. Heat pumps were installed in the ground and top floors.<sup>12</sup> With the weatherization and efficiency upgrades, the customer was able to cut their fuel oil use to fewer than 500 gallons. "Efficiency Vermont and Vermont Energy Co-op were very helpful and supportive," this customer said. More than rebates and monthly savings, this customer's goals looked well beyond his next heating bill. "My hope is another family will eventually move in and have the benefits of a low-carbon footprint in this home," the customer said.



THIS PHOTO, TAKEN FROM A **RGGI** FUNDED RESIDENTIAL INSULATION PROJECT, REPRESENTS THE KIND OF ATTIC, CRAWL SPACE, AND EXTERIOR WALL INSULATION WORK THAT IS SUPPORTED BY **HPWES** AND THAT WAS IMPLEMENTED FOR THE AFOREMENTIONED

RGGI is a major funding source for these weatherization projects. Years of deploying these funds have kept the workforce prepared to help Vermonters transition to more efficient and affordable ways to heat their homes. When energy prices create unbearable burdens, the chain of partners who participate in Efficiency Vermont RGGI-funded projects—from contractors to fuel companies—work together to help customers achieve warm, affordable, and more comfortable homes. Sustained funding has also helped companies like the Energy Co-op of Vermont transition from a fuel-based business model to one that focuses on installing and maintaining heat pumps and other low-carbon heating options throughout Vermont's northwest.

"Our priority is always buttoning up a house before we add or switch out heating systems," said Paul Fleckenstein, the efficiency manager for the Energy Co-op of Vermont. As the co-op provides more weatherization services and heating systems like wood or pellet stoves and heat pumps, customers have shared a variety of reasons for pursuing weatherization. Those reasons range from improved air quality, to increased comfort, to energy savings, to reducing carbon emissions. "State and utility incentives are key programs for us, and market-based RGGI funds make a big difference by helping us do bigger and more comprehensive projects, and by supporting our workforce," Fleckenstein said. "It's hard to imagine how we could sustain this important work without this funding."

# **Resources:**

- <u>Efficiency Vermont Rebates</u>
- <u>Efficiency Vermont Services</u>
- Efficiency Vermont News

<sup>&</sup>lt;sup>12</sup> The heat pumps were funded by Efficiency Vermont but not with RGGI funds.

# 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.

# **Beneficial Electrification**

Programs designed to reduce fossil fuel consumption by implementing or facilitating fuel-switching to replace direct fossil fuel use with electric power. Examples include incentives for electric vehicles and home appliances, and installation of electric vehicle infrastructure. Program costs include evaluation and measurement.

# 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 & Climate Change Adaptation**

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, other initiatives to reduce greenhouse gases, and climate adaptation and community preparedness initiatives. Some projects can support multiple functions, such as natural area restoration that also serves flood mitigation planning purposes. Program costs include evaluation and measurement.

### RGGI, Inc.

Funds provided to RGGI, Inc. to support and implement state CO<sub>2</sub> Budget Trading programs.

# General Terms

### **RGGI Investments**

RGGI Investments are the proceeds generated by RGGI CO<sub>2</sub> 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.

### Future Committed

Future committed funds 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 2022 and beyond.

### **Current Period**

The twelve-month period covered by this report, which may be either the fiscal year or calendar year 2021, as defined by each state.

# **Benefits and Statistics**

# Annual (2022)

A measure of one year's worth of benefits from all measures installed in 2022. Note that actual realized benefits in the year 2022 may differ slightly from the 2022 annual benefits, since measures may be installed at different times during the year.

# Lifetime (2022)

The full benefits of measures installed in 2022, 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 2022 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 direct job-years created as a result of RGGI funds invested. Estimates were created by applying job factors from the <u>2021 NYSERDA Clean Energy Industry Report</u> (CEIR) to analogous programs receiving RGGI investments. For programs receiving RGGI investments which related to multiple CEIR job categories, a composite job factor was used which averaged the CEIR job factors for relevant categories. This is a change in methodology compared to previous versions of this report, which estimated direct, indirect, and induced job-years using reasonable job factors 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 programspecific 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.

#### CO<sub>2</sub> Emissions Avoided

Estimated total number of short tons of CO<sub>2</sub> avoided as a result of funds invested, calculated using a programspecific formula as defined by each state.

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