APPENDIX

The Economic Impacts of the Regional Greenhouse Gas Initiative on Ten Northeast and Mid-Atlantic States

Modeling of Electric System Impacts:
GE MAPS

Electric System Model Overview: GE MAPS

Our analysis of economic impacts of RGGI on the power system uses General Electric's Multi-Area Production Simulation (MAPS) model, GE's proprietary model that simulates the operation of an interconnected utility power system and determines the production costs, taking into account constraints on the operation of the grid.

MAPS is particularly helpful in modeling the dispatch of the New England, New York and PJM electric markets, because the model is configured in ways that align with the operations and market design in those three regional power markets. MAPS comprehensively simulates the economic dispatch of the power system on an hourly basis based on each power plant's operational characteristics and marginal production costs, subject to various operational and transmission system constraints that can alter dispatch order (and thus prices) in real time. MAPS also uses algorithms designed to reflect the operational constraints of power plants, such as the time it takes to start units, to ramp them up to various power levels, the minimum time they must be on, and the minimum time they must be off.

Given the level of detail in how MAPS represents the power system – that is, down to very small power plants and specific transmission system components and limits – the model allows the user to simulate a power system's operations on an hour-by-hour basis and with a high degree of geographic resolution. Results include individual power plants' unit output and emissions, power prices, consumers' payments for electric energy, and power plant producer revenues in electric energy markets.

To calculate the impacts of RGGI on power system operations and outcomes, we used MAPS to simulate the "with RGGI" and "without RGGI" systems that serve the 10 RGGI states,[1] with the difference between the two simulations being the direct incremental impacts of RGGI on the power system. These two simulation runs otherwise maintained the same inputs, in terms of fuel prices, power plants available to be dispatched, power plant operational characteristics, NO_x and SO_2 allowance costs, baseline load levels, and so forth. The "with RGGI" case was benchmarked to actual power system operations in the historical months of the 2009-2011 time period (in New England, New York, PJM). With this as a starting point, several core assumptions (e.g., load levels that change as a result of energy efficiency investments, removal of the cost of RGGI CO_2 allowances) were changed, and the model re-run to simulate the "without RGGI" case. As described in the body of the report, the simulation period is the historical 2009-2011 period, along with a 10-year tail period (through 2021) to capture the implications of energy efficiency programs implemented through use of RGGI allowance proceeds generated to date. The MAPS outputs include changes in power plant operations, emissions, prices, customer payments, and producer revenues.

The core data inputs and assumptions used in the analysis are described below.

[1] As described below, we simulated these systems (PJM, NYISO, ISO-NE) using a 4-Pool database that also include Ontario's system (which is interconnected to NY).

Fuel Prices in the Power Sector

Natural Gas

Natural gas prices are calculated as a Henry Hub base price plus a regional Hub basis differential (into the relevant Mid-Atlantic or Northeast region). From January 2009 through July of 2011, the base Henry Hub price is a historical NYMEX spot price. From August of 2011 through December of 2012, the base Henry Hub price is based on NYMEX futures prices. From January of 2013 through December of 2021, the base Henry Hub price is grown at the rate of change in the Energy Information Administration's (EIA's) Annual Energy Outlook (AEO) as appropriate for New England (AEO growth rate for New England), for PJM (using the Mid-Atlantic AEO growth rate), and the average of the New England and Mid-Atlantic AEO growth rates for New York.[2] To capture the delivered price of natural gas into the region of interest, we add to the base Henry Hub price a basis differential based on historical differences between prices at Henry Hub and those within each region, separately for Northern New England, Southern New England, New York, and the Mid-Atlantic.

Distillate Oil

From January 2009 through July 2011, distillate prices are based on historical spot prices from EIA. From August 2011 through August 2012, distillate prices are based on NYMEX New York Harbor heating oil futures. From September 2012 through December 2021, distillate prices are based off of NYMEX New York Harbor heating oil futures grown at the average of the New England and Mid-Atlantic AEO growth rates.

Residual Oil

From January 2009 through February 2011, residual prices are based on historical spot prices from EIA. Prices are for sales by all sellers, and are an average of the low sulfur and high sulfur prices. From August 2011 through February 2013, prices are based on "Daily Settlements for New York Harbor Residual Fuel 1.0% (Platts) Swap Futures" from NYMEX. For the gap period (March 2011 through July 2011), prices are determined through linear interpolation between the February and August 2011 prices. From March 2013 through December 2021, residual prices are based off of NYMEX futures grown at the average of the New England and Mid-Atlantic AEO growth rates.

[2] In all cases where NYMEX data is grown at an AEO growth rate, the method is as follows:

- The growth rate used is the rate of change between two specific AEO annual data points, rather than the overall AEO growth rate for a particular fuel.
- The growth rate is applied to the data point for the same month in the prior year, rather than the immediately preceding month.

Coal

In the New England states, coal prices are based off of the New England price projections in the 2011 AEO. In the Mid-Atlantic states, coal prices are based off of the Mid-Atlantic price projections in the 2011 AEO. In New York, prices are based off of an average of the New England and Mid-Atlantic price projections in the 2011 AEO. In Ontario, coal prices are based off of a historical basis differential between the New England and Ontario price series. This basis differential is applied to New England coal prices to arrive at updated Ontario coal prices.

Power Plants: Existing Units, Unit Retirements and Additions

The set of power plants is based on actual plants operating within eastern PJM, NYISO, ISO-NE, and Ontario. To this dataset, we made changes (consistent in the "with RGGI" and "without RGGI" runs), to reflect unit retirements and power plant additions (e.g., to meet the states' renewable portfolio standards (RPS)). Unit retirement decisions are based on assumed retirements in the GE generator dataset, which relies on information from Ventyx as of January 2010. Some of these retirements have been adjusted as the result of a systematic review of planning documents published by PJM, NYISO, and ISO-NE, along with up-to-date retirement analyses from SNL. Unit additions listed in GE's generator dataset have not been adjusted.

Renewables

The RPS targets for each state have been obtained from the Database of State Incentives for Renewables and Efficiency (DSIRE). Renewable MWh targets have been calculated for each state and summed by region. Beginning in 2011, we add renewable capacity sufficient to meet 50 percent of the gap between generation from existing resources and the renewable target in each region (New England, New York, PJM) (and assume that the other 50 percent of the gap is met through alternative compliance payments rather than new renewable energy). The composition of incremental renewable capacity is based on the proportional distribution of renewable technology types in the current interconnection queues of each region. To determine the incremental capacity required to meet this energy demand, average historical capacity factors by technology type and by region were obtained from SNL.

Generic Capacity Additions to Meet Resource Adequacy

After the incremental addition of renewable capacity and retirement of units as discussed above, we analyzed the extent to which each region's capacity satisfied forecasted resource adequacy requirements in each year. This review determined that additional resources were required in PJM in the "without RGGI" scenario, and new capacity was added based on generic natural gas combined cycle and gas turbine plants. The heat rates and start up energy values for these new units were assumed to be 2% more efficient than recently built natural gas generating units. Combined cycle and gas turbine plants were added based on a 3:2 ratio.

Emissions costs

NO_x and SO_2 Allowance Prices

Monthly emissions allowance prices for NO_x and SO_2 were computed for the 2009-2011 period. This calculation was based on daily Cantor Fitzgerald emissions allowance trading prices. Prices were obtained from Ventyx. Annual prices for 2012 and beyond were obtained from Synapse Energy Economics, Inc. "Avoided Energy Supply Costs in New England: 2011 Report."

RGGI-Related CO_2 Allowance Prices

Prices for CO_2 allowances were modeled for each month using the most-recent quarter's actual CO_2 allowance price as revealed by the RGGI auction. Auction clearing prices for auctions 1 through 13 were obtained from RGGI, Inc. No CO_2 price was assumed after December 2011, in light of the assumption that all needed CO_2 allowances had been purchased as of the 13th auction to cover CO_2 emissions caps during the first three-year compliance period.

Load Forecasts

Historical information about actual customer loads and long-term forecast values for load and energy were obtained from the latest ISO load forecast documentation, where available. Load and energy forecasts used for the "with RGGI" and "without RGGI" scenarios were calculated net of energy efficiency savings. Load forecasts in the 'without RGGI" case for all zones of RGGI states were adjusted to remove the impact of RGGI-funded energy efficiency measures over the lifetime of these measures.

New England

Target energy and peak load (net of passive demand resources) forecasts were obtained from ISONE's 2011 CELT Report. Because ISO New England only forecasts data through 2020, load and total energy have been grown at the 2019-2020 total energy growth rate to compute values for 2021.

New York

Target energy, peak load, and EE load and energy reductions forecasts were obtained from NYISO's 2011 Load & Capacity Data "Gold Book."

PJM

Target energy, peak load, and EE load reduction forecasts were obtained from the 2011 PJM Load Forecast Report.

Ontario

The Ontario ISO's most recent long-term load forecast was produced in 2006 and has not been updated. In an effort to use the most recent load forecasts possible, load forecasts produced in GE's 4-Pool dataset were used for all Ontario load areas.

Load Profiles

Load profiles in GE's database are computed as an indirect average of hourly load data from 2004-2006 for each MAPS load zone. It was assumed that these shapes represented load profiles excluding impacts of recently implemented energy efficiency measures. As a result, these profiles were used to model load in the "with RGGI" and "without RGGI" cases. To account for the impact of energy efficiency savings on hourly load in the "with RGGI" case, energy efficiency data from each RGGI state were aggregated by program type. Total energy savings from each program type were divided among summer and winter on-peak and off-peak hours. This distribution of total savings was estimated using various states' data on savings from energy efficiency programs. From these load groupings, hourly savings were determined and modeled in each RGGI zone.

General Adjustments

Inflation

Inflation is set using the GDP inflator reported in EIA's AEO.

Outages

Outages for plants are modified from the MAPS default by adding one additional week of scheduled maintenance to baseload units, and four additional weeks of scheduled maintenance to peaking/shoulder units. These outages are then set to occur during the shoulder months (February through May and the third week of September through November). Outages are set by week rather than specifically relating to the month.

Random outages are fixed between the "with RGGI" and "without RGGI" cases, but the random outage seed is changed for each year.

LMP Price Cap

The price cap has been set to $1,000/MWh.

Modeling of Macroeconomic Impacts:
IMPLAN

Macroeconomic Model Overview: IMPLAN

Our analysis of macroeconomic impacts of RGGI uses the "IMPLAN" model. IMPLAN (which stands for "IMpact analysis for PLANning") is a social accounting/input-output model that attempts to replicate the structure and functioning of a specific economy.[3] IMPLAN is widely used for economic impact assessments in the public and private sectors.[4]

Input/output models are based on long-standing, well-established and broadly accepted methodologies designed to estimate the impacts on a regional economy of a change in economic activity. Such models are based on a methodology established decades ago by economists for tracking the effects on changes in the inputs or outputs of an industry (or some other segments of an economy) as they ripple through the economy.

The broad conventional approach to examining these economic flows is to rely on national economic input-output account survey data. These data are based on census information collected from businesses that track the flows of dollars into and out of enterprises. The data make up the basis for the input/output tables that reflect the movement of dollars within an economy and the multiplier effects that reflect the role of dollars in influencing different multiplier effects in different segments of economies. The Bureau of Economic Analysis within the U.S. Department of Commerce collects information related to these relationships among different segments of regional economies. Over the years, these economic accounts are verified and serve as the basis for a wide variety of macroeconomic metrics (such as Gross Domestic Product, Gross State Product, and countless other economic variables). The IMPLAN databases used for the RGGI region (and the ten RGGI states individually) are rooted in these national economic account information sources.

The IMPLAN model allows one to investigate various interactions in a defined economy (in this case, the RGGI region and the individual states within it) and to calculate various economic impacts in that economy when a new activity (such as investments in energy efficiency, use of funds for government programs supported by the General Fund, assistance in helping customers pay their energy bills, lost revenues for owners of power plants, etc.) involves money flows around the economy.

IMPLAN relies on a detailed system of accounting for relationships among different parts of the economy, and relies on national economic data for the specified region. The model tracks dollars spent in a region, including dollars that circulate within it (e.g., transfers of dollars from consumers to producers), dollars that flow into it (purchases of goods and services from outside the local economy), and dollars that flow outside of it (e.g., payments to the federal government). The model thus examines inflows, outflows, and interactions within the economy under study.

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[3] Information taken directly from IMPLAN's website, available at http://implan.com/V4/Index.php. IMPLAN is a proprietary tool with accompanying data files for different regions, provided by MIG, Inc (Formerly Minnesota IMPLAN Group, Inc.). IMPLAN is used to create complete, extremely detailed Social Accounting Matrices and Multiplier Models of local economies. MIG, Inc. provides software tools, region-specific data, and outstanding technical support to enable users to make in-depth examinations of state, multi-county, county, sub-county, and metropolitan regional economies. www.implan.com/

[4] See IMPLAN's client listing, available at http://implan.com/V4/index.php?option=com_content&view=article&id=64&Itemid=25.

Specifically, the model captures various effects, including:

- *Employment effects* (the total number of jobs created or lost);
- *Income effects* (the total change in income to employees that results from the economic activity); and
- *"Value-added" effects* (the total economic value added to the economy, which reflects the gross economic output of the area less the cost of the inputs).

In our analysis, we focused on added value, since this is the overall measure of change in macroeconomic activity.

There are various ways in which the new activity creates impacts, each of which is separately tracked by the model:

- *Direct effects:* the initial set of inputs that are being introduced into the economy. In our study, this included the direct effects of RGGI on owners of power plants ("producers") as a whole, on energy "consumers" (consumers of electricity, natural gas and heating oil), and use of RGGI proceeds to buy goods and services in the economy (e.g., investment in energy efficiency, work training programs, contributions to the general fund, bill-payment assistance for low income consumers, etc.).
- *Indirect effects:* the new demand for local goods, services and jobs as a result of the new activity, such as the purchase of labor to retrofit buildings with energy efficient measures, or to train workers in these skills. Some RGGI auction proceeds may lead to payments for things outside the local region (e.g., the purchase of efficient lighting equipment or solar panels manufactured outside of the RGGI region), and thus represents a way that such funds do not stay within the local economy after having been generated by power plant owners' purchases of CO_2 allowances.
- *Induced effects:* the increased spending of workers resulting from income earned from direct and indirect economic activity.

Direct effects are determined by an "Event" as defined by the user (i.e., a $10 million dollar purchase of worker training is a $10 million dollar direct effect; a $10 million dollar contribution to the General Fund is a different $10 million dollar direct event).[5] The indirect effects are determined by the amount of the direct effect spent within the study region on supplies, services, labor and taxes. Finally the induced effect measures the money that is re-spent in the study area as a result of spending from the indirect effect. Each of these steps recognizes an important leakage from the economic study region spent on purchases outside of the defined area. Eventually these leakages will stop the cycle.

More specifically, the effects are:

[5] Note that analyzing the economic value added means that a dollar of direct spending does not translate into a direct effect of one dollar of value added. For example, if a dollar is spent in region on light bulbs, the direct value added is only the net revenue and income of the retail store where the light bulb was purchased, thus excluding the manufacturing costs of the light bulb itself.

- *Direct effects*: The set of expenditures applied to the predictive model (i.e., I/O multipliers) for impact analysis. It is a series of (or single) production changes or expenditures made by producers/consumers as a result of an activity or policy. These initial changes are determined to be a result of this activity or policy. Applying these initial changes to the multipliers in an IMPLAN model will then display how the region will respond, economically, to these initial changes.
- *Indirect effects*: The impact of local industries buying goods and services from other local industries. The cycle of spending works its way backward through the supply chain until all money leaks from the local economy, either through imports or by payments to value added.
- *Induced effects*: The response by an economy to an initial change (direct effect) that occurs through re-spending of income received by a component of value added. IMPLAN's default multiplier recognizes that labor income (employee compensation and proprietor income components of value added) is not a leakage out of the regional economy. This money is recirculated through the household spending patterns causing further local economic activity.

State Economic Database

Our IMPLAN analysis of the RGGI states was based on the most recent state datafiles (2009) for each of the 10 states, as available from MIG, Inc. These state-level data files include information for a set of highly disaggregated industries, sorted generally by their 4 and 5 digit NAICS codes.[6]

IMPLAN data files are compiled from a wide variety of sources including the U.S. Bureau of Economic Analysis, the U.S. Bureau of Labor, and the U.S. Census.[7] They include information about regional employment, income, value-added, household and government consumption. Examples include: employee compensation; proprietary income; federal, state and local taxes affecting income, sales, real estate, and so forth; personal consumption expenditures at nine income levels; federal government purchases (military and non-military) and investments; purchases by local and state governments (including educational institutions); inventory purchases; capital formation; foreign exports; and inter-institutional transfers. They also include unique national input-output structural matrices and unique annual trade flow models.

Expenditure Categories Used in IMPLAN Modeling

In our IMPLAN analysis, we assigned RGGI expenditures into a variety of IMPLAN sector categories, based on assumptions about the character of the economic activity tied to each particular category of RGGI programs.

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[6] NAICS codes are tied to the North American Industry Classification System, which is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.

[7] The IMPLAN data files use federal government data sources including the following federal programs: Bureau of Economic Analysis Benchmark I/O Accounts of the US and Output Estimates; Bureau of Labor Statistics Covered Employment and Wages (ES202) Program and Consumer Expenditure Survey; Census Bureau County Business Patterns, Decennial Census and Population Surveys, Censuses and Surveys; Department of Agriculture Crop and Livestock Statistics; and US Geological Survey.

For example, expenditures on energy efficiency were modeled in various ways, including with respect to efficient appliances (modeled as purchases at retail stores for electronics and appliances); residential lighting (modeled as a combination of maintenance and repair construction of residential structures, along with purchases at retail stores for building materials); other residential energy efficiency measures (modeled as construction of new residential buildings, single and multi-family structures); and other commercial energy efficiency and on-site renewable energy (modeled as construction of other new non-residential structures).

Other non-energy efficiency examples include RGGI-related expenditures on: education and outreach programs (modeled as other private educational services); consumer bill reductions (modeled based on median household incomes in a particular state); low-income bill-payment assistance (modeled based on low-income household income in the relevant states); revenue losses to power plant owners (modeled as electric power generation, transmission, and distribution); and general fund contributions (modeled as state and local government institutional spending).

Discount Rate

Discount Rate Overview

Our analysis involves the assessment of costs (e.g., expenditures and investments, decreases in revenues) and benefits (e.g., lower electricity bills for consumers, added value in the economy) that occur in different periods of time. We examine the flow of dollars associated with the purchase of CO_2 emissions allowances in 13 RGGI auctions that took place in Q3 2008 through Q3 2011, the impact of these allowances in electricity prices in 2009-2011, and the impact of RGGI-funded programs on electric system outcomes and the macro-economy from 2009-2021. Thus the study period, in one way or another, spans from 2008 to 2021.

To compare these benefits and costs properly, we discount all dollar flows into net present values as of 2011. We calculate the net present value by applying an appropriate discount rate to dollar flows in different years, and then subtracting the sum total of discounted costs from the sum total of discounted benefits.

The discount rate is the tool that accounts for the time value of money – the concept that a dollar today is typically worth more than the same amount of money in the future because of the opportunity cost of money. A dollar today could be put into an investment or an interest-bearing activity that will typically cause it to grow in value, so that dollar today is worth more to its holder than a dollar received in the future. Further, inflation diminishes the purchasing power of dollars over time. And uncertainty about future economic outcomes, combined with a preference for nearer-term gratification, typically causes a dollar in hand today to be worth more than one tomorrow. The higher the discount rate, the lower is the present value of future cash flows.

Our analysis required choosing an appropriate discount rate. Our analysis reflects dollars in the hands of producers, who are largely private enterprises, and consumers, made up of households, businesses, government energy users, and others. RGGI-funded activities add value to the macro economy of a wide range of actors in the ten RGGI states in the Northeastern and Mid-Atlantic region. Choice of appropriate discount rate needs to properly reflect the opportunity costs of these various private and public entities in society.

There is a deep literature on the proper discount rate to use in analyzing certain public policies or activities involving society rather than particular producers or consumers.

- **A private discount rate** is used when analyzing the investment options of private enterprises. The appropriate private discount rate varies, depending upon whether the economic analysis focuses on a single company (where that company's weighted average cost of capital would be appropriate) versus a group of companies (where the appropriate discount rate would reflect their collective opportunity costs).

- **A different discount rate** may be appropriate for use by government agencies when they analyze investments, when consumers look at their economic options, or when evaluating the rate at which society as a whole is willing to trade off present for future benefits.

    - **Government discount rate**: For example, in 1992, the federal government's Office of Management and Budget issued OMB Circular No. A-94, "Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs." This document established guidance for discount rates used in benefit-cost and other types of

economic analysis by federal agencies, with updates on certain discount rates to use when the interest rate and inflation assumptions in the budget are changed. Because "public investments and regulations displace both private investment and consumption," OMB's recommended discount rate for public investments was a real discount rate of 7 percent, which "approximates the marginal pretax rate of return on an average investment in the private sector in recent years."[8] Various analyses that involve "internal government investments" with effects on increased government revenues or decreased government costs (like "an investment in an energy-efficient building system that reduces Federal operating costs") should use a discount rate reflecting a Treasury bond with a comparable maturity to the investment. But where a government activity provides "a mix of both Federal cost savings and external social benefits," where possible the "Federal cost savings and their associated investment costs may be discounted at the Treasury rate, while the external social benefits and their associated investment costs should be discounted at the 7 percent real rate." At the time the circular was written in 1992, a 10-year Treasury was 7 percent nominal and 3.6 percent real; in 2011, these Treasury rates were 3 percent nominal and 1.3 percent real.[9]

- **Consumption discount rate:** Real-world conditions create differences between opportunity costs of consumers relative to private actors and governments: "Among other things, private sector returns are taxed (often at multiple levels), capital markets are not perfect, and capital investments often involve risks reflected in market interest rates. These factors drive a wedge between the *social rate* at which consumption can be traded through time (the pre-tax rate of return to private investments) and the rate at which *individuals* can trade consumption over time (the post-tax consumption rate of interest). …[For example:] …Suppose the market rate of interest, net of inflation, is 5%, and that taxes on capital income amount to 40 percent of the net return. In this case, private investments will yield 5%, of which 2% is paid in taxes to the government, with individuals receiving the remaining 3%. From a social perspective, consumption can be traded from the present to the future at a rate of 5%. But individuals effectively trade consumption through time at a rate of 3% because they owe taxes on investment earnings. As a result, the consumption rate of interest is 3%, which is substantially less than the 5% social rate of return on private sector investments (also known as the social opportunity cost of private capital)."[10]

- **Social discount rate**: "Social discounting… is discounting from the broad society-as-a-whole point of view that is embodied in benefit-cost analysis. *Private*

[8] OMB Circular No. A-94 (1992), "Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs." http://www.whitehouse.gov/omb/circulars_a094/

[9] OMB Budget Assumptions – Nominal and Real Treasury Interest Rates for Different Maturities (from the annual budget assumptions for the first year of the budget forecast) December 10, 2010. http://www.whitehouse.gov/sites/default/files/omb/assets/a94/dischist.pdf

[10] US Environmental Protection Agency (National Center for Environmental Economics, Office of Policy), "Guidelines for Preparing Economic Analyses," EPA 240-R-10-001, December 2010 ("EPA Guidelines"), pages 6-7 to 6-8.

> *discounting*, on the other hand, is discounting from the specific, limited perspective of private individuals or firms."[11] "Implementing this distinction in practice can be complex… using a given private discount rate instead of a social discount rate may bias results as part of a benefit-cost analysis."[12]

Recent guidance provided by the U.S. Environmental Protection Agency makes the following recommendations for discount rates to use in analyzing programs that involve flows to various entities in society over different periods of time, especially when "there is a significant difference in the timing of costs and benefits, such as with policies that require large initial outlays or that have long delays before benefits are realized."[13]

> Calculate the NPV using the consumption rate of interest. This is appropriate for situations where all costs and benefits occur as changes in consumption flows rather than changes in capital stocks, i.e., capital displacement effects are negligible. As of the date of this publication, current estimates of the consumption rate of interest, based on recent returns to Government-backed securities, are close to 3%. Also calculate the NPV using the rate of return to private capital. This is appropriate for situations where all costs and benefits occur as changes in capital stocks rather than consumption flows. The Office of Management and Budget estimates a rate of 7% for the opportunity cost of private capital.[14]

For these various reasons, we used both a 3 percent ("public" or "social") discount rate, as well as a 7 percent ("private") discount rate in our analysis.

[11] EPA Guidelines, page 6-1.

[12] EPA Guidelines, page 6-1.

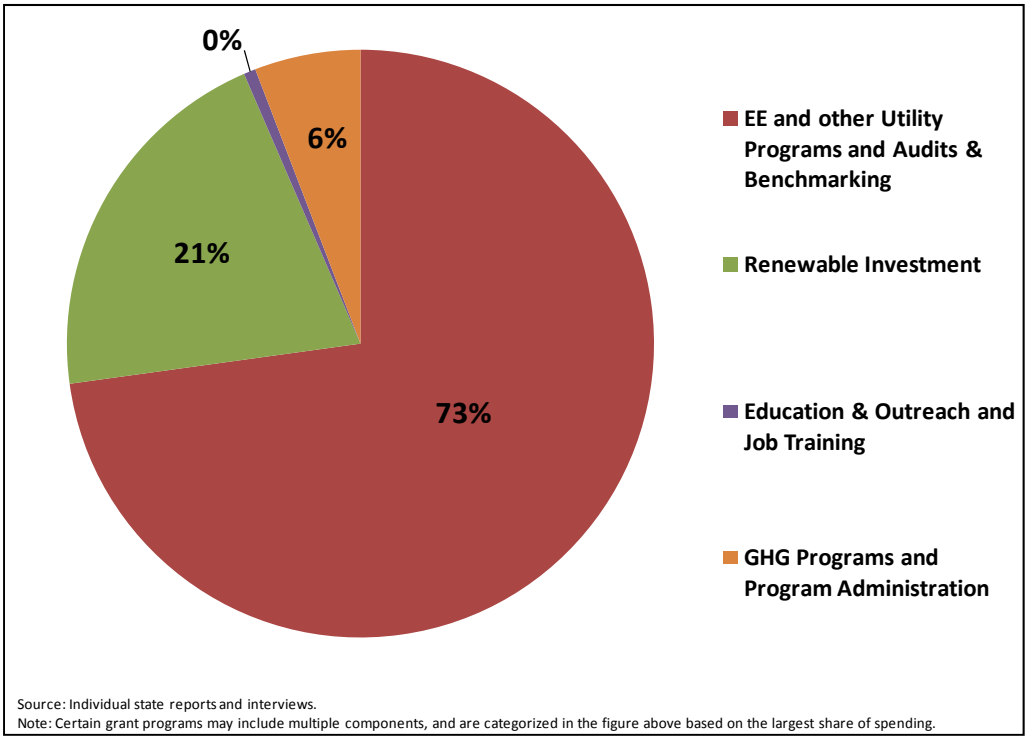
[13] EPA Guidelines, page 6-5.

[14] EPA Guidelines, page 6-23.

Detailed Results

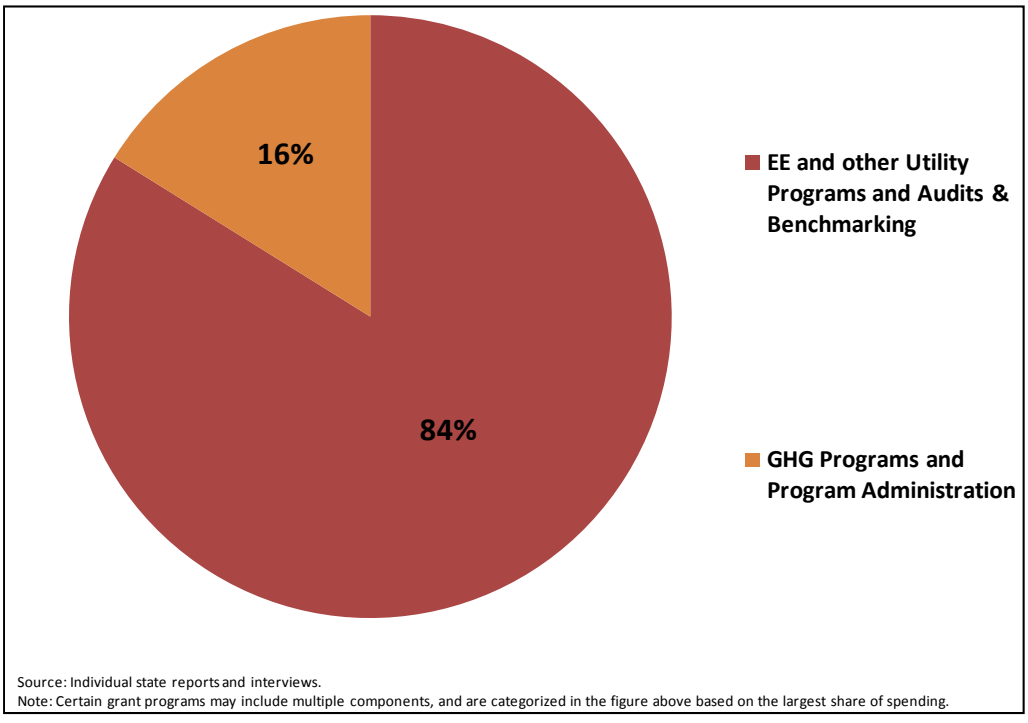
RGGI Proceed Spending by State

Connecticut



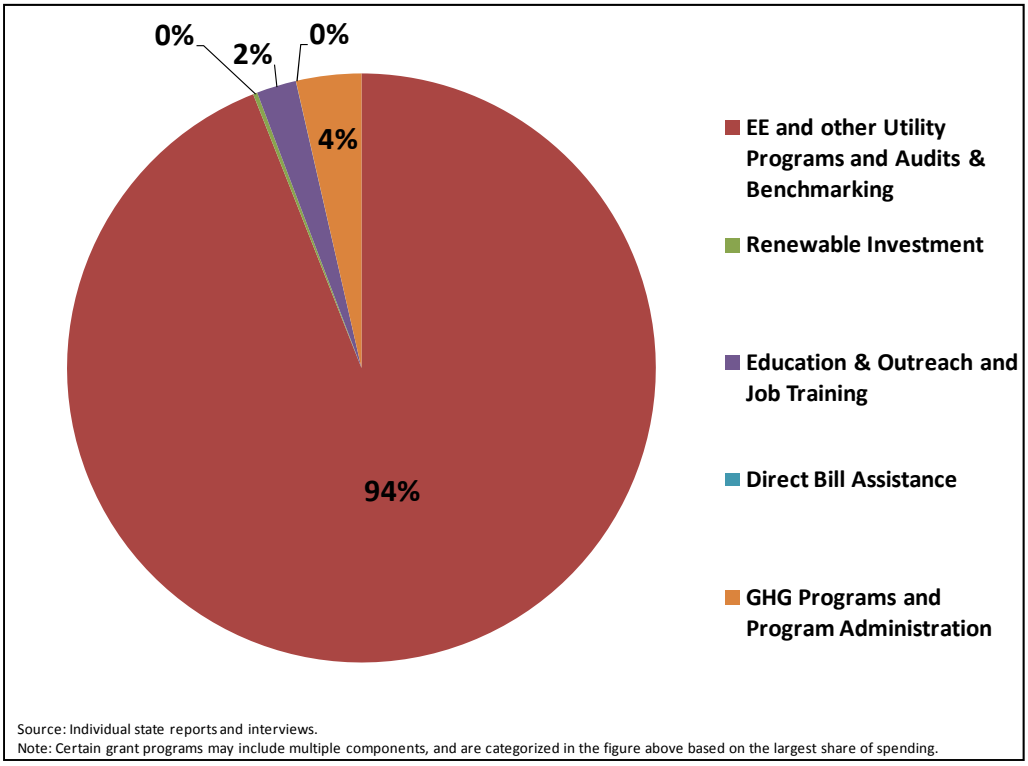
Source: Individual state reports and interviews.
Note: Certain grant programs may include multiple components, and are categorized in the figure above based on the largest share of spending.

Maine



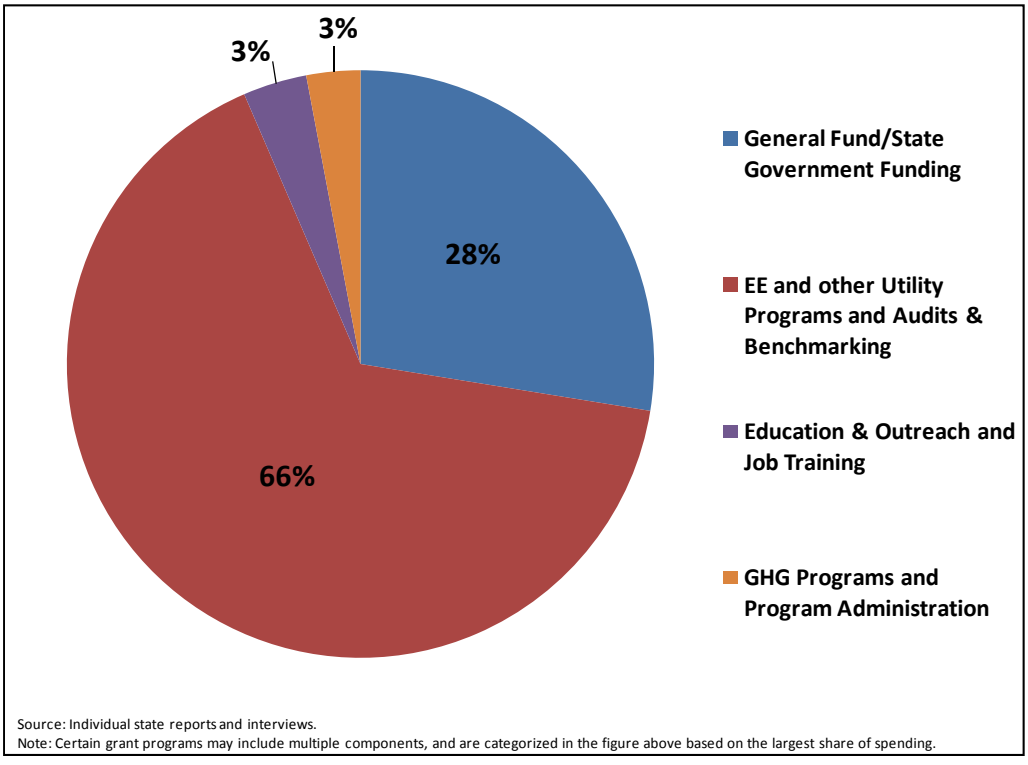
Source: Individual state reports and interviews.
Note: Certain grant programs may include multiple components, and are categorized in the figure above based on the largest share of spending.

Massachusetts



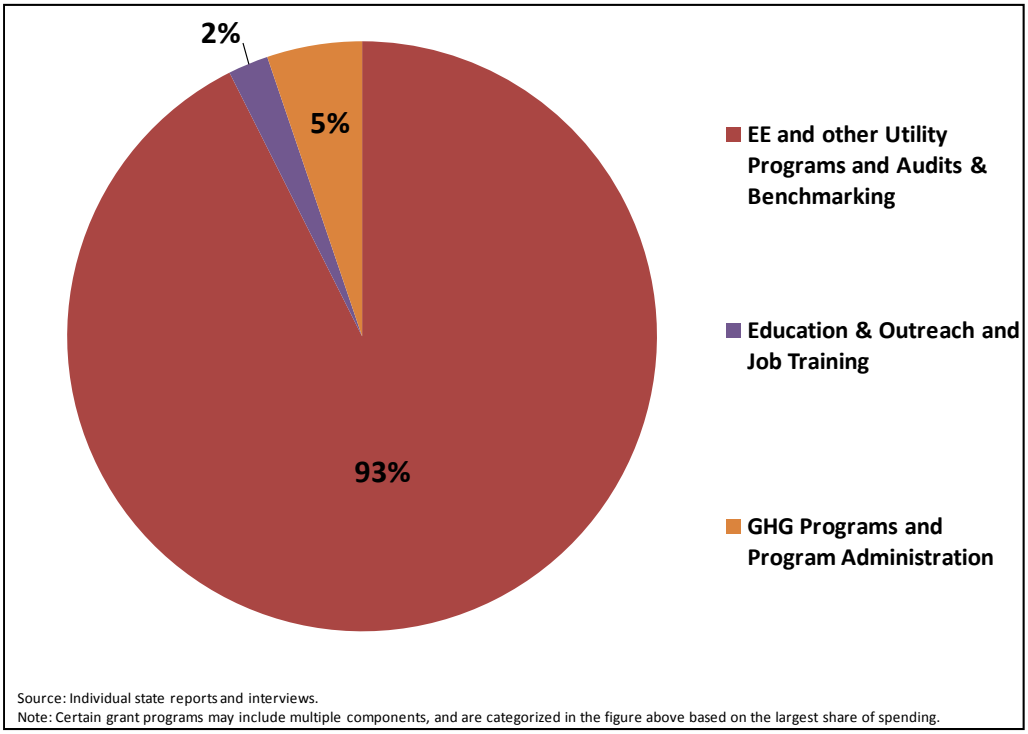
Source: Individual state reports and interviews.
Note: Certain grant programs may include multiple components, and are categorized in the figure above based on the largest share of spending.

New Hampshire



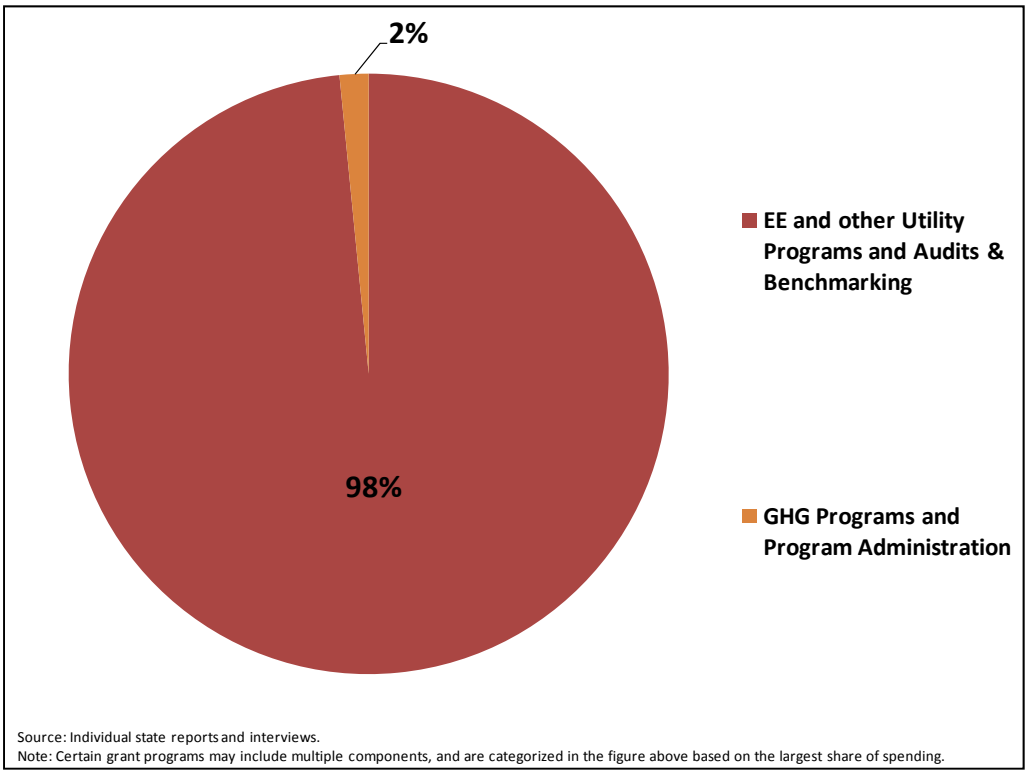
Source: Individual state reports and interviews.
Note: Certain grant programs may include multiple components, and are categorized in the figure above based on the largest share of spending.

Rhode Island



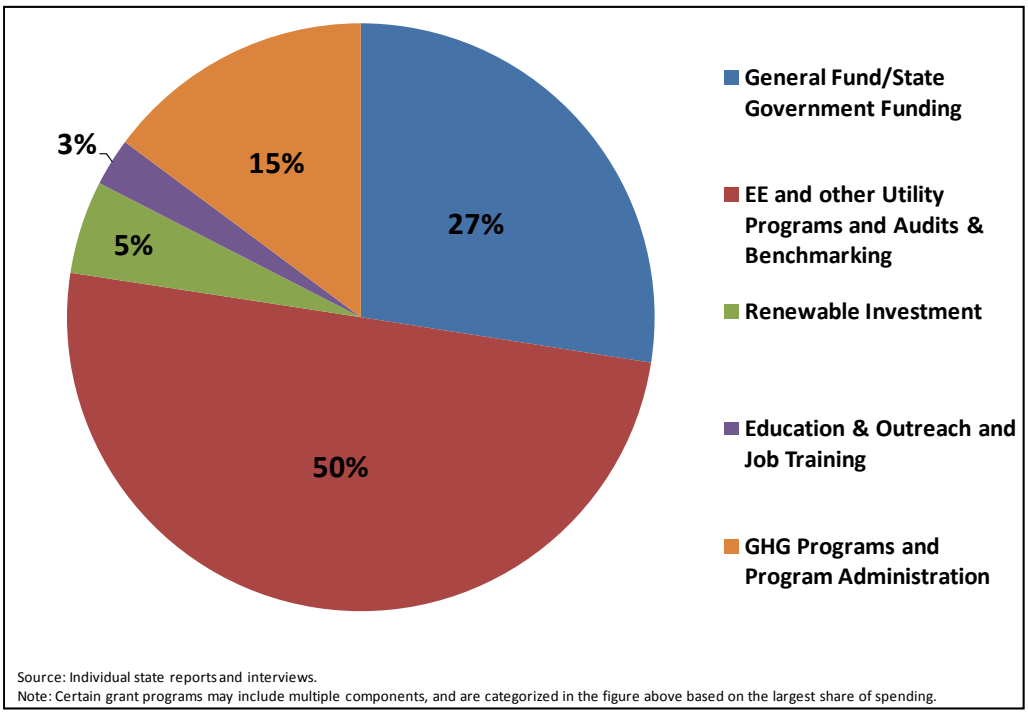
Source: Individual state reports and interviews.
Note: Certain grant programs may include multiple components, and are categorized in the figure above based on the largest share of spending.

Vermont



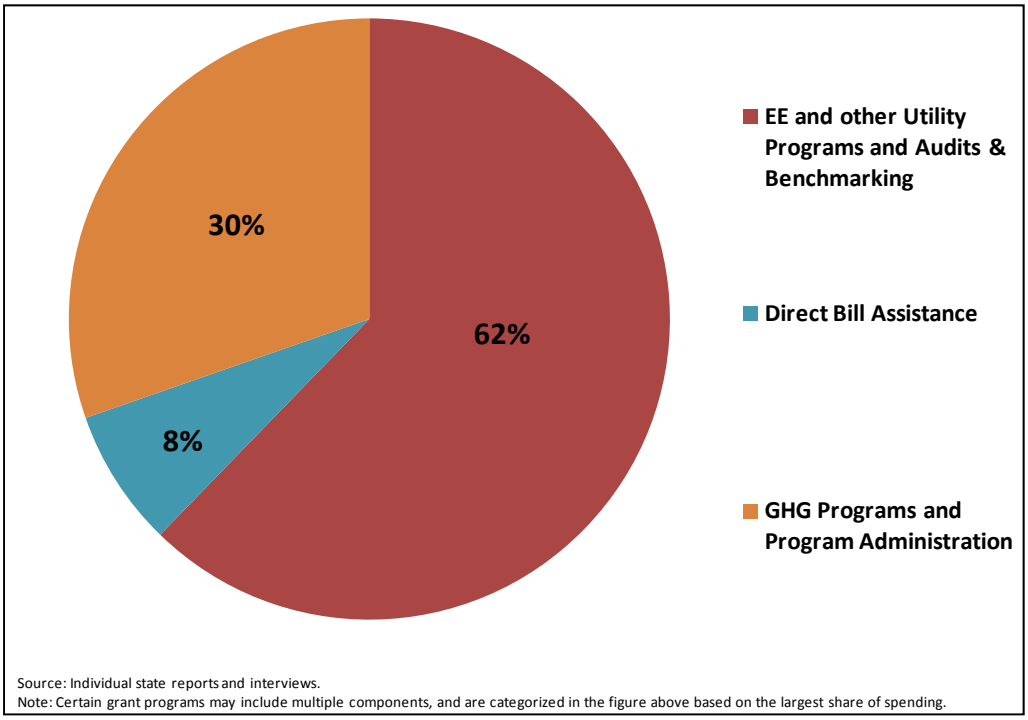
Source: Individual state reports and interviews.
Note: Certain grant programs may include multiple components, and are categorized in the figure above based on the largest share of spending.

New York



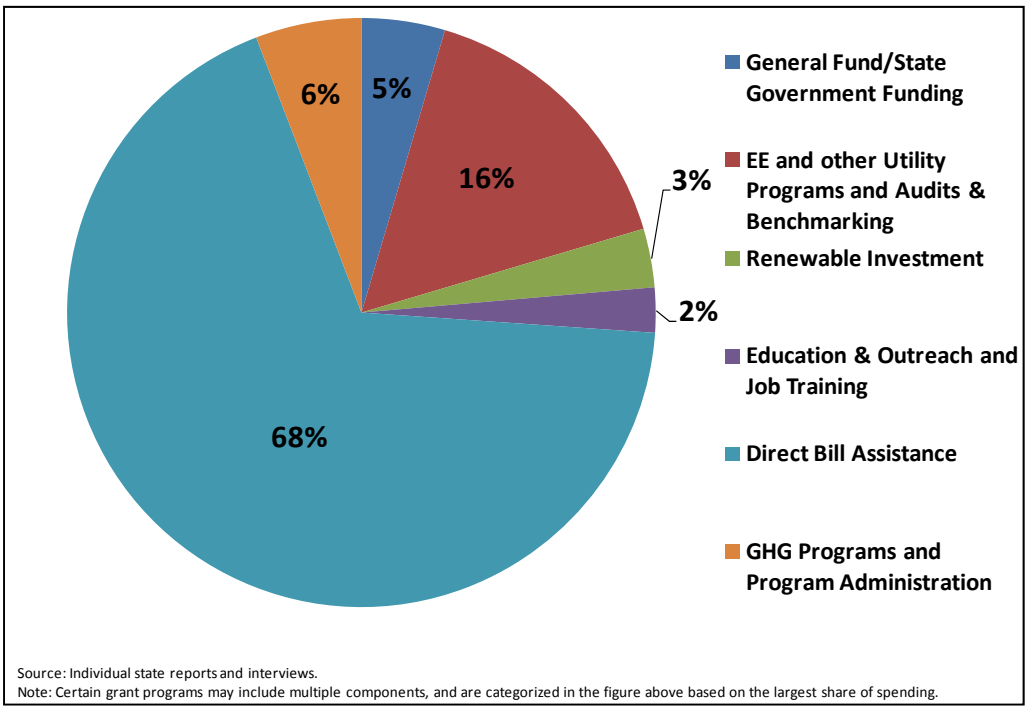
Source: Individual state reports and interviews.
Note: Certain grant programs may include multiple components, and are categorized in the figure above based on the largest share of spending.

Delaware



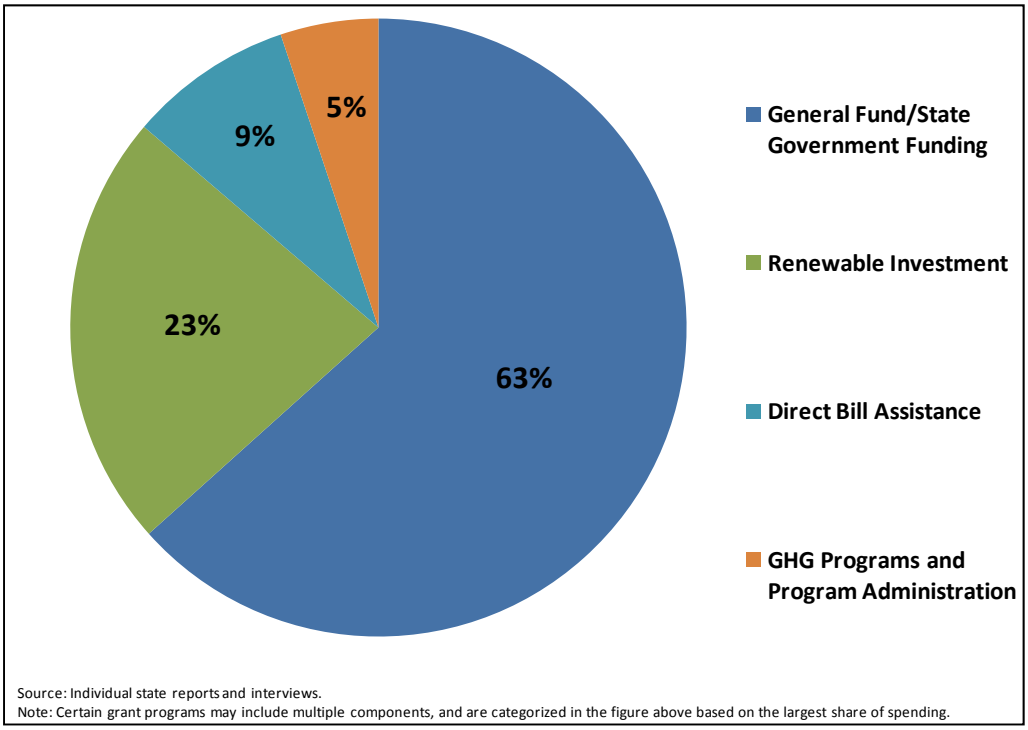
Source: Individual state reports and interviews.
Note: Certain grant programs may include multiple components, and are categorized in the figure above based on the largest share of spending.

Maryland



Source: Individual state reports and interviews.
Note: Certain grant programs may include multiple components, and are categorized in the figure above based on the largest share of spending.

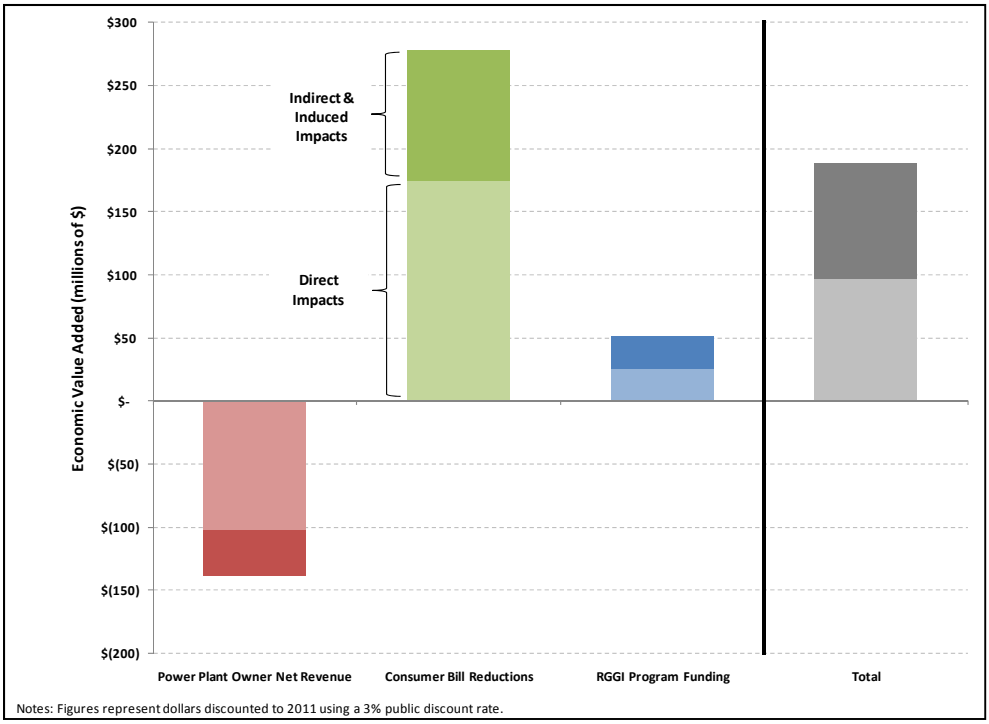
New Jersey



Source: Individual state reports and interviews.
Note: Certain grant programs may include multiple components, and are categorized in the figure above based on the largest share of spending.

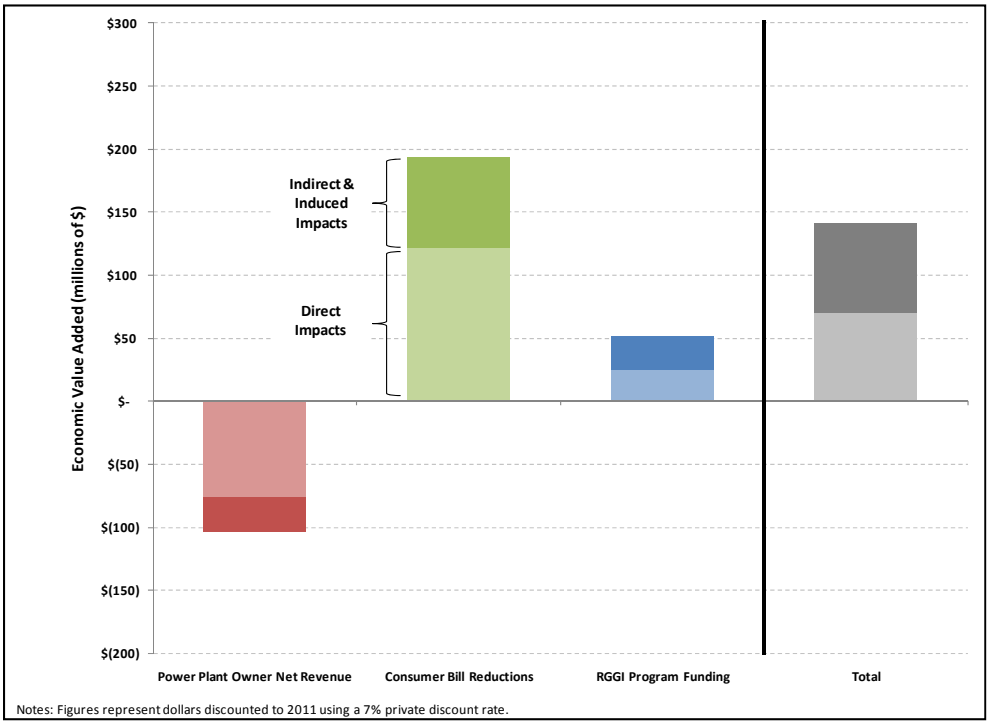
Net Economic Impacts of RGGI by State

Connecticut, Using a Social Discount Rate



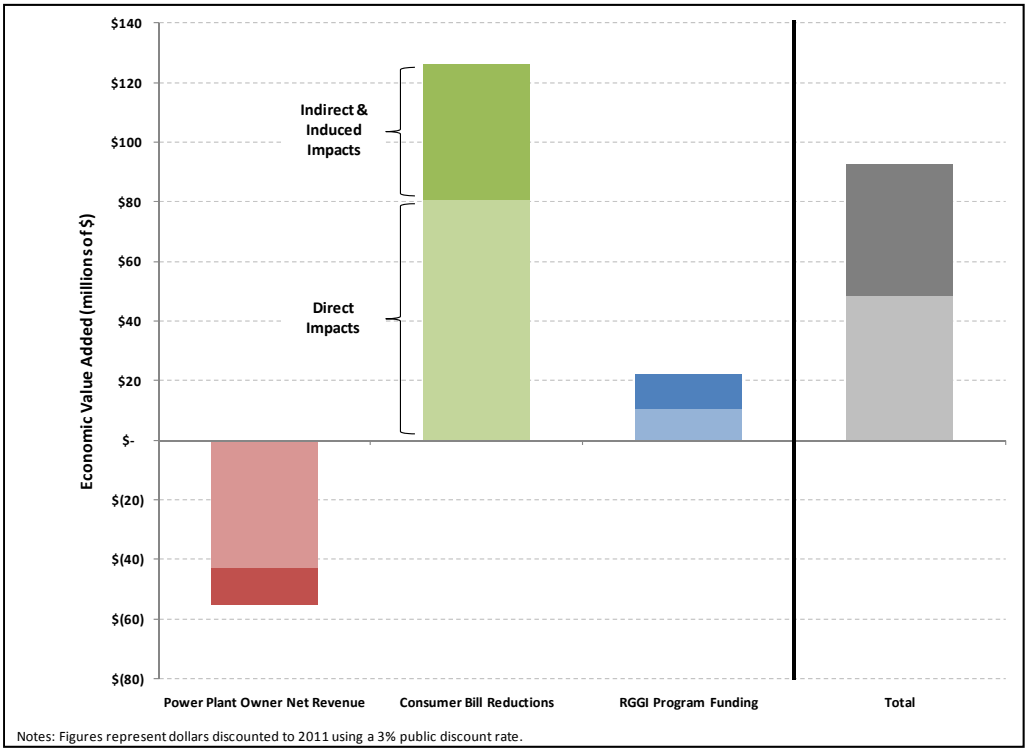
Notes: Figures represent dollars discounted to 2011 using a 3% public discount rate.

Connecticut, Using a Private Discount Rate



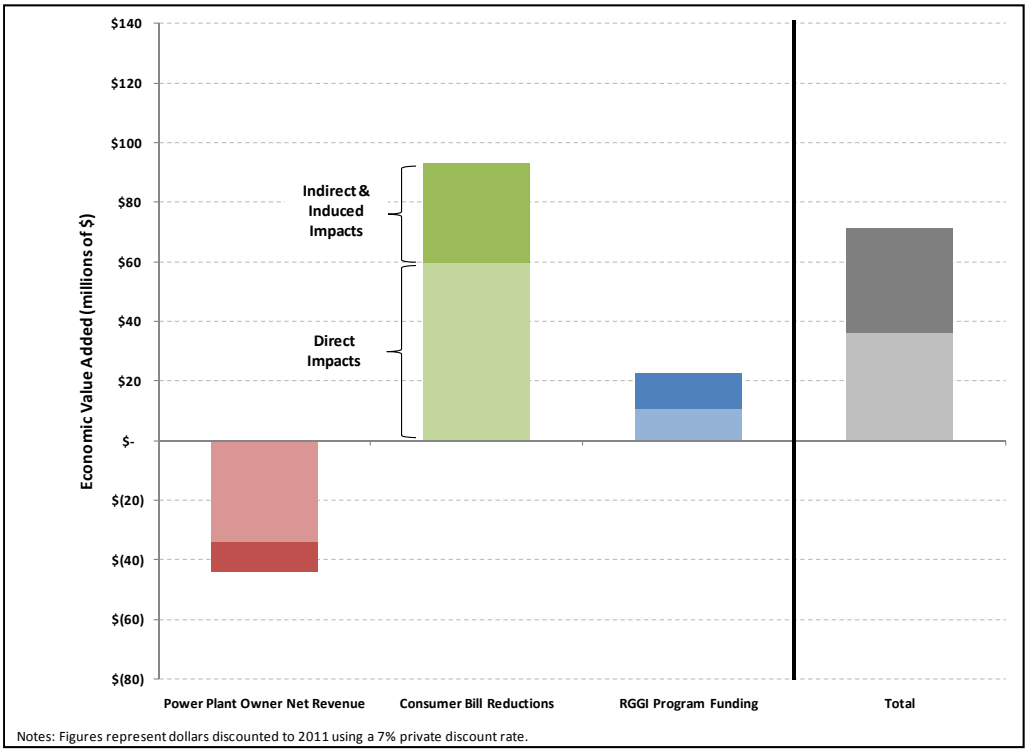
Notes: Figures represent dollars discounted to 2011 using a 7% private discount rate.

Maine, Using a Social Discount Rate



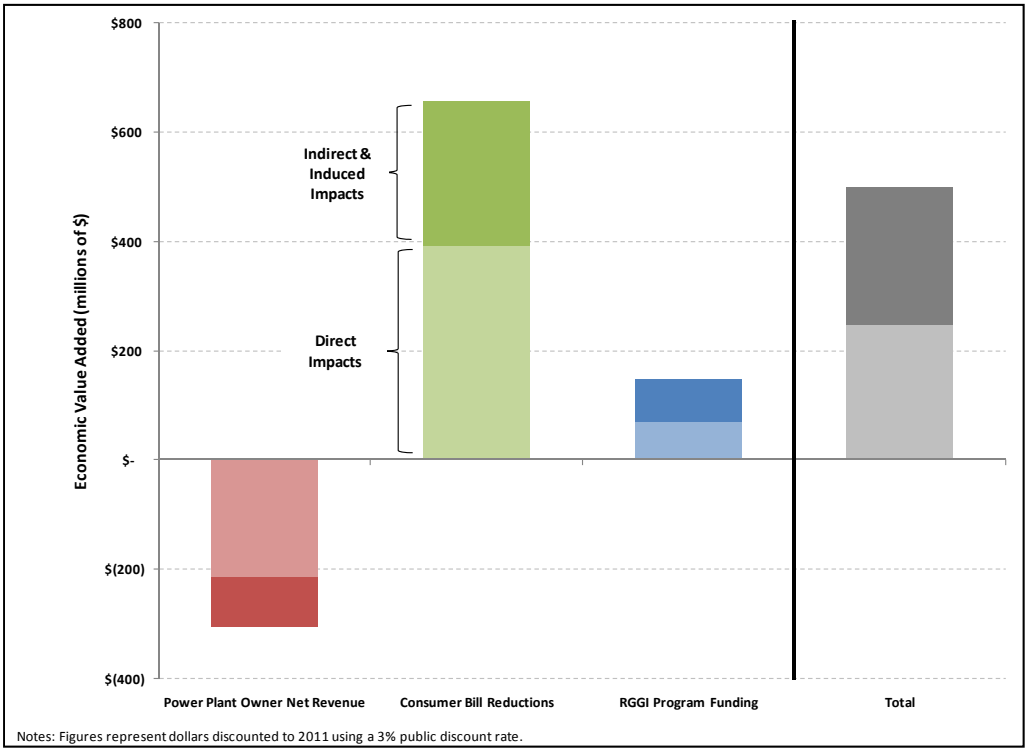
Notes: Figures represent dollars discounted to 2011 using a 3% public discount rate.

Maine, Using a Private Discount Rate



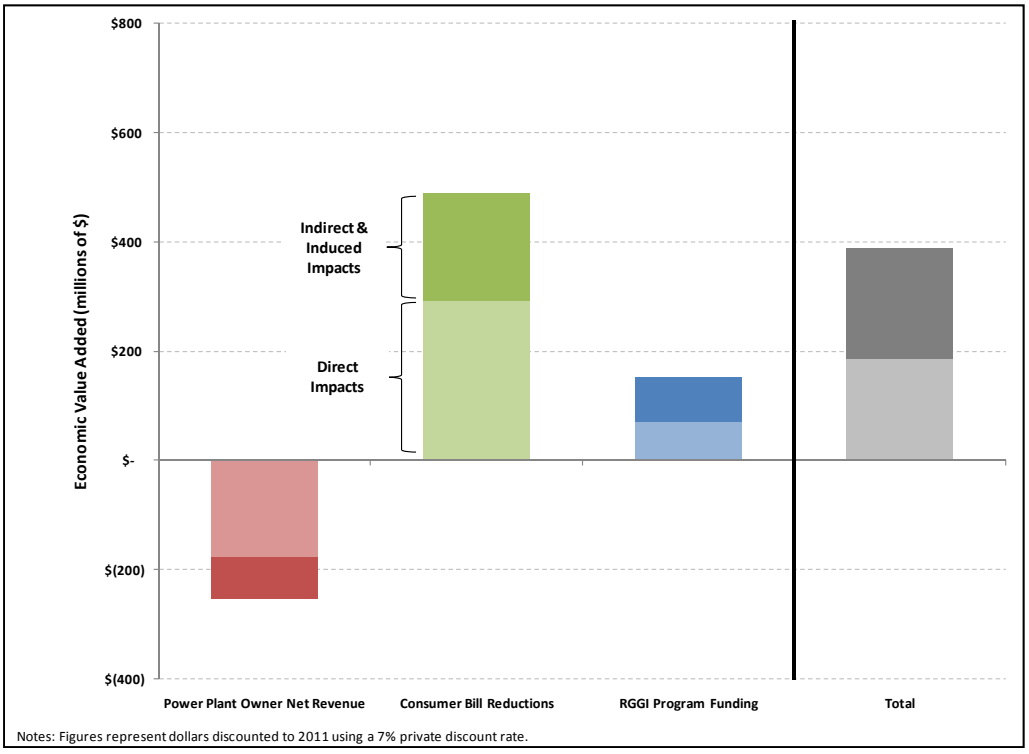
Notes: Figures represent dollars discounted to 2011 using a 7% private discount rate.

Massachusetts, Using a Social Discount Rate



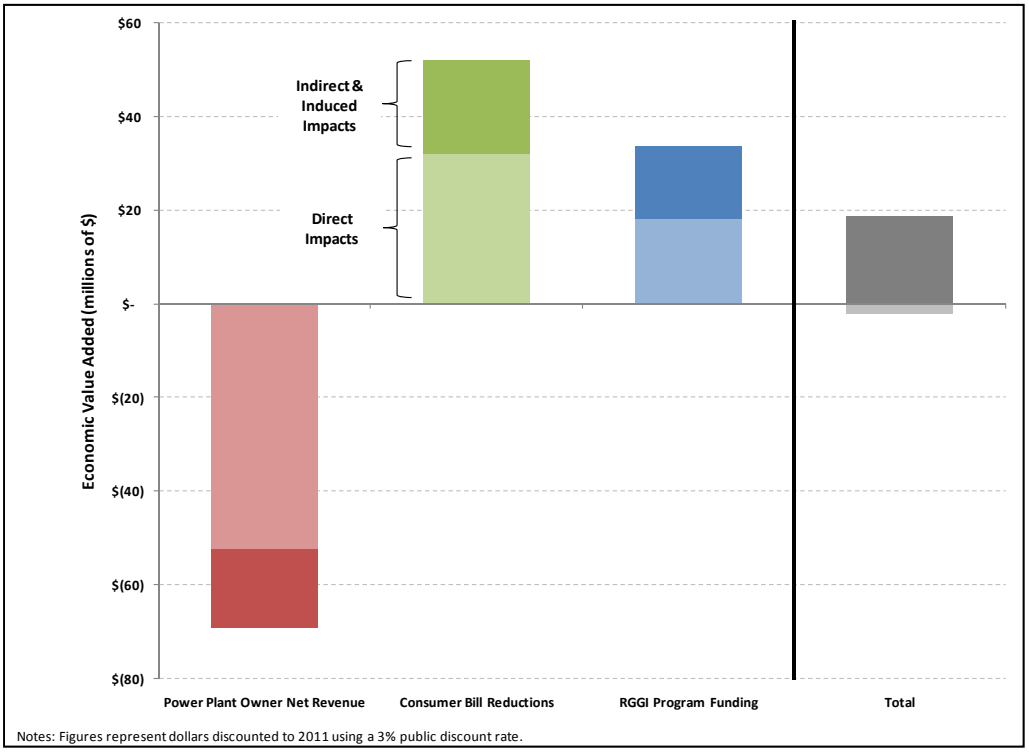
Notes: Figures represent dollars discounted to 2011 using a 3% public discount rate.

Massachusetts, Using a Private Discount Rate



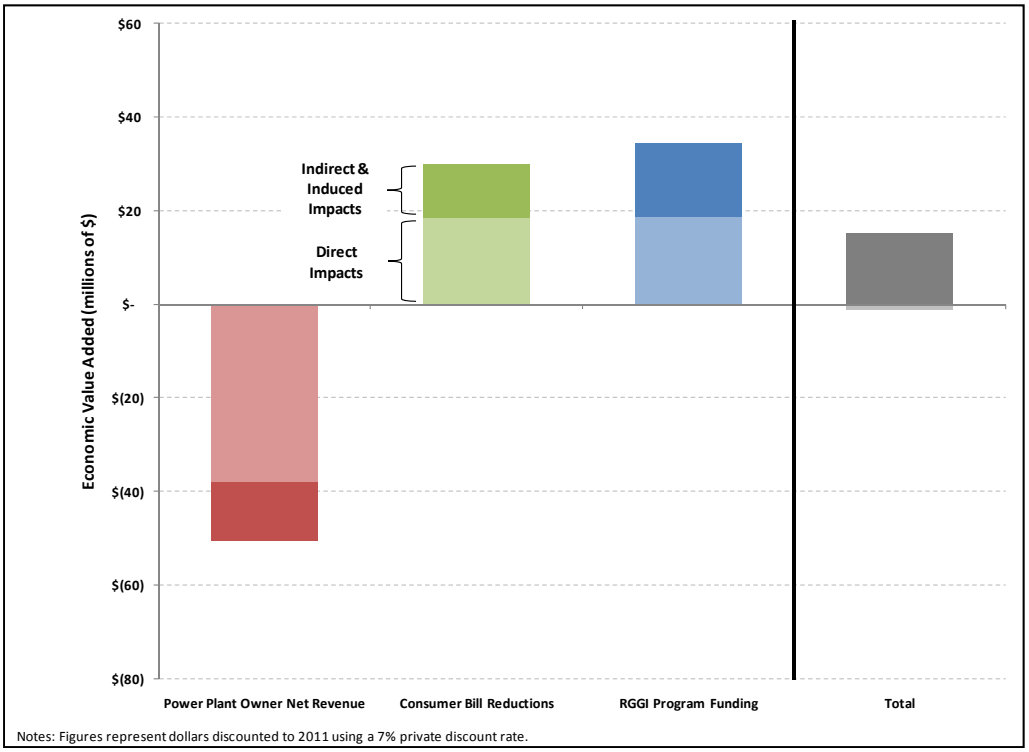
Notes: Figures represent dollars discounted to 2011 using a 7% private discount rate.

New Hampshire, Using a Social Discount Rate



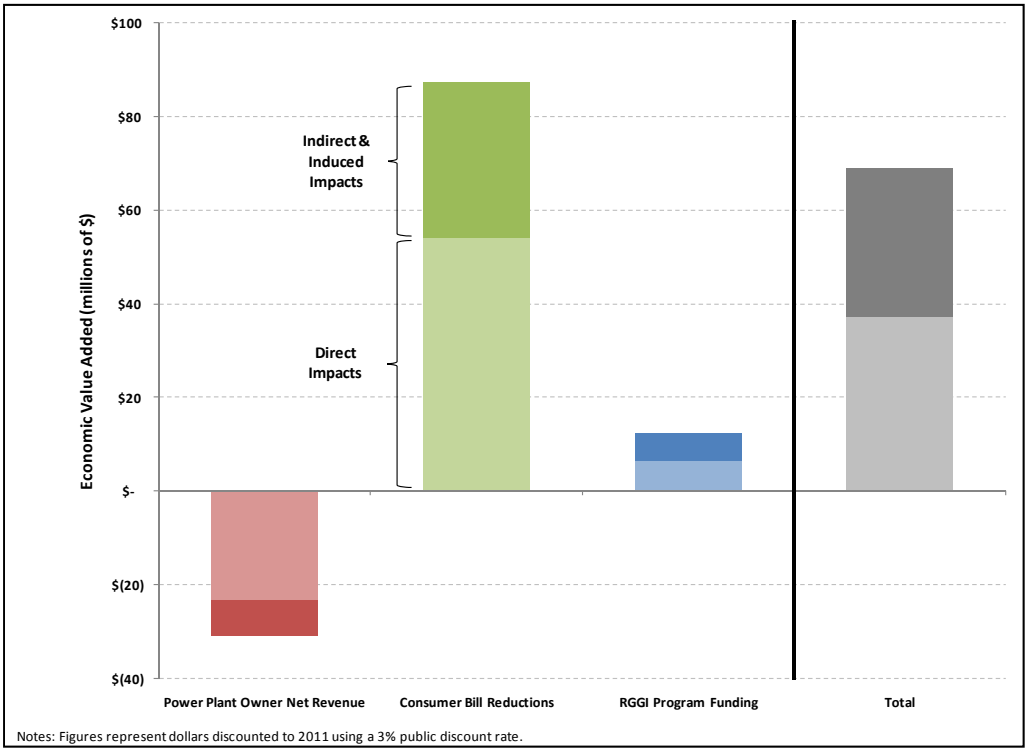
Notes: Figures represent dollars discounted to 2011 using a 3% public discount rate.

New Hampshire, Using a Private Discount Rate



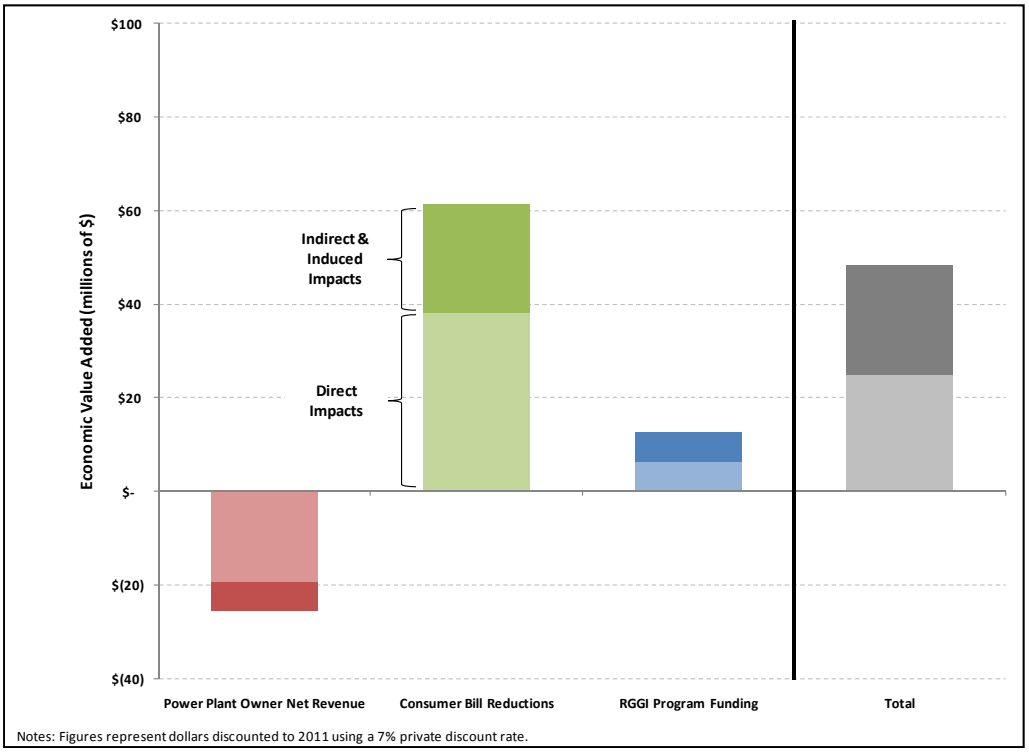
Notes: Figures represent dollars discounted to 2011 using a 7% private discount rate.

Rhode Island, Using a Social Discount Rate



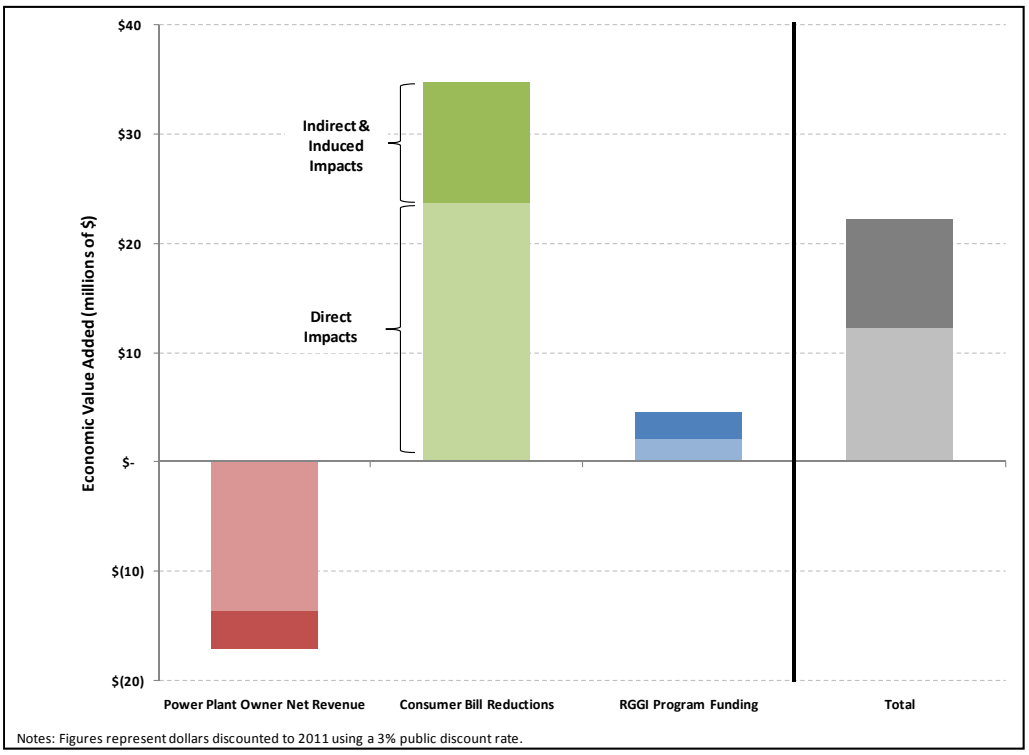
Notes: Figures represent dollars discounted to 2011 using a 3% public discount rate.

Rhode Island, Using a Private Discount Rate



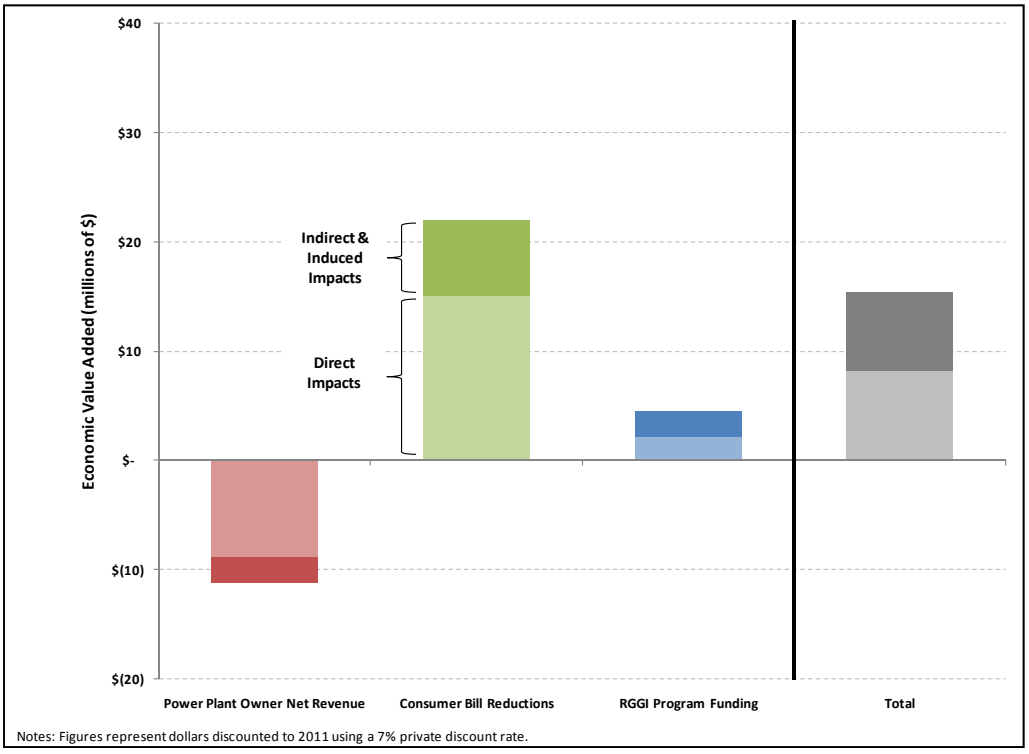
Notes: Figures represent dollars discounted to 2011 using a 7% private discount rate.

Vermont, Using a Social Discount Rate



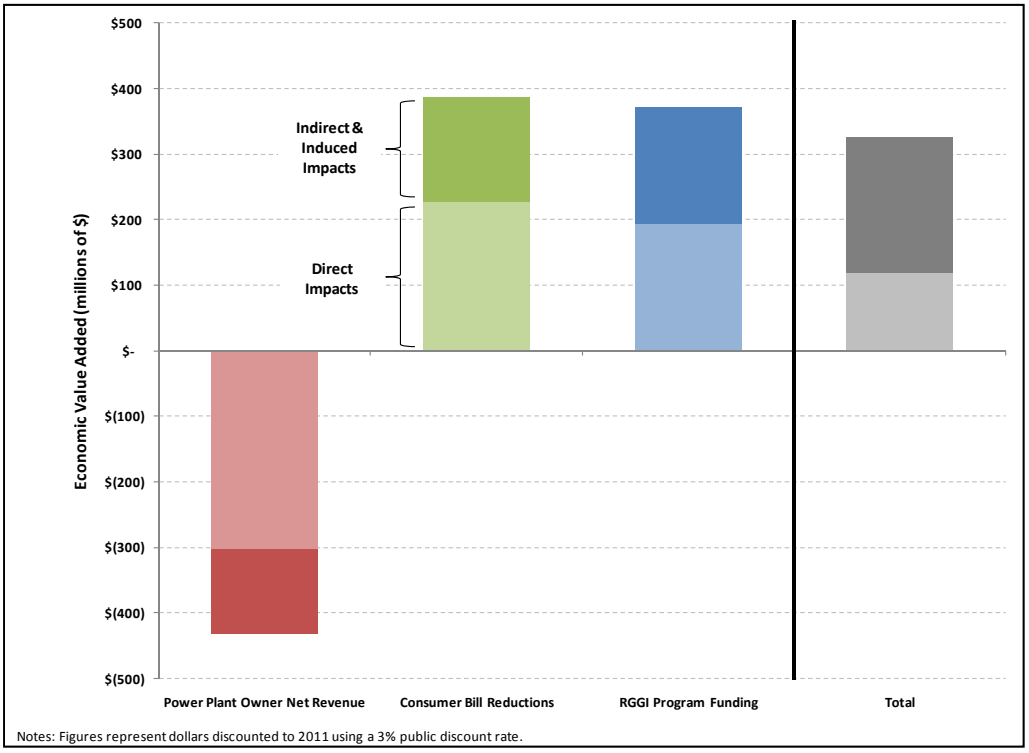
Notes: Figures represent dollars discounted to 2011 using a 3% public discount rate.

Vermont, Using a Private Discount Rate



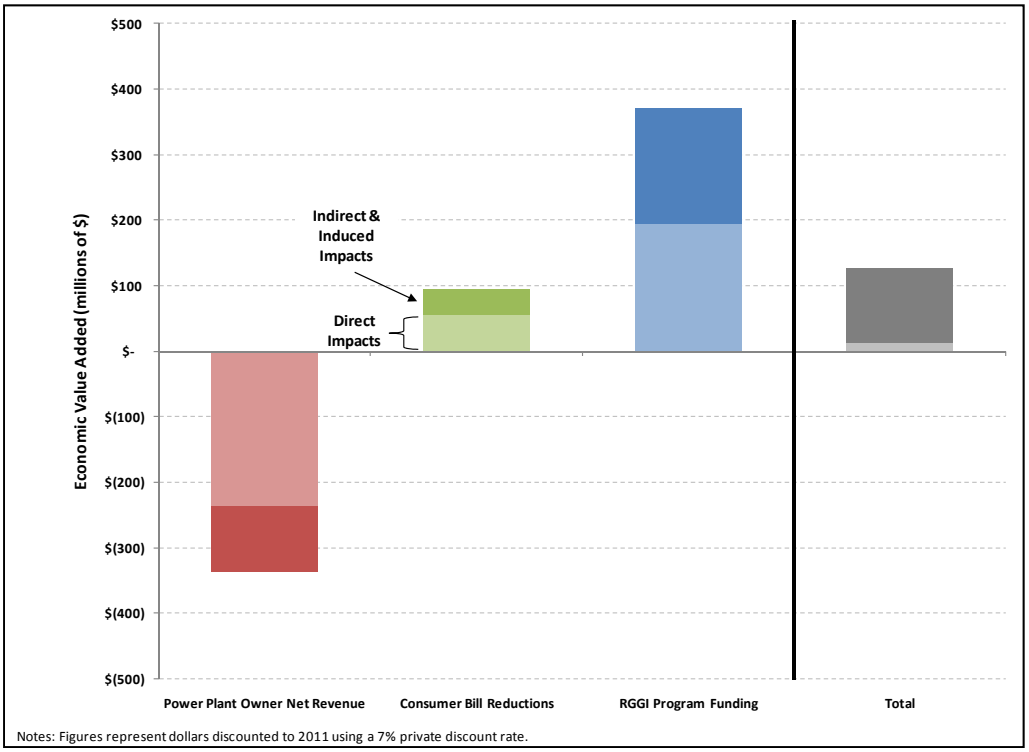
Notes: Figures represent dollars discounted to 2011 using a 7% private discount rate.

New York, Using a Social Discount Rate



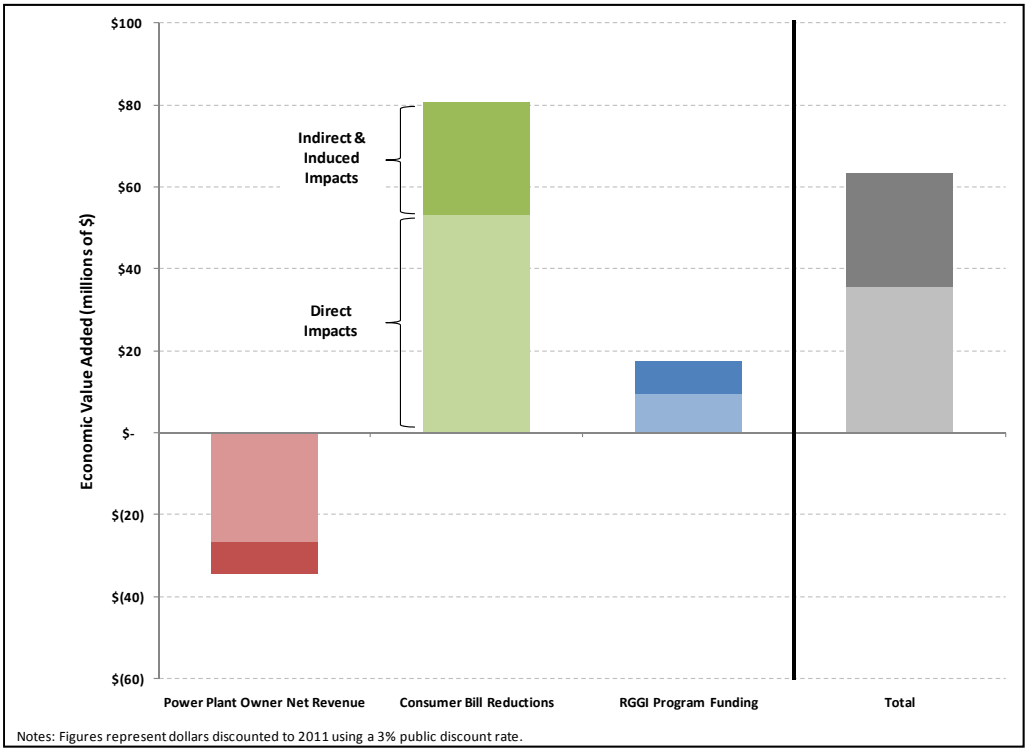
Notes: Figures represent dollars discounted to 2011 using a 3% public discount rate.

New York, Using a Private Discount Rate



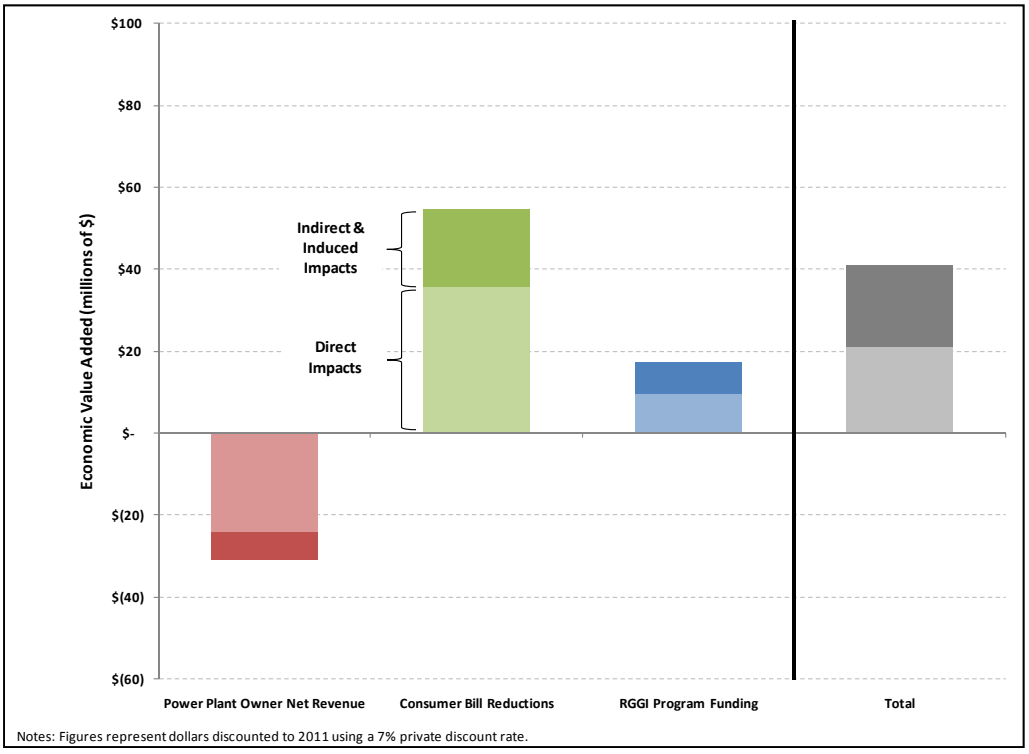
Notes: Figures represent dollars discounted to 2011 using a 7% private discount rate.

Delaware, Using a Social Discount Rate



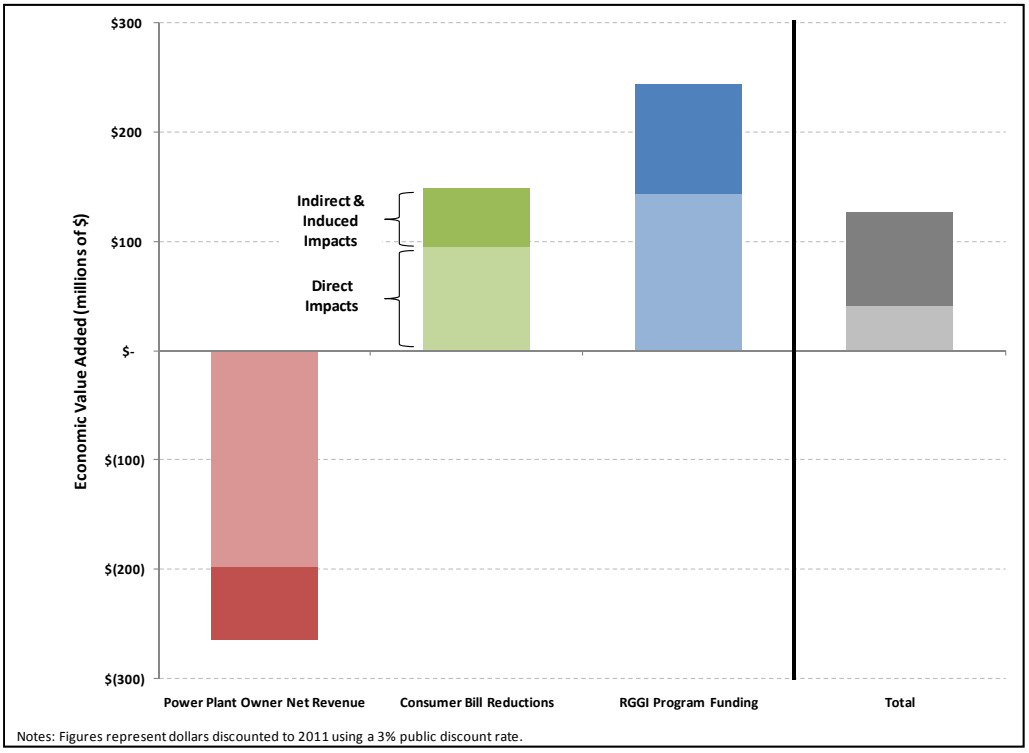
Notes: Figures represent dollars discounted to 2011 using a 3% public discount rate.

Delaware, Using a Private Discount Rate



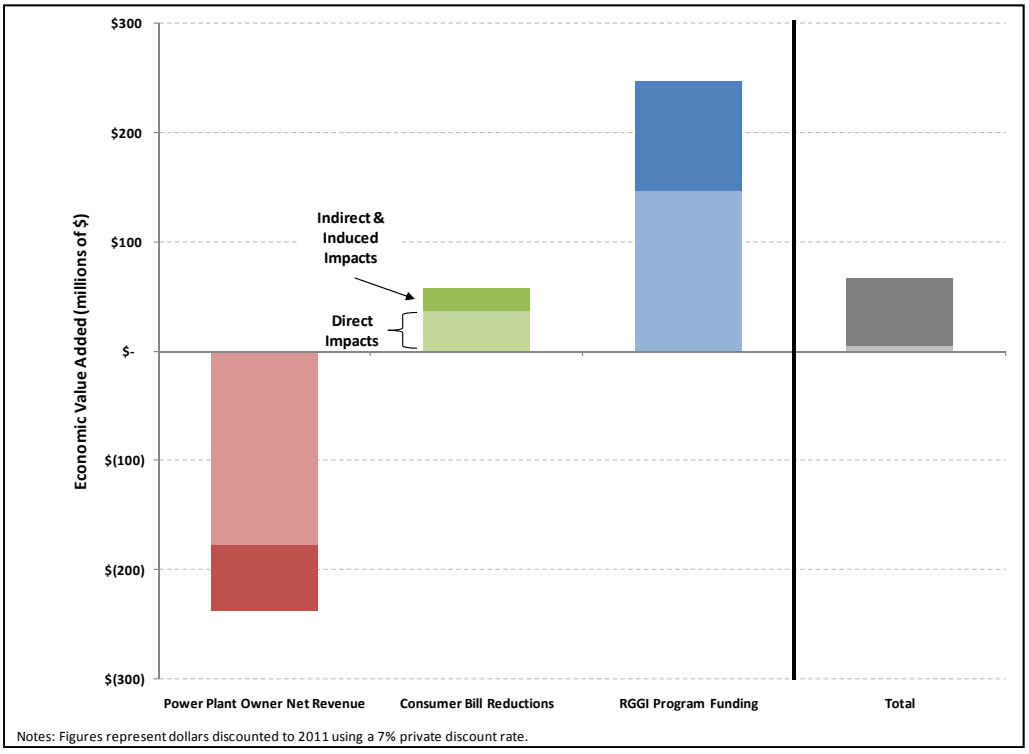
Notes: Figures represent dollars discounted to 2011 using a 7% private discount rate.

Maryland, Using a Social Discount Rate



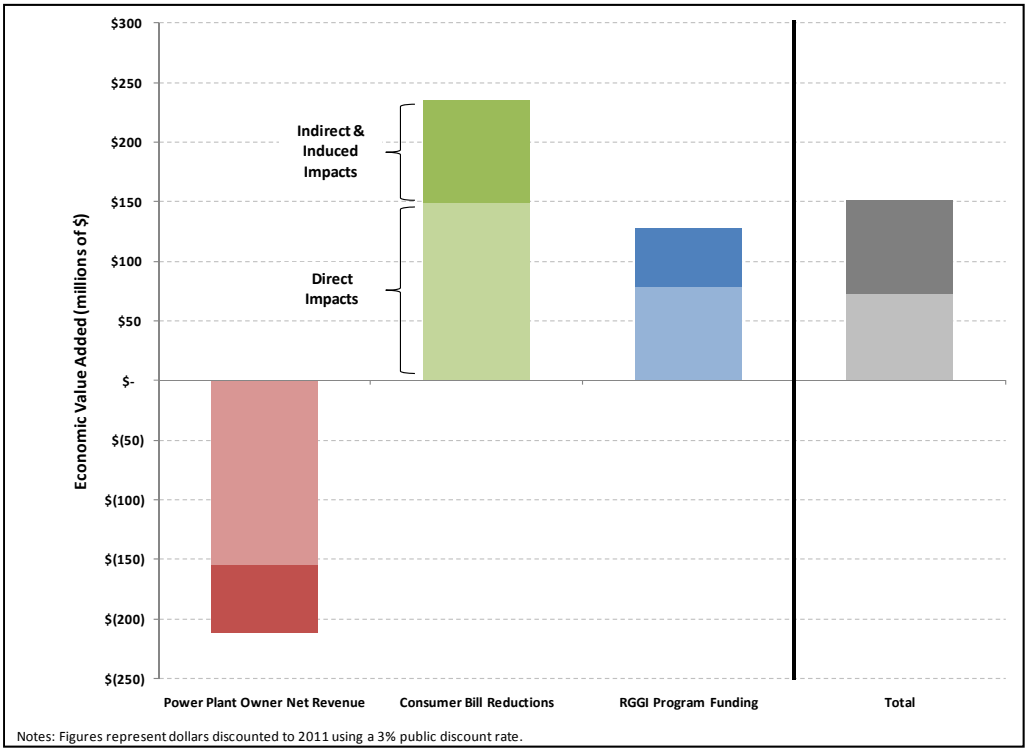
Notes: Figures represent dollars discounted to 2011 using a 3% public discount rate.

Maryland, Using a Private Discount Rate



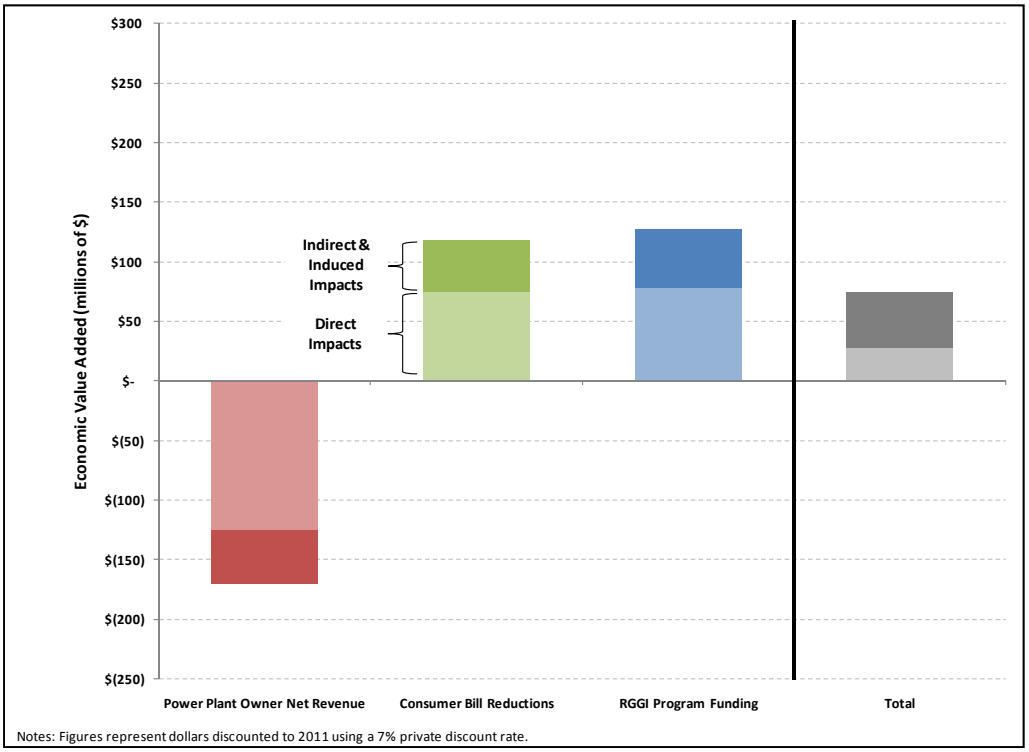
Notes: Figures represent dollars discounted to 2011 using a 7% private discount rate.

New Jersey, Using a Social Discount Rate



Notes: Figures represent dollars discounted to 2011 using a 3% public discount rate.

New Jersey, Using a Private Discount Rate



Notes: Figures represent dollars discounted to 2011 using a 7% private discount rate.

Tables of State, Regional, and Aggregate Results

Summary of State Spending of RGGI Allowance Proceeds

	General Fund/State Government Funding	EE and other Utility Programs and Audits & Benchmarking	Renewable Investment	Education & Outreach and Job Training	Direct Bill Assistance	GHG Programs and Program Administration	Total
Connecticut	$ -	$ 37,667,961	$ 10,705,482	$ 337,290	$ -	$ 3,020,516	$ 51,731,248
Maine	-	22,831,749	-	-	-	4,398,768	27,230,517
Massachusetts	-	133,960,304	325,324	3,108,774	17,083	5,093,587	142,505,072
New Hampshire	9,272,116	21,483,151	-	1,181,506	-	998,939	32,935,712
Rhode Island	-	13,210,854	-	314,528	-	744,155	14,269,538
Vermont	-	6,496,814	-	-	-	102,630	6,599,444
New England Subtotal	**$ 9,272,116**	**$ 235,650,833**	**$ 11,030,806**	**$ 4,942,097**	**$ 17,083**	**$ 14,358,596**	**$ 275,271,531**
New York	$ 90,000,000	$ 163,660,609	$ 16,800,000	$ 8,600,000	$ -	$ 48,588,106	$ 327,648,716
New York Subtotal	**$ 90,000,000**	**$ 163,660,609**	**$ 16,800,000**	**$ 8,600,000**	**$ -**	**$ 48,588,106**	**$ 327,648,716**
Delaware	$ -	$ 13,977,755	$ -	$ -	$ 1,663,210	$ 6,809,816	$ 22,450,780
Maryland	7,770,000	26,840,847	5,471,340	4,181,160	115,465,494	9,871,582	169,600,424
New Jersey	74,950,622	-	27,089,246	-	10,185,525	6,069,154	118,294,547
RGGI States in PJM Subtotal	**$ 82,720,622**	**$ 40,818,602**	**$ 32,560,586**	**$ 4,181,160**	**$ 127,314,229**	**$ 22,750,552**	**$ 310,345,751**
All RGGI States	**$ 181,992,738**	**$ 440,130,044**	**$ 60,391,392**	**$ 17,723,257**	**$ 127,331,312**	**$ 85,697,254**	**$ 913,265,997**

Source: Individual state reports and interviews.
Note: NY dollars include interest earned in addition to proceeds from the RGGI auctions.

Summary of Direct, Indirect, and Induced Impacts
Discounting Dollars using a Social Discount Rate

		Value Added[1] (millions of $)	Employment[2]
Connecticut	$	189	1,309
Maine		92	918
Massachusetts		498	3,791
New Hampshire		17	458
Rhode Island		69	567
Vermont		22	195
New England Subtotal	**$**	**888**	**7,237**
New York	$	326	4,620
New York Subtotal	**$**	**326**	**4,620**
Delaware	$	63	535
Maryland		127	1,370
New Jersey		151	1,772
RGGI States in PJM Subtotal	**$**	**341**	**3,676**
Regional Impact[3]	$	57	601
Grand Total	**$**	**1,612**	**16,135**

Notes:
[1] Value Added reflects the actual economic value added to the state and regional economies, and therefore does not include the costs of goods purchased from or manufactured outside of the state or region.
[2] Employment represents job-years as outputted from IMPLAN.
[3] Regional Impact reflects the indirect and induced impacts resulting within the RGGI region as a result of state dollar impacts.
[4] Results are discounted to 2011 dollars using a 3% social discount rate.

Summary of Direct, Indirect, and Induced Impacts
Discounting Dollars using a Private Discount Rate

	Value Added[1] (millions of $)	Employment[2]
Connecticut	$ 141	1,309
Maine	71	918
Massachusetts	388	3,791
New Hampshire	14	458
Rhode Island	48	567
Vermont	15	195
New England Subtotal	**$ 678**	**7,237**
New York	$ 126	4,620
New York Subtotal	**$ 126**	**4,620**
Delaware	$ 41	535
Maryland	66	1,370
New Jersey	75	1,772
RGGI States in PJM Subtotal	**$ 182**	**3,676**
Regional Impact[3]	$ 48	601
Grand Total	**$ 1,033**	**16,135**

Notes:
[1] Value Added reflects the actual economic value added to the state and regional economies, and therefore does not include the costs of goods purchased from or manufactured outside of the state or region.
[2] Employment represents job-years as outputted from IMPLAN.
[3] Regional Impact reflects the indirect and induced impacts resulting within the RGGI region as a result of state dollar impacts.
[4] Results are discounted to 2011 dollars using a 7% private discount rate.

Case Studies

Overview of Case Study Purpose and Methodology

In addition to performing our quantitative analysis of the economic impacts of RGGI on the ten Northeastern and Mid-Atlantic states, we also collected information on specific examples of how states spent RGGI allowance proceeds. The purpose of the case studies was to provide a more complete picture of the breadth of research, commercialization support, real investment, and energy sector innovation that flows from the use of RGGI allowance proceeds to accompany the economic impact analysis. These cases are intended to *illustrate* the breadth of states' uses of RGGI funds, rather than to provide a fully representative or statistically significant sample of such expenditures.

From a starting list of approximately 150 potential cases that we developed from our own research and from suggestions from the RGGI states, we selected a final set of cases to describe in order to depict the range of ways that states have spent RGGI proceeds. Our selection criteria reflected the objectives of (a) selecting examples that reflected the range of expenditure decisions across all of the RGGI states (i.e., a broad cross section of technologies; investment/support approaches; business structures and delivery vehicles; sector focus; geographic diversity; and program design goals), and (b) selecting at least one example from each of the 10 RGGI states.

We used publicly available information, as well as interviews with state personnel and recipients, to construct the information contained in the case studies.

The long list of examples of RGGI-funded projects and programs follows the case studies, with information describing each of the approximately 150 examples.

RGGI Funds Help Maine Paper Mill Cut Costs and Improve Competitiveness

Source: http://www.twinriverspaper.com/

Twin Rivers Paper, born out of the reorganization of Fraser Papers after its bankruptcy, received four grants (totaling $1.3 million) through Efficiency Maine's Competitive Incentive Program[15] to complete energy efficiency projects to reduce the company's operating costs and improve its competitiveness. Twin Rivers added another $1.4 million to complete the projects.

RGGI funded two grants, which were used to upgrade nearly 40 high-efficiency drives throughout the facility, reducing electric consumption by 6 million kWh per year for the next 10 years. These energy savings are roughly equivalent to the electric use of 950 homes each year.[16] The RGGI grants were in addition to two other grants funded by federal stimulus (ARRA) proceeds received by Efficiency Maine. These reduced the mill's oil use by about 1 million gallons of oil per year, enough to heat nearly 1,000 homes. By capturing waste steam from the papermaking process and reusing it to heat process water and the mill, the company expects to save approximately $2 million in operating costs annually.

We are reinventing ourselves as a low cost specialty papers manufacturer," said Phil Nadeau, engineering manager. "Being a sustainable company means saving money on every front. We are a new company and these projects would not have happened without support from these grants." "'The mill had a choice to buy 10 years of electricity supply at the market price or pay less than half as much for avoided electricity, and with Efficiency Maine's help Twin Rivers Paper was able to access the lower cost resource,' said Ian Burns, program manager at Efficiency Maine. 'Through a combination of Recovery Act and Greenhouse Gas Initiative funding, we are leveraging private investment to improve the business climate in Aroostook County and deliver lower cost energy.'"[17]

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[15] Offered through Efficiency Maine, the Competitive Incentive Program targets large electrical efficiency and distributed generation projects with the goal of reducing electric consumption from businesses located in Maine and served by a Maine electric utility. Typical awards range from $100,000 to $500,000 per facility and are intended to leverage the recipient's own funding (50% of total project costs are typically funded by recipients). The program has received funds through the state electric system benefit charge, RGGI auction proceeds, ARRA proceeds, and from the Maine Power Reliability Program.

[16] According to the EIA, the average annual electricity consumption for a residential customer in Maine was 6,252 kWh in 2009. See http://205.254.135.24/tools/faqs/faq.cfm?id=97&t=3 http://www.efficiencymaine.com/at-work/business-programs/competitive-program

[17] "$1.3 M will saving Twin Rivers $2 M annually," St. John Valley Times, December 15, 2010.

New Hampshire Businesses May Tap RGGI-Funded Loan Program for Efficiency Investments

The NH Business Finance Authority (BFA) established the Business Energy Conservation Revolving Loan Fund (RLF) to help the state's businesses reduce energy use by loaning funds to companies to complete cost-effective energy efficiency improvements. These loans, which would not have been funded through other lending institutions, are helping recipients lower their energy expenses and improve their competitiveness.

To date, six loans totaling $3.9 million have been made to the following businesses:

- Foss Manufacturing (a fabric manufacturer based in Hampton) – ineligible to receive incentives or funding through NH utilities' CORE programs – borrowed $750,000 for improvements to its electrical distribution, and upgraded motors and lighting.
- Canam Steel Corporation (Claremont) borrowed $750,000 for a $4.5 million dollar project to replace space heating and ventilation and to complete a lighting upgrade.
- Shelburne Plastics (Manchester) combined RLF funds with funds from PSNH and a $750,000 BFA loan to improve the layout and operation of its blow molding operation, to consolidate grinding operations and install efficient process chilling and air conditioning systems.
- Warwick Mills (New Ipswich) leveraged a $550,000 loan from the RLF with both CDBG and company funds to install a biomass plant to replace their old, inefficient steam (oil) system that needed to be expanded to support production needs.
- Vitex (an aluminum extruder in Franklin) used $255,650 of a $500,000 RLF loan commitment to upgrade one of its press lines. After more review, the company elected to completely replace, rather than upgrade, a second press line using bank and company funds.
- Ragged Mountain Resort (Danbury) is combining a $600,000 RLF loan with funds from PSNH and company funds to install an ultra-low-energy snowmaking system.

The RLF is funded exclusively with proceeds from RGGI auctions ($4 million to date). The program uses two different lending models: a model with little to no interest for non-profits and a low interest program for for-profit organizations. Priority is given to entities that do not qualify for existing efficiency programs. As loan recipients make repayments back to the fund, these dollars are recycled and used to fund future loans to businesses. For more information, see: http://www.nhbfa.com/BFA_LoanPlans_BizEnergy.html.

New York's Cayuga Community College Saves with RGGI-Funded Solar Project

Cayuga Community College's (CCC) Auburn, N.Y., campus had 126 solar panels installed on its gymnasium roof in the fall of 2010 as part of an effort to save energy. The installation was performed by Solar Liberty Energy Systems, one of the PV installers qualified by New York State Energy Research and Development Authority (NYSERDA).

One of the four groupings of solar panels that were installed at CCC. Source: Jill Connor / The Citizen.

CCC's 25.2 kilowatt system is expected to produce 26,844 kWh of electricity each year, reducing the college's carbon footprint by 280 tons of CO_2 over the 25-year system lifetime. During low-usage periods, any excess power will be routed to the New York State Electric and Gas (NYSEG) grid and the college will receive a credit. The college expects to save approximately $3,600 on its annual electric bill as a result of the installation.

"Solar energy systems at schools and universities are an especially effective way to demonstrate to students, faculty, and the community that solar power is a practical alternative to buying electricity from the utility companies," explained Adam Rizzo, president of Solar Liberty. "The cost of solar equipment has gone down, and the public has begun to recognize that having solar panels on your roof can be a mainstream way of reducing energy costs and reducing your environmental impact."[18]

Kevin Drayer, director of buildings and grounds at CCC reported that the school is "trying really hard to get into the energy savings…The College's plan is to keep up with these technologies and add more panels in the future."[19]

New York's RGGI proceeds were used to fund half of the system's total cost. This project was selected in accordance with New York's RGGI Operating Plan which calls for proceeds from the sale of the allowances to fund projects and programs for "energy efficiency, renewable or non-carbon emitting technologies, and innovative carbon emissions abatement technologies with significant carbon reduction potential, and for reasonable administrative costs incurred by the Authority [NYSERDA]."[20]

[18] Information provided by NYSERDA.

[19] Voll, Kelly. "Solar Panels Expected to Help CCC Lower Energy Costs," *The Citizen*, November 3, 2010.

[20] New York's Regional Greenhouse Gas Initiative Operating Plan Amendment for 2011, June 2011.

Delaware Port Reduces Carbon Pollution through RGGI-Funded Grant Program

The Clean Air Council – a non-profit focused on clean air in the Mid-Atlantic region – received a $150,000 grant from Delaware's Greenhouse Gas Reduction Projects Grant Program for a multi-prong project to reduce GHG emissions at the Port of Wilmington and improve the public health conditions in nearby Southbridge. The Council's work with Wilmington Tug and the Port of Wilmington involves implementation of three projects to:

1. Assist Wilmington Tug to repower one diesel-powered tugboat with more efficient engines. Both propulsion engines on "The Breakwater" tugboat will be replaced with newer, cleaner engines. This will reduce emissions of a number of pollutants including nitrogen, hydrocarbons (including methane), particulate matter and carbon monoxide.
2. Implement "Idle Free Delaware", starting with the Port of Wilmington and the surrounding Southbridge community. The campaign will focus on education and stewardship around diesel truck idling, and is expected to have cascading benefits for neighborhood and regional air quality and public health.
3. Assist the Port of Wilmington in replacing 79 parking lamps with LEDs. This is expected to save nearly 16,000 kWh of electricity and reduce 27 tons of CO2 emissions annually.

Source: http://www.wtcde.com/wilmington-tug-inc

The GHG Reduction Projects Grant Program, funded exclusively with RGGI auction proceeds, will cover 70 percent of the total project cost of the project. The remaining expense will co-shared by Wilmington Tug.

Delaware's legislation enacting RGGI[21] allocates 10% of auction proceeds to projects that result in a measurable reduction of GHG emissions. These funds go to the Delaware GHG Reduction Projects Grant Program, which is exclusively funded by RGGI proceeds and provides grants to projects designed to reduce directly or indirectly GHG emissions. Projects selected for funding must result in quantifiable and verifiable reductions in GHG emissions in Delaware not otherwise required by federal or state law and not receiving funding from any other state sources. The first Program announcement received 36 project proposals totaling over $5.4 million in requests. In late January 2011, the program awarded $1.2 million in grants to 30 of the projects. See:
http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf

[21] An Act to Amend Title 7 of the Delaware Code Relating to a Regional Greenhouse Gas Initiative and CO2 Emission Trading Program.

New Jersey's William Patterson University Installs Solar PV Panels with the Help of RGGI-Funded Loan/Grant Program

New Jersey has a strong track record in supporting solar energy projects and has used RGGI funds to boost installations in the state. William Patterson University, a public institution located in Wayne and founded in 1855 with over ten thousand students, was interested in installing a solar PV system but lacked sufficient capital for the outlay. Instead, Nautilus Solar – a developer, financier, owner, and operator of solar energy facilities – received a $5 million interest-free loan through NJ's Clean Energy Solutions Capital Investment Loan/Grant (CESCI) program for a 3 MW solar PV system designed for William Patterson University. Under the agreement, Nautilus will own and operate the PV system for the University. The installation is expected to produce roughly 3,450 MW of renewable power annually, saving approximately $3.8 million in energy costs over ten years. The CESCI loan represented approximately one-third of the $15.5 million total project cost.

About Nautilus Solar: Founded in 2006, Nautilus Solar is a privately-owned solar power generation independent power producer headquartered in Summit, New Jersey. It develops, constructs, finances, owns and operates distributed generation and utility-scale solar electric systems. For distributed generation customers, Nautilus designs and installs solar systems on customers' rooftops or properties, and is responsible for all capital expenditures, long-term ownership, and operation and maintenance of the solar system. Nautilus Solar retains and monetizes the state incentives (rebates, renewable energy certificates, etc) and tax credits.

About the CESCI Program: Launched in June 2009 through the state's Economic Development Authority, New Jersey's CESCI program uses RGGI proceeds to offer up to $5 million in interest-free loans and grants to support commercial, institutional, and industrial entity end-use energy efficiency projects, combined heat and power (CHP) production facilities, and new state of the art efficient electric generation facilities, including renewable energy applications, with the end goals of reducing the amount of greenhouse gases produced in the state and supporting the goals of the State's Energy Master Plan.

Projects that meet technical eligibility criteria are scored by EDA staff to determine the percentage split of loan and grant awarded. The scoring takes into account the priority ranking score, potential job creation, location, industry and other factors. Funding can be used to purchase fixed assets, including real estate and equipment, for an end-use energy efficiency project, combined heat and power production facility, or new state-of-the-art efficient electric generation facility, including Class I and Class II renewable Energy.

To date, CESCI has funded 10 projects (seven large-scale solar projects and three large-scale CHP projects) in the commercial and industrial sectors. RGGI proceeds ($27 million total) were used to fund these grants and loans.

Low-Income Maryland Residents Receive Energy Bill Relief through RGGI Funds

Maryland's Office of Home Energy Programs uses RGGI proceeds (received via the state's Strategic Energy Investment Fund (SEIF)) to provide electric assistance benefits to eligible low-income households. The program – the Electric Universal Service Program (EUSP) – provides both bill payment assistance and arrearage retirement assistance benefits. EUSP bill payment assistance benefits are used to help make ongoing electric bills more affordable. Benefit amounts are based on electric usage and household income. EUSP arrearage retirement assistance is used to retire past due bills up to a maximum amount of $2,000. All EUSP benefits are paid directly to electric utilities on behalf of the program applicant.

In fiscal years 2009 and 2010, a total of $45.4 million was used to assist over 50,000 households to pay current and past energy bills, with an average of $817 in assistance provided per households, with a detailed breakout provided below.[22]

	Total Assistance Provided	Households Served	Average Benefit
Bill Assistance (FY 2009)	$3,571,245	4,837	$738
Bill Assistance (FY 2010)	$15,249,702	24,456	$624
Arrearage Retirement (FY 2010)	$26,608,733	26,308	$1,011

Funding for the EUSP program is provided through Maryland's Strategic Energy Investment Fund, which is fully made up of the proceeds from RGGI auctions received by Maryland. The fund does not receive any general funds or include any ratepayer surcharges. In addition to funding the EUSP program, SEIF provides for significant investments in energy efficiency and renewable energy technologies to reduce the state's emissions of greenhouse gases.

Additional information is available on the program's website: http://dhr.maryland.gov/ohep/.

[22] Clean Energy Accomplishments FY 2009 and 2010, Maryland State Energy Investment Fund, Maryland Energy Administration.

Pittsfield, MA Saves Energy and Becomes a "Green Community"

Pittsfield City Hall

Pittsfield, Massachusetts, has been designated one of 73 "Green Communities" in the state by the Department of Energy Resources (DOER). Qualifying as a "Green Community" requires meeting criteria focused on energy conservation and the adoption of clean technologies.

In conjunction with this designation, Pittsfield was awarded $256,632 through the DOER's Green Communities Division Grant Program to fund the installation of an energy management system and the replacement of 53 unit heaters at City Hall. The award covered 95% of the total cost of the upgrades, with the remaining cost funded through $18,950 in incentives that Pittsfield received from its electric utility, Western Massachusetts Electric Company.

Pittsfield's energy management system consists of sophisticated computerized controls that enable city officials to actively monitor their heating and cooling systems by providing real-time information about energy consumption and adjusting heating and cooling in parts of City Hall as needed. "The system can be set to make necessary corrections and it has alarms to notify us during off-hours if there is a problem," said James McGrath, the city's parks manager and City Hall liaison to the Green Commission.[23] As a result of the system, Pittsfield expects to save approximately $13,000 per year in energy costs.

About the Green Communities Division Grant Program: Created under Massachusetts' Green Communities Act of 2008, the Green Communities Division is intended to help the state's 351 cities and towns improve energy efficiency and increase reliance on renewable energy. The Division has designated 73 Massachusetts cities and towns as "Green Communities" and awarded a total of $15.6 million in grants for energy efficiency and clean energy projects. All of the Division's Grants are funded through RGGI proceeds. Additional information can be found on at: http://www.mass.gov/?pageID=eoeeatopic&L=3&L0=Home&L1=Energy%2c+Utilities+%26+Clean+Technologies&L2=Green+Communities&sid=Eoeea

[23] Lindsay, Dick. "Being Green Pays Off in Pittsfield," *Berkshire Eagle*, July 18, 2010.

RGGI Funds Help Alleviate Budget Shortfalls in Three RGGI States

Many states across the U.S. have been facing significant budget shortfalls in the recent years. Three RGGI states – New York, New Jersey, and New Hampshire – have used a portion of their RGGI auction proceeds to contribute to the state's General Fund in order to shrink shortfalls and avoid cuts in state spending or increases in taxes.

In December of 2009, former NY Governor David Paterson signed a bill that allowed a one-time transfer of $90 million of RGGI proceeds to the General Fund. This was part of a deficit-reduction plan designed to help close a $3 billion budget shortfall in 2010. The state was facing historic deficits and the transfer was intended to be a one-time allocation.[24] Since then, New York has programmed its RGGI funds through the NYSERDA, for various energy programs.

New Jersey faced similar budget challenges last year. Having invested funds in prior years on energy efficiency, renewable energy, direct assistance to help consumers pay their energy, New Jersey turned to the state's RGGI auction proceeds to help address these budget concerns. In 2010, Governor Chris Christie approved the use of $65 million in RGGI proceeds to help offset a $10.7 billion budget deficit for fiscal year 2011. "Pain had to be distributed across the board," explained Elaine Makatura, director of NJ's Department of Environmental Protection, of the decision.[25]

Similarly, New Hampshire lawmakers approved the transfer of $3.1 million of RGGI proceeds for fiscal year 2010 to the state General Fund, noting the need to support programs with higher spending priorities. Retiring NH House Finance Chairwoman Marjorie Smith said, "Right now, although I believe the situation is improving, the state is very short of enough funds to meet essential survival services." Governor John Lynch cited the difficult economic times and did not rule out tapping the fund again: "I don't think the issue is where the money comes from. I think the issue is what are the goals and are we addressing the goals as a state. We're spending a lot more money on energy efficiency projects than we ever have as a state."[26]

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[24] Navarro, Mireya. "States Diverting Money from Climate Initiative," The New York Times, November 8, 2010.

[25] Gardner, Timothy. "NJ latest U.S. state to raid carbon auction funds," Reuters, March 17, 2010.

[26] "NH, NY, NJ raid RGGI funds," Nashua Telegraph, December 20, 2010, available at http://www.nashuatelegraph.com/newsstatenewengland/902988-227/story.html.

RGGI Funds Used to Educate Teachers and Students in Connecticut Schools

EEsmarts is learning initiative funded by the Connecticut Energy Efficiency Fund, and partly funded through RGGI auction proceeds. The vision is to facilitate students' understanding of the science, math and technology related to clean, renewable energy and electricity in order to create an energy-efficient ethic among all school-age students in Connecticut.

The EEsmarts program offers free general professional development workshops through its Summer Institute for grade K-9 educators from public, private, parochial, and home schools across the state. In 2009 and 2010 alone, the EEsmarts program trained 813 educators, distributed 9,236 curriculum lessons, and held 9 events across the state.

School districts interested in training all educators in a particular grade level or topic of interest across grade levels can request custom workshops from EEsmarts. In 2009, EEsmarts hosted district-specific workshops for Colchester, Danbury, Lebanon, New Haven, and West Hartford. Upon completion of an EEsmarts workshop, educators can order curriculum lessons for their classrooms free-of-charge. All EEsmarts workshops and lessons fully align with the Connecticut Mastery Test, the Connecticut State Science Framework, the Connecticut State Mathematics Framework and the National Science Standards.

The program, as well as a number of other programs focused on energy efficiency and renewable energy, is implemented by the state's two investor-owned utilities (Connecticut Light & Power, and United Illuminating) with support from Connecticut's Energy Efficiency Fund. In 2009, RGGI proceeds accounted for 12% of the Connecticut Clean Energy Fund spending and 7% in 2010. Additional information is available on the EEsmarts program website: http://www.eesmarts.com/.

Source: http://www.eesmarts.com

Rhode Island to use RGGI Funds toward Energy Education Programs Targeting Low-Income Ratepayers

Rhode Island's Office of Energy Resources (OER) plans to spend approximately $250,000 in RGGI proceeds in 2012 to administer a program that will provide energy education to low-income ratepayers in the state. The proposed "2011 Plan for the Allocation and Distribution of RGGI Auction Proceeds" covers the spending of the state's proceeds from RGGI auctions held between December 2009 and December 2010 (auctions 6 through 10).

State of Rhode Island
Office of Energy Resources

Under the proposed plan, 5 percent of the state's proceeds will be allocated for education targeted to low- income rate payers. This initiative will develop an information packet of "Energy Efficiency/Energy Savings Best Practices" to distribute to clients applying for assistance under the state's Low-Income Home Energy Assistance Program during the intake process at Community Action Program agencies, patients at Community Health Centers or through a mailing. The Office of Energy Resources will be responsible for implementing the program and notes that low-income households (owners and renters) pay a far higher share of their incomes for home energy, typically live in less efficient homes and feel the consequences of climate change more acutely than higher-income households.

It is expected that the proposed plan will be finalized in November 2011. Additional information can be found on the Rhode Island OER's website: http://www.energy.ri.gov/index.php

Source: http://www.ehow.com

RGGI Funds Contribute to Vermont's Property-Assessed Clean Energy (PACE) Financing Program

Vermont is using RGGI funds to help underwrite home loans for energy efficiency investments. Homeowners around the country cannot get affordable financing to make what otherwise would be economical *major* energy-efficiency investments (such as attic insulation or more-efficient heating systems). The value of these investments often lasts much longer than the term of a typical consumer loan; and experience shows that consumers under-invest in measures that would provide them with lower energy bills because of the mismatch between the term of the loan and the life of the efficiency measures. The "Property-Assessed Clean Energy" program (PACE) addresses this well-known "market barrier" to energy efficiency.

In municipalities with PACE financing, property owners may borrow money to pay for qualifying energy improvements, and repay the loan over a period of up to 20 years via a special assessment on the property.

Source:
http://www.manausa.com/tallahassee-realtor/condominium-financing-florida/

Vermont passed legislation in May 2011 (H.B. 56) that will enable the state's PACE program to resume beginning in January 2012. The legislation creates two separate PACE reserve funds designed to reduce risk for lenders interested in working with municipalities to finance a PACE district. One reserve account is funded by property owners and administered by Efficiency Vermont; in it, participating property owners pay into the reserve fund a one-time non-refundable fee equal to 2% of the assessment. This reserve fund is available to cover 100% of losses in the event of foreclosure of participating properties.

The second state PACE reserve account is funded by RGGI proceeds and will be administered by the State Treasurer. Should the funds in the homeowner-funded reserve account prove insufficient to cover actual losses due to defaults, the RGGI-funded state reserve fund can be used to cover up to 90% of the losses. The fund will hold an amount equal to 5% of the total assessments on participating properties, up to a total of $1 million, and will be fully funded through RGGI proceeds received by Vermont.

RGGI funding will thus support more affordable loans to homeowners, encouraging them to make more investments to accomplish cost-effective energy efficiency improvements in their homes. More information is available on the program's website: www.veic.org/PACE.

Additional Examples of RGGI-Funded Projects

Examples of Projects Funded with RGGI Allowance Proceeds

State	Project/Program Example	Funding Source/Additional Information	Source
CT	**Energy Efficiency Fund: Home Energy Solutions (HES) Program** The HES program is a 'whole-home solution' that focuses on reducing all energy consumption and costs. Building Performance Institute, Inc.-trained technicians perform an energy assessment of the home and provide a variety of on-the-spot efficiency and weatherization measures. Homes receive diagnostic tests to assess air leakage throughout the home, including the ductwork. Critical leaks are then located with test equipment and professionally sealed. Lighting and water-saving measures are installed by technicians and the efficiency of insulation and appliances are also assessed. Technicians review the work completed at a 'kitchen table' wrap-up to ensure homeowners understand the services performed and the resulting energy savings. Additional efficiency technologies and energy conservation behaviors are also discussed with the homeowner and the technicians review available appliance/insulation rebates, renewable energy options, tax credits and potential financing opportunities to encourage additional investments in efficiency. Ken and Ellen Rosengrant of Meriden, for example, are now saving just under $400 and approximately 548 kilowatt-hours and 110 gallons of fuel oil annually by installing a ductless heat pump in their new addition, upgrading to efficient lighting, and sealing their heating, ventilation and air conditioning (HVAC) ductwork. Dan and Marsha Carson of Newington enjoyed similar results—an annual savings of approximately $587 and an estimated total lifetime savings from weatherization and water heating services of 3,726 kilowatt-hours and 1,942 gallons of oil.	Funded through CT Energy Efficiency Fund, approximately 7% of 2010 Fund proceeds were from RGGI.	"2010 Report of the Energy Efficiency Board," Connecticut Energy Efficiency Fund, March 2011.
CT	**Energy Efficiency Fund: Home Energy Solutions - Income Eligible (HES-IE) Program** HES-IE is similar to the HES core services program, however eligible participants receive the service at no cost and additional energy-saving measures are provided. Energy specialists assess a home's efficiency and perform a range of weatherization services such as installing CFLs, caulking cracks/leaks around doors and windows, and installing insulation. All weatherization measures are designed to reduce heating and cooling losses. Additional efficiency steps include installing water-saving faucet aerators and showerheads, and upgrading appliances and heating systems.	Funded through CT Energy Efficiency Fund, approximately 7% of 2010 Fund proceeds were from RGGI.	"2010 Report of the Energy Efficiency Board," Connecticut Energy Efficiency Fund, March 2011.
CT	**Energy Efficiency Fund: Residential New Construction Program** In 2009, the Energy Efficiency Fund initiated Connecticut's first residential design and build competition for single- and multi-family homes called the CT Zero Energy Challenge. The Challenge awards monetary prizes to three winners, while serving as an educational platform for the state's building community regarding high-performance homes. All contestants are required to participate in the Residential New Construction program, and, in addition to energy efficiency measures, each home must incorporate clean, renewable energy technologies into the project's design. Zero-net energy means a home uses no more energy from the electrical grid over a given period than it produces. In total, 18 homes participated in the challenge, with prizes going to the following: First ($15,000) - Home of George and Mary Keithan (Killingworth, CT), includes geothermal systems for heating and cooling, passive and active solar installations, and an energy efficient building envelope. Second ($10,000) - Home of Jeremy and Karann Schaller (New Hartford, CT), includes structural insulated panel cladding system, passive and active solar design, energy efficient heating, cooling and appliance systems. Third ($5,000) - Home of Chris Trolle (New Canaan, CT), achieved Leadership in Energy and Environmental Design (LEED) for Homes platinum certification. Project included innovative insulation, triple glazed windows, solar thermal space heating, thermal mass radiant slab radiant heating.	Funded through CT Energy Efficiency Fund, approximately 7% of 2010 Fund proceeds were from RGGI.	"2010 Report of the Energy Efficiency Board," Connecticut Energy Efficiency Fund, March 2011.

State	Project/Program Example	Funding Source/Additional Information	Source
CT	**Energy Efficiency Fund: Retail Products Program** Dollars for the Retail Products program go to a variety of outreach programs, including: Lighting fairs - hosted by commercial businesses, state agencies, home shows, state and town fairs, and non-profit organizations, allowing consumers to purchase CFLs and other lighting products at a discount. SmartLiving catalog - A 16-page catalog was developed for distribution at home shows, lighting fairs and other events that highlight a complete line of specialty CFLs, table and desk lamps, ceiling lights, outside lighting, LED products, and kilowatt-measuring meters. Shining Solutions - a fundraising program that allows schools and community organizations to raise money by selling CFLs Ductless heat pumps - Rebates of up to $1,000 were coupled with up to an additional $1,500 tax credit for installation of ductless heat pumps. These pumps are approximately 40% more efficient than electric baseboard heating. The Energy Efficiency Fund also extended funding to expand contractor training. Geothermal systems - Rebates of up to $1,500 were offered to promote installation of geothermal heating systems. HVAC rebates - Energy Star qualified HVAC systems were eligible to receive $500 incentives. In 2010, over 5 million CFLs were sold and more than 600 rebates were granted for natural gas hot water systems.	Funded through CT Energy Efficiency Fund, approximately 7% of 2010 Fund proceeds were from RGGI.	"2010 Report of the Energy Efficiency Board," Connecticut Energy Efficiency Fund, March 2011.
CT	**Energy Efficiency Fund: Education and Outreach Program** The Energy Efficiency Fund provided for the training of grade K-9 educators in Connecticut. This training centered on energy efficiency, renewable energy and electricity. The program outreach also includes an eeEvents portion, allowing educators an opportunity to present and lead classroom lessons with area children.	Funded through CT Energy Efficiency Fund, approximately 7% of 2010 Fund proceeds were from RGGI.	"2010 Report of the Energy Efficiency Board," Connecticut Energy Efficiency Fund, March 2011.
CT	**Energy Efficiency Fund: Education and Outreach Program** The eeCommunities program was developed to encourage communities to develop a sustainable and energy efficiency ethic in Connecticut's 169 towns and cities. The objective of this marketing and educational outreach program is to utilize locally organized efforts to help advance the message of energy efficiency and to raise awareness of and promote participation in all of the Energy Efficiency Fund's residential, business and municipal programs through technical, financial, educational and marketing assistance. A sample of communities reached includes: Wethersfield - creation of a town-wide Conservation Challenge program including educational kick-off events, distribution of weatherization kits for Conservation Challenge participants, the initialization of a benchmarking program to determine energy performance of the town's municipal building, and recruitment of 200+ households for the Energy Efficiency fund's (EEF) Home Energy Solutions program. Cheshire - promotion of in-home energy assessments in partnership with EEF and American Resource and Recovery Act funding. This promotion resulted in 690 households receiving Home Energy Solutions services. Fairfield - EEF and Town of Fairfield funding supported home energy assessments for 1,400 qualified households. Annual savings were 889,883 kWh.	Funded through CT Energy Efficiency Fund, approximately 7% of 2010 Fund proceeds were from RGGI.	"2010 Report of the Energy Efficiency Board," Connecticut Energy Efficiency Fund, March 2011.

State	Project/Program Example	Funding Source/Additional Information	Source
CT	**Energy Efficiency Fund: Education and Outreach Program** Exhibits on energy, sustainability and efficiency have been funded at the Connecticut Science Center (Hartford) and the Discovery Museum (Bridgeport). The SmartLiving Center (Orange) continues to function as a science museum, hands-on activity center, home improvement showroom and education resource center all together in one location. In 2010, the Fund continued its five-year partnership with the Stepping Stones Museum for Children in Norwalk by sponsoring two of the museum's energy exhibit projects and hosting various energy efficiency events. The Fund-sponsored Mini-Conservation Quest is a traveling exhibit that made its debut in March 2010 at the Rogers International School in Stamford. The traveling exhibit on energy conservation, solar energy and energy-efficient technologies, such as CFLs, traveled to more than 25 schools, libraries and nature centers in 2010. In addition, Stepping Stones underwent an enormous renovation during the fall and reopened in November 2010 with a new energy gallery—Energy Lab. The working laboratory for children inspires a natural curiosity to imagine and invent—creating a fun-filled environment for them to explore the scientific concepts related to energy.	Funded through CT Energy Efficiency Fund, approximately 7% of 2010 Fund proceeds were from RGGI.	"2010 Report of the Energy Efficiency Board," Connecticut Energy Efficiency Fund, March 2011.
CT	**Energy Efficiency Fund: Small Business Energy Advantage (SBEA) Program** Each SBEA project starts with an energy assessment from a contractor who proposes all possible energy efficiency measures, the complete costs and estimated energy savings, along with available program incentives and financing options. For qualifying small businesses, project costs not covered by the incentives may be eligible for zero-percent financing and the loan payments appear right on the electric bill. The program's authorized contractors perform energy-efficient upgrades for lighting, HVAC, air compressors and refrigeration systems. They utilize energy-saving technologies including CFLs, variable frequency drives, premium efficiency motors, solid-state LEDs, and low-maintenance induction lighting technology, all of which is financed interest free on the customer's utility bill. Examples of participants include: The Fish Family Farm (Bolton, CT) - installation of energy-efficiently lighting and refrigeration led to annual energy savings of approximately $5,600. The United Way of Coastal Fairfield County - replacement of fluorescent and incandescent light bulbs with CFL and T8 bulbs resulting in a total savings of $72,408. McDonald's (Vernon, CT) - financial incentives and a loan at zero-percent interest allowed for the installation of induction lighting and refrigeration improvements that resulted in yearly cost savings of approximately $9,000. Chick's Drive-In (West Haven, CT) - lighting and refrigeration equipment was updated with more energy-efficient products. The Drive-In is expected to save 468,000 kWh over the lifetime of the upgrades.	Funded through CT Energy Efficiency Fund, approximately 7% of 2010 Fund proceeds were from RGGI.	"2010 Report of the Energy Efficiency Board," Connecticut Energy Efficiency Fund, March 2011.

State	Project/Program Example	Funding Source/Additional Information	Source
CT	**Energy Efficiency Fund: Energy Conscious Blueprint (ECB) Program** The ECB program is geared toward business customers planning new construction, major renovations, or replacement of existing equipment near the end of its useful life. Specifically, the program seeks to increase the energy efficiency and performance of lighting systems, HVAC systems, motors, process equipment, and other energy components of commercial and industrial buildings or projects. Three projects that were completed in 2010 include: Holiday Inn (Bridgeport, CT) - Improvements in the heating, air conditioning and water delivery systems were made, and an energy management system was installed. The Bridgeport Holiday Inn's anticipated total annual energy savings are 830,368 kilowatt-hours, or approximately $124,555. University of New Haven (New Haven, CT) - adjustments funded by the ECB include an energy efficiency plan for its Soundview Hall, a 400-bed apartment-style residence hall. Variable refrigerant volume heating and cooling systems and new lighting were installed, which reduced the university's annual energy usage by more then 235,000 kilowatt-hours, which equals approximately $40,000. Price Chopper (Middletown, CT) - Benefits included a high-performance lighting design, energy-efficient HVAC roof-top units, and electrically commutated motors in the reach-in coolers and freezers. All of the measures will save the store approximately 639,518 kilowatt-hours and 320 ccf annually, which results in nearly $100,000 savings per year on energy bills. The EEF has also worked with the State of Connecticut to conduct training workshops to educate architects and engineers on the requirements and future implications of proposed building code changes.	Funded through CT Energy Efficiency Fund, approximately 7% of 2010 Fund proceeds were from RGGI.	"2010 Report of the Energy Efficiency Board," Connecticut Energy Efficiency Fund, March 2011.
CT	**Energy Efficiency Fund: Energy Opportunities (EO) Program** The EO program is designed for businesses looking to retrofit existing operating equipment that has at least 25 percent of its useful life remaining. This program incorporates financial incentives, which may include zero-percent or low-interest rate financing, to help commercial, industrial or municipal customers evaluate the choice of either maintaining their older, inefficient equipment or upgrading to a higher-efficiency option. Potential areas of improvement are lighting, HVAC systems, refrigerators, water heaters, and process-related equipment. Examples of the program in use include: Ashcroft, Inc. (Stratford, CT) - a manufacturer of high-quality pressure gauges ..., learned that it was eligible for a $55,464 incentive through the EO program to upgrade its main manufacturing floor lighting to more energy-efficient lamps, reducing electrical use 2,628,639 kilowatt-hours over the lifetime of the products. Connecticut Children's Medical Center (Hartford, CT) - EEF funding helped the Center install a number of HVAC upgrades including high efficiency controls. Energy savings were estimated to be 287,700 kWh, or $23,000, annually. DRS Fermont (Bridgeport, CT) - lighting and cooling upgrades were undertaken and a new energy management system was installed. Resulting annual energy savings were approximately 1,170,000 kWh.	Funded through CT Energy Efficiency Fund, approximately 7% of 2010 Fund proceeds were from RGGI.	"2010 Report of the Energy Efficiency Board," Connecticut Energy Efficiency Fund, March 2011.
CT	**Energy Efficiency Fund: Business Sustainability Challenge (BSC) Program** Developed with a specific focus on helping businesses improve their financial, environmental, and social value, the BSC program provides businesses with operational analysis support. For example, under the program, Eastern Bag & Paper (Milford, CT), developed an energy management sustainability plan and goals. Implementation from this plan included new facility shut-down procedures, installing motion sensors for lighting, and replacing cathode ray tubes with liquid crystal display technology. After the completion of the first year of a three-year commitment to the program, Eastern Bag & Paper reduced its peak demand, and its estimated annual energy savings were 169,375 kilowatt-hours, or approximately $27,100.	Funded through CT Energy Efficiency Fund, approximately 7% of 2010 Fund proceeds were from RGGI.	"2010 Report of the Energy Efficiency Board," Connecticut Energy Efficiency Fund, March 2011.

State	Project/Program Example	Funding Source/Additional Information	Source
DE	**City of Dover - New Dover Public Library Building Project:** As part of a larger project to build a new Public library, the project will help to implement green design projects in the building. These include Geothermal System with Thermal Storage, Green Roof with Rainwater Harvesting, Building Dashboard System, Water Efficient Landscaping, Energy Efficient Light Fixtures, Daylight Harvesting Fixtures and Motion Sensors, Water Efficient Landscaping, High Performance Glazing, Building Envelope, Exterior Shading Devices, and Enhanced Building Commissioning.	RGGI proceeds contributed $40,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**Delaware Greenways - Junction and Brakewater Trail Neighborhood Connectivity Plan:** This project includes preparation and implementation of the J & B Connectivity Plan, which is anticipated to be conducted over the course of 18 months, with periodic follow-up (monitoring phase) conducted outside the two year completion window. This project will be done in tandem with a bicycle and trail user survey to begin prior to Phase I of this project.	RGGI proceeds contributed $35,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**Lewes-Rehoboth Canal Improvement Association - Feasibility Study Regarding Improvements along the Lewes-Rehoboth Canal to Facilitate the Reduction of Greenhouse Gas Emissions:** The Lewes -- Rehoboth Canal Improvement Association (LRCIA) will undertake a study to determine the best means of developing the Lewes -- Rehoboth Canal as a water highway for both residents and visitors. The study will also look at developing a solar powered water taxi system for the canal.	RGGI proceeds contributed $25,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**Whitehall Ventures – The Villages of Whitehall:** The Villages of Whitehall involves the development of approximately 1,000 acres in southern New Castle County on a 2,000-acre property known as Whitehall. The Villages of Whitehall is being designed under an updated planning model for New Castle County and Delaware. The code is referred to by New Castle County as the "SmartCode." The proposal is for funding of the development of the "Pattern Book" which will highlight the greenhouse gas reduction impact of building these type of developments.	RGGI proceeds contributed $30,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**Lavender Fields Farm, LLC – Demonstration Farm of the Future:** The project includes assistance with the installation of solar panels at the Demonstration Farm of the Future, an educational program to familiarize visitors with the greenhouse gas emission reductions utilizing solar panels and the creation of resource materials for other Delaware agritourism farms to replicate the Demonstration Farm of the Future.	RGGI proceeds contributed $10,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**City of Lewes - Renovation and Revitalization of City-Owned Lewes Public Library Building:** This project will replace deteriorated windows, replace roof shingles and install up-to-date gutters. The gutters, which are undersized, cause water backup and are believed to contribute to building leakage and deterioration.	RGGI proceeds contributed $30,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**Delaware Technical & Community College – Changing the Transportation Culture of College Commuters:** The project hopes to increase the number of students and employees carpooling or using alternative transportation to the College by 15%. A survey of students and employees will be conducted to identify baseline data for DTCC commuters. A Transportation Coordinator will be hired to manage Delaware Tech's alternative transportation program. Marketing and incentives will encourage program participation. Student and employee volunteers will be recruited to help market the program. The reduction in greenhouse gas emissions will be calculated using software available through DART's RideShare Delaware.	RGGI proceeds contributed $30,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.

State	Project/Program Example	Funding Source/Additional Information	Source
DE	**Safe Haven Animal Sanctuary of Sussex County – Green Roofing Project:** This project will assist with the installation of energy-conserving reflective Thermo Plastic Olefin (TPO) roofing, a cool white membrane that has a reflective value of .85% on the to-be constructed new Safe Haven building.	RGGI proceeds contributed $35,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**Delmarva Wellnet Foundation – EDEN Demonstration Project REPLENISH:** This project is to help to launch REPLENISH. REPLENISH a project for the recovery of organic materials from Rehoboth Beach restaurants for composting, such compost to be used by organic farmers that sell produce to some of the same restaurants. REPLENISH is committed to finding economic and environmental solutions to the recovery of renewable organic materials and converting these materials into viable by-products that have value in the marketplace. The project will also create a website to promote the recovery of organic materials.	RGGI proceeds contributed $35,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**Perdue Farms – Natural Gas Pipeline at Georgetown and Bridgeville Facilities:** The Georgetown project will convert two 500hp boilers from fuel oil to natural gas. The scope of work will include piping the natural gas line onsite, electrical wiring, boiler conversion kits and site preparation. The Bridgeville project will help to convert two 350hp boilers from fuel oil to natural gas. The scope of work will include piping the natural gas line onsite, electrical wiring, boiler conversion kits and site preparation. The objectives of the projects are to burn cleaner fuel, achieve GHG and cost reduction and reduce maintenance costs.	RGGI proceeds contributed $75,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**The Village Improvement Association, Inc.- Retro-Commissioning of the Village Improvement Association Clubhouse:** Specific objectives include: Addition of Solar Panels to the roof, Upgrade all appliances to Energy Star Appliances, Install energy efficient windows and patio doors, Insulate the crawl space, the walls and the space above the ceiling to include upgrading the r value using closed cell foam and Blown Bib in the walls, and the addition of a 13 SEER Heat Pump in conjunction with the existing system.	RGGI proceeds contributed $35,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**Oak Orchard American Legion – Solar Panel Supplementary Project:** This project is for a feasibility study to determine the best option for the legion to enter into a PV Power Purchase Agreement.	RGGI proceeds contributed $10,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**Delaware City Fire Company – Complete PV System on Fire House:** This project is to complete the PV system on the fire house and install an information kiosk within the firehouse for educational purposes.	RGGI proceeds contributed $35,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**City of Rehoboth Beach - Rehoboth Beach Alternative Fuel Vehicles Pilot Program:** This project will conduct a Green Fleet Policy feasibility study and provide the cost premium for the purchase of one hybrid vehicle.	RGGI proceeds contributed $15,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.

State	Project/Program Example	Funding Source/Additional Information	Source
DE	**University of Delaware - Colburn Laboratory Green Roof:** The project will install a modular, 2000 ft2 extensive green roof in order to reduce the daytime heat flux from the black membrane roof atop the Colburn classrooms. The proposal also includes an assessment of effectiveness of green roof in improving indoor climate and energy use.	RGGI proceeds contributed $40,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**University of Delaware - Temporal considerations of carbon sequestration in a degraded early succession forest:** This project has two objectives: 1 – Use accepted formulas available primarily through USDA publications to quantify long term carbon sequestration of forest communities comprised of primarily native species, of moderately invaded communities and severely degraded forest communities 2 - To develop an infra structure to support community activism for invasive species control to aid natural succession and to promote forest restoration.	RGGI proceeds contributed $25,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**Ministry of Caring Inc. – Organizational Climate Action Plan:** The objectives of this project are to develop and implement a set of strategies and actions designed to lower the greenhouse gas emissions of The Ministry of Caring, Inc. on an organization-wide basis by 15% to 20% within two years. Using existing measurable data, a baseline would be established and used as a tool to prioritize the implementation of measures to reduce greenhouse gas emissions and energy use.	RGGI proceeds contributed $25,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**Omnia Humanities Inc – Revitalizing 13 acre Kranz Hill Farm:** This project focuses on the expansion of local food production in Newark, Delaware, and surrounding communities in conjunction with educating members of the local community about the carbon cost of conventional food production. In addition, the project proposes to demonstrate and educate the public about techniques for sustainable food production that, as a result, will help them lower their own carbon footprint. The proposed project will provide the necessary equipment and infrastructure to expand the food production capacity of the farm and demonstrate the use and effectiveness of these techniques to the community.	RGGI proceeds contributed $35,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**Delaware Nature Society - Delaware Nature Society Solar Electric Photovoltaic Systems:** This project will assist the installation of multiple solar electric arrays at both Ashland Nature Center in Hockessin and Coverdale Farm in Greenville. A 77.875kW system is proposed at Coverdale Farm and a 44.415kW system is proposed for Ashland.	RGGI proceeds contributed $10,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**The Nature Conservancy – Carbon Sequestration and Continued Habitat Restoration at Milford Neck:** This project will reforest approx. 60 acres of marginal farm land to native hardwood forest. The outcomes of this reforestation effort include: (1) measurable greenhouse gas reductions by sequestering significant amounts of carbon beginning with project initiation and over many years as our planted trees grow to a mature native forest and (2) reduction in greenhouse gas emissions associated with operation of farm equipment and transportation of agricultural inputs to the site and products from the site. The project will serve both as a pilot on which to expand the geographic scope and size of future carbon sequestration projects as well as a demonstration project to further understanding of these projects for other organizations and agencies interested in pursuing similar work.	RGGI proceeds contributed $99,946 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.

State	Project/Program Example	Funding Source/Additional Information	Source
DE	**The Ministry of Caring Inc – Building Retro-Commissioning of Guardian Angel Child Care and Installation of "Cool" Roof:** This project will include the completion of an energy audit on the child care building and the implementation of energy conservation measures including upgrades to water heating, HVAC , lighting, weatherization, and installation of a white roof. The project proposes to reduce the annual GHG for the building by an estimated 28.7% and reduce the annual utility expenses by 25%.	RGGI proceeds contributed $50,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**The Ministry of Caring Inc – Building Retro-Commissioning of St. Veronica Giuliani Monastery:** This project will include the completion of an energy audit on the monastery and the implementation of the energy conservation measures; including upgrades to replace freezers and water heaters, HVAC , lighting and weatherization. The project proposes to reduce the annual GHG for the building by an estimated 30.6% and reduce the annual utility expenses by 30%.	RGGI proceeds contributed $50,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**Delaware Center for Horticulture – The DCH is Growing Greener:** This project is part of a larger project to expand and green DCH's headquarters. The funding will be used to purchase solar shading devices at south facing windows of the addition, an additional inch of roof insulation on the addition, occupancy sensors and daylight sensors throughout the building, mechanical equipment replacement for existing building, light fixture replacement for the existing building, 1,000 square foot photovoltaic array, sub-metering for lighting and mechanical, energy modeling, and re-glazing the skylight at the lobby.	RGGI proceeds contributed $50,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**DE Dept of Agriculture – PV Feasibility Studies and PPA:** This project will conduct a feasibility study between DDA and a licensed engineer to determine the solar energy generation potential at the DDA main office complex and at the Redden State Forest office complex. Using the results of the study, DDA will then install a PV array. Mid-Atlantic Renewable Partners, a renewable energy finance company, will finance the installation of a system and DDA will enter into a power purchase agreement (PPA) to purchase the solar energy generated.	RGGI proceeds contributed $30,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**City of Newark – Cost Premium Purchase for Hybrid Vehicles for Newark Fleet:** The objective of this project is to reduce carbon emissions though the provision of cost premium funding to add hybrid vehicles to Newark's fleet. The project would fund the cost premium for vehicles that are planned to be replaced during the next two years that are appropriate candidates for hybrid replacement.	RGGI proceeds contributed $50,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**Clean Air Council – Green Ports, Healthy Communities:** This project has identified three objectives; assist Wilmington Tug, Inc. to repower one diesel-powered tugboats with more efficient engines; implement an anti-idling campaign, IdleFreeDelaware, beginning at the Port of Wilmington and surrounding Southbridge community; and assist the Port of Wilmington in the replacement of marine terminal light sources with LEDs.	RGGI proceeds contributed $150,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**City of Rehoboth Beach – Bicycle Plan, Complete Streets Policy and Lighting Retrofits:** This project includes developing a pedestrian and bicycle master plan and replacing 105 pedestrian lights along Rehoboth Avenue. This project would also include a public outreach brochure highlighting these projects.	RGGI proceeds contributed $100,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.

State	Project/Program Example	Funding Source/Additional Information	Source
DE	**DE Ornithological Society – Lights Out Wilmington:** This project will fund an outreach campaign, Lights Out! Wilmington. The objective of Lights Out! Wilmington is to educate large building owners, managers, and tenants of the conservation of migratory birds by reducing building strike mortality through extinguishing exterior and interior perimeter lighting on tall buildings during spring and fall bird migration windows. As an indirect result of extinguishing these lights, participating buildings would realize cost-saving benefits, energy-saving benefits, and contribute to greenhouse gas reduction.	RGGI proceeds contributed $11,220 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**DE Biotechnology Institute, UD – Framework for Minimizing Energy Input and Environmental Impact in Delaware:** This project will foster the education of scientists and Delawareans who are well-versed in the need for alternative energy sources and simultaneously interact with teachers and their young students to engage them in learning about sustainable agriculturally-based solutions to our society's energy challenges. The more specific objectives are to: a) Develop programs to create a generation of Delawareans (of all ages) who are more knowledgeable about the impact of energy usage and energy sources on the environment; b) Foster an interest in young students to pursue education and careers in science and technology to meet current and future energy challenges; c) Educate teachers on the state-of-the-art alternative energy technologies and the limitations of those technologies	RGGI proceeds contributed $50,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**City of Newark Conservation Advisory Committee – Anti-Idling Education and Outreach Campaign:** The objective of this project is to reduce carbon emissions by educating the Newark driving public about the ordinance and encouraging compliance. A secondary goal is to raise awareness of opportunities to decrease idling where the no-idling ordinance is not in effect such as drive-through lanes (fast food/banks, etc) and at railroad crossings. The campaign will include design and production of education and outreach materials and signage to inform and motivate the driving public, both residents and non-residents and commercial entities who use city streets and public and private parking facilities to decrease or eliminate both illegal and legal idling of their vehicles by 50%.	RGGI proceeds contributed $15,000 to project	<http://www.dnrec.delaware.gov/energy/Documents/GHG%20Reduction%20Projects%20Grant%20Program/RGGI%20Grant%20Awards.pdf>, accessed August 4, 2011.
DE	**LIHEAP Program** Provides various forms of assistance to these low-income households: fuel assistance, crisis assistance, and summer cooling assistance.	5% of RGGI Auction Proceeds used to support the program	AG interview with DNREC
ME	**Large Project Grant to Twin Rivers Paper** Twin Rivers Paper, born out of the reorganization of Fraser Papers after its bankruptcy, received four grants (totaling $1.3 million) through Efficiency Maine's Competitive Incentive Program to complete energy efficiency projects to reduce the company's operating costs and improve its competitiveness. Twin Rivers added another $1.4 million to complete the projects. RGGI funded two grants, which were used to upgrade nearly 40 high-efficiency drives throughout the facility, reducing electric consumption by 6 million kWh per year for the next 10 years. Energy savings are roughly equivalent to the electric use of 950 homes each year. The other two grants were funded by federal stimulus (ARRA) proceeds received by Efficiency Maine and were used towards heat recovery projects.	Efficiency Maine grant 100% funded from RGGI proceeds; total project cost partially funded through RGGI proceeds	"Large Projects Grant Programs: Twin Rivers Media Coverage 2010," Efficiency Maine.
ME	**Large Project Grant to Irving Forest Products** About $2 million will be spent to replace an edger that trims the edges of lumber to make square lumber. Another project will turn some of the steam created by the mill's large boiler into electricity. $700,000 of the total cost was funded through a grant from Efficiency Maine. Once the system is created, about 25 to 30 percent of the mill's electrical needs will be generated by the new steam-capture system.	Efficiency Maine grant 100% funded from RGGI proceeds; total project cost partially funded through RGGI proceeds	"Large Projects Grant Programs: Maine Sawmills Media Coverage 2010, Irving Forest Products and Moose River Lumber," Efficiency Maine.

State	Project/Program Example	Funding Source/Additional Information	Source
ME	**Large Project Grant to Moose River Lumber Co.** Moose River Lumber Co. will soon not only produce enough lumber to construct 10,000 homes a year, it will also make its own electricity while doing so. The $1.4 million cogeneration project this spring will produce 40 percent of the company's power, making it greener and more competitive over the long-term. The turbine and a connected generator will eliminate about $400,000 from electric bills every year, said General Manager Jeff Desjardins. The cogeneration project is partly funded by a $400,000 grant using RGGI proceeds and is handed down by Efficiency Maine.	Efficiency Maine grant 100% funded from RGGI proceeds; total project cost partially funded through RGGI proceeds	"Large Projects Grant Programs: Maine Sawmills Media Coverage 2010, Irving Forest Products and Moose River Lumber," Efficiency Maine.
ME	**Large Project Grant to GAC Chemical** GAC Chemical in Searsport will undertake a whole facility energy retrofit at an estimated cost of $630,000. Efficiency Maine provided GAC Chemical a grant, fully funded by RGGI proceeds, for $314,000, or half the price of the energy retrofit. The retrofit will install new systems to recycle steam from the manufacturing process to heat water, optimize boiler controls, and update lighting and insulate pipes throughout the plant.	Efficiency Maine grant 100% funded from RGGI proceeds; total project cost partially funded through RGGI proceeds	"Large Projects Grant Programs: GAC Chemical Media Coverage 2010," Efficiency Maine.
ME	**Large Project Grant to Jackson Lab** Engineers, energy industry officials, and members of the press gathered at the Jackson Laboratory in Bar Harbor on Nov. 22 for the groundbreaking ceremony of the lab's new wood-fired energy plant. The $4.4 million project was partially funded by at $1 million grant through Efficiency Maine and is expected to reduce the lab's carbon footprint, reduce energy costs, and boost the state's economy. Unlike most wood-fired energy plants that burn whole wood pellets, the Jackson Lab plant employs a combustion method that boosts energy output with reduced ash byproduct. Prior to combustion, the pellets are ground into a fine powder and pumped into a combustion chamber via a jet of air. The resulting combustion yields energy and a small amount of ash. What little ash is produced is filtered out of the system's smokestacks before it can enter the atmosphere, thus reducing particulate emissions, engineers said.	Efficiency Maine grant 100% funded from RGGI proceeds; total project cost partially funded through RGGI proceeds	"Large Projects Grant Programs: Jackson Lab Media Coverage 2010," Efficiency Maine
MD	**EmPOWERing Clean Energy Communities Grant to Garrett County:** Using a $50,000 grant from the Maryland Energy Administration (MEA), residents of Liberty Mews, a 36-unit lease purchase housing development in Oakland, will save money on utility bills while enjoying new energy efficient appliances. The grant, issued to Garrett County as part of the MEA's EmPOWERing Clean Energy Communities Low-to-Moderate Income Grant Program, allowed the Garrett County Community Action Committee, a private nonprofit corporation operating in Garrett County since 1965, to upgrade appliances in all 36 lease purchase housing units. The grant was for the incremental cost associated with upgrading appliances to ENERGY STAR rated and energy conserving devices. The new units are expected to provide an annual energy savings of 28,760 kilowatt hours which will translate into an average annual estimated savings of $127 per year in electricity costs per home. The ENERGY STAR/Energy Efficient appliances purchased for the 36 units of Liberty Mews include refrigerators, clothes washers, and dishwashers. This grant is part of the EmPOWER Maryland initiative, and is funded through the Strategic Energy Investment Fund (SEIF). SEIF funds come from RGGI, and the SEIF fund statute requires that 50% of all energy efficiency funds be used for low-to-moderate income Marylanders. The grant funds were divided among the Maryland Counties, with $50,000 available for Garrett County for the grant period March 1 through Sept. 30, 2010.	Grant 100% funded through RGGI proceeds	"MEA EmPOWERs Garrett County Community to Save," Maryland Energy Administration, http://www.energy.state.md.us/News/press/Garrett.html, accessed July 28, 2011.
MD	**EmPOWERing Clean Energy Communities Low-to-Moderate Income Grant to Caroline County** Using a $50,000 grant from the MEA, Caroline County Habitat for Humanity completed six energy efficiency upgrades for low to moderate income families. These energy efficiency upgrades produced an estimated annual savings of $11,464 in energy costs for the six families. This was accomplished by reducing annual electric consumption by more than 38,000 kilowatt hours, propane consumption by more than 470 gallons, and oil consumption by more than 980 gallons...This grant is part of the EmPOWER Maryland initiative, and is funded through the SEIF. SEIF funds come from RGGI, and the SEIF fund statute requires the 50% of all energy efficiency funds be used for low-to-moderate income Marylanders. The grant funds were divided among the Maryland Counties, with $50,000 available for Caroline County for the grant period June 15, 2010 to Feb. 1, 2011.	Grant 100% funded through RGGI proceeds	"Caroline County Habitat Pairs MEA EmPOWER Grant Funds with Volunteer Work," Maryland Energy Administration, http://www.energy.state.md.us/News/press/CarolineHabitat.html, accessed July 28, 2011.

State	Project/Program Example	Funding Source/Additional Information	Source
MD	**EmPOWERing Clean Energy Communities Low-to-Moderate Income Grant to St. Mary's County** Using a $50,000 grant from the MEA, residents of the Cedar Lane Senior Living Community in Leonardtown now save money on energy bills while enjoying a comfortable indoor climate regardless of weather. The grant, issued to St. Mary's County as part of the MEA's EmPOWERing Clean Energy Communities Low-to-Moderate Income Grant Program, allowed the Friends of Cedar Lane, a non-profit organization that provides support to St. Mary's Home for the Elderly and the Cedar Lane Senior Living Community, to replace 51 Package Terminal Air Conditioner (PTAC) units in 51 residential apartments. The PTAC units account for 68% of a typical Cedar Lane Apartment electric bill. The new units are expected to provide an 18% energy savings, or 15,607 annual kilowatt hours, over the old units, which will translate into an annual estimated savings of $13,000 per year in energy costs. (A PTAC unit is a self-contained, through-the-wall air conditioner and heater system, which looks similar to units typically seen in hotel rooms.). This grant is part of the EmPOWER Maryland initiative, and is funded through the SEIF. SEIF funds come from the RGGI, and the SEIF fund statute requires that 50% of all energy efficiency funds be used for low-to-moderate income Marylanders. The grant funds were divided among the Maryland Counties, with $50,000 available for St. Mary's County for the grant period March 1 through Sept. 30, 2010.	Grant 100% funded through RGGI proceeds	"MEA Funds Energy Efficiency Upgrades at St. Mary's County Senior Living Community," Maryland Energy Administration, http://www.energy.state.md.us/News/press/stmarysempower.html, accessed July 28, 2011.
MD	**Maryland Multifamily Energy Efficiency and Housing Affordability (MEEHA) grant to the Montgomery Housing Partnership** The Gilbert Highlands housing community has undergone a complete makeover. The Montgomery Housing Partnership, owners of the building since 2007, received several federal, state and county incentives that made $5.34 million worth of renovations possible. Not only does the renovation improve the overall energy efficiency of the building and make the residence a great example of sustainable, green construction, but it also created 28 green collar construction jobs. The MEA, through the MEEHA program, contributed $52,500 to the project. The grant "adds additional energy-saving features we may not have been able to do," says Stephanie Roodman, Senior Project Manager and Legal Counsel for Montgomery Housing Partnership, Inc. The MEEHA grant helped cover the cost of purchasing 13 SEER HVAC gas-fired furnaces. Additional upgrades throughout the building include new Energy Star-rated appliances and lighting fixtures, individually metered in-unit HVAC systems, reflective roofs and more. The combined upgrades implemented by the project account for an electricity consumption reduction of 58 MWh.	MEEHA grant 100% funded through RGGI proceeds	"MEA Enhances the Energy Efficiency Benefits of a Montgomery County Renovation," Maryland Energy Administration, http://www.energy.state.md.us/news/press/gilberthighlandsupgrades.html, accessed July 28, 2011.
MD	**EmPOWER Clean Energy Communities Grant and Jane E. Lawton Conservation Loan to the Baltimore American Visionary Art Museum** For Baltimore's American Visionary Art Museum, replacing the HVAC chiller to the 15-year-old exhibition building was a critical fix. Besides cooling its more than 100,000 annual visitors, the museum is responsible for the preservation of a vast collection of visionary art...AVAM received a $40,000 grant through the EmPOWER Clean Energy Communities Grant program. In addition to replacing the chiller, the funds are being used to seal the roofing connection to further preserve interior climate conditions. These energy efficiency improvements, which are also partially funded by a zero-interest Jane E. Lawton Conservation Loan from the Maryland Energy Administration (MEA), contributed to energy savings estimated at 78,000 kWh every year, which would translate to an annual savings of more than $9,000.	Project partially funded through RGGI proceeds	"MEA EmPOWERs Clean Energy Communities and visionary artists," Maryland Energy Administration, http://www.energy.state.md.us/News/press/AVAM.html, accessed August 1, 2011.

State	Project/Program Example	Funding Source/Additional Information	Source
MD	**Windswept Grant to Henry and Nancy Maier** Henry and Nancy Maier of the Allegany County converted a charming, three-story farmhouse into their very own "green" paradise. The couple's fully operational wind turbine system generates enough energy to power their 2,500 square foot residence with energy to spare. "The wind technology is expensive up front, so grants are really the key for us," said Henry. The couple received a $10,000 Windswept Grant, which reduced the preliminary costs of the turbine system significantly. MEA spearheaded efforts to acquire and install a Bergey 10 kW grid-tied wind turbine, which generates electricity by harnessing 10 to 75 mph winds. "We now look forward to receiving our electric bills," said Henry. "For the past nine months they have been under $5 per month – a minimum charge to stay grid-tied." Henry recalled his first energy bill after the system was active. Thinking a $4 electric bill was a mistake, he called his utility provider. Not only was the bill correct, but the Maiers had accumulated a credit of $100. In addition to enjoying free electricity, the couple earned $800 in Maryland Clean Energy Production Tax Credits. They claimed an additional $22,000 from the Federal government's Residential Renewable Energy Tax Credit. MEA's Windswept Grant Program has granted $508,000 to Marylanders since its start in 2007, which helped install 61 wind turbine systems across the state or about 280 kilowatts of installed capacity.	Project partially funded through RGGI proceeds	"Wind turbine system transforms country home into "green" dream house," Maryland Energy Administration, http://www.energy.state.md.us/News/press/GreenDreamHouse.html, accessed August 1, 2011.
MD	**Windswept Grant to Michael Jenkins** Pittsville-based Communications & Energy Services, an Eastern Shore energy system installer, provided Jenkins with an estimate for a Skystream wind turbine from Southwest Windpower. Jenkins applied to the Maryland Energy Administration's Windswept Grant Program in November of 2010, and was approved for a grant of $6,160, made possible through funds provided by RGGI and the American Recovery and Reinvestment Act. The grant covered about one third of the total project cost. The 45'-tall tower and 2.4 kilowatt turbine was installed in March, and provides Jenkins with significant energy savings. "I probably wouldn't have been able to install this unit without the MEA grant," he said. "I always disliked the wind at our house, and now I love it."...Jenkins is also enthusiastic about his new turbine's environmental benefits. "We've already saved about 160 pounds of CO2 from going up in the atmosphere, and I'm tickled pink about that," he said. "It's helping to save the planet."	Project partially funded through RGGI proceeds	"Windswept Grant Eases Greenhouse Gas Emissions on the Eastern Shore," Maryland Energy Administration, http://www.energy.state.md.us/News/press/jenkinswind.html, accessed August 1, 2011.
MD	**Department of Human Resources Low Income Bill Payment Program** The Office of Home Energy Programs (OHEP) within the Maryland Department of Human Resources uses SEIF funds to provide electric assistance benefits to eligible low-income households. Average $738 bill assistance for 4,837 households in 2009; Average $624 bill assistance for 24,456 households and average $1,011 arrearage retirement for 26,308 households in 2010.	100% from RGGI proceeds	Maryland State Energy Investment Fund, Clean Energy Accomplishments, FY 2009 and 2010
MD	**Clean Energy Workforce Training and Capacity Building** Program provides support for state community colleges' efforts to establish a workforce development program centered on training for residential energy efficiency retrofits. 928 trainees in FY 2009 and 2010.	100% from RGGI proceeds	Maryland State Energy Investment Fund, Clean Energy Accomplishments, FY 2009 and 2010 EmPOWERing Maryland Clean Energy Programs, FY 2011
MA	**Mass Save: Excitement, Access, and Consistency Drive Program Participation** To achieve the aggressive goals called for by the Green Communities Act, a new approach was needed to reach natural gas and electric customers, to educate them about the benefits of energy efficiency and drive them to take action and implement energy improvements. The Program Administrators, in consultation with Massachusetts DOER, established a single statewide energy efficiency brand called Mass Save. For the first time, marketing to residential and business customers across the state and across fuels is based on comprehensive market research, with consistent, clear messaging, brand identification, and collateral—all providing a single first call to action, visit MassSave.com.	RGGI funds combined with SBC charges to fund program	"Efficiency as our First Fuel: Strategic Investments in Massachusetts' Energy Future," The 2010 Report of the Massachusetts Energy Efficiency Advisory Council, June 2011.

State	Project/Program Example	Funding Source/Additional Information	Source
MA	**Pilot: Deep Energy Retrofit in Belchertown Partner: National Grid** In Belchertown, a comprehensive renovation of an 18th century Cape yielded a 55 percent reduction in energy use and an estimated $2,800 in annual savings. One of the successes of National Grid's Deep Energy Retrofit Pilot, this project demonstrates an important element of the three year plans; testing the most effective ways to capture ―deeper savings in existing homes. While the owners and builder had already planned a comprehensive renovation, financial and technical support from National Grid and Building Science Corporation, respectively, allowed this project to achieve a super insulated enclosure (~R-35 walls, R-50+ roof, R-20+ foundation), extensive water management improvements, high efficiency heating and water heater, and state-of-the-art ventilation. Air leakage testing found the enclosure and the new duct system to be extraordinarily air tight. The owners, who reported living next to the wood stove in the winter prior to the renovation, have been thrilled with the transformation of their home.	RGGI funds combined with SBC charges to fund program	"Efficiency as our First Fuel: Strategic Investments in Massachusetts' Energy Future," The 2010 Report of the Massachusetts Energy Efficiency Advisory Council, June 2011.
MA	**Pilot: Community Mobilization Initiative Partners: NSTAR & National Grid** As part of an innovative approach designed to deliver efficiency services to communities with historically low participation, local utilities NSTAR and National Grid partnered with a multi-stakeholder group called the Green Justice Coalition to reach and mobilize local residents in ethnically diverse communities. In the City of Chelsea, the utilities engaged the Chelsea Collaborative (CC), a local community-based organization and member of the Green Justice Coalition, to reach out to homeowners and tenants who live in one- to four-family and multi-family buildings. This Community Mobilization Initiative (CMI) had two goals: to test implementation of community-based outreach and to provide training and create good paying, green jobs for local residents. Additional partners, Insul-Pro, Inc. and the New England Carpenter's Union, committed to training and hiring locally. In 2010, this effort led to the training of 12 local residents, some of whom have been hired to work on the pilot. The Collaborative hit the ground running, spreading the word bi-lingually and publicizing the program at community meetings, open houses, and local holiday celebrations. Collaborative members used local access television to record two bi-lingual programs, sent out targeted mailings to hundreds of Chelsea residents, and emails to their own members. The group worked closely with City of Chelsea administrators, who supported the effort with email, program announcements in monthly water bills, and information on the programs to multi-family property owners specifically designed to meet their needs. As a result of these efforts, over 30 home energy assessments were scheduled within a four-week period. The first recipients of efficiency services through this new approach were Alejandrina Rodriquez and her family. For them, this project promises a newly insulated home and lower energy bills for years to come.	RGGI funds combined with SBC charges to fund program	"Efficiency as our First Fuel: Strategic Investments in Massachusetts' Energy Future," The 2010 Report of the Massachusetts Energy Efficiency Advisory Council, June 2011.

State	Project/Program Example	Funding Source/Additional Information	Source
MA	**Low-Income Renovation: Dedham Housing Authority in Dedham Partners: NSTAR & DHCD** The Massachusetts Department of Housing and Community Development's (DHCD) Low-Income Multi-Family Retrofit Program provides cost-effective residential energy efficiency improvements to non-profit owners of low-income housing and public housing authorities. In the spirit of the Green Communities Act, this program aggressively addresses all opportunities for energy efficiency by seeking all energy savings opportunities ("deeper savings") in each building targeted for treatment. The program provides owners with an online energy benchmarking tool, comprehensive energy assessment, direct installation of efficiency upgrades and quality control at no cost. In some cases, the program provides efficiency upgrades while other capital improvements are underway, allowing owners to leverage funds and maximize benefit to their tenants. Eligible projects receive efficiency upgrades such as space heating and hot water improvements, air sealing and insulation for the building envelope, and lighting and appliance replacements. By coordinating these upgrades, the program delivers heating energy and electric efficiency services in one stop. Dedham Housing Authority's Parker Staples 26-unit apartment complex took advantage of this new program to make cost-saving efficiency upgrades in each unit. After conducting a comprehensive building assessment, program contractors and NSTAR coordinated the installation of air sealing, attic insulation, basement sill insulation, ventilation improvements, and energy efficient light fixtures and bulbs. Parker Staples was able to take advantage of financial incentives valued at $82,000 and technical assistance through NSTAR. At the same time, DHCD replaced aging heating systems in each of the 26 units, utilizing over $132,000 from the American Recovery and Reinvestment Act and US Department of Energy. The combined investment is projected to reduce heating energy by 30 percent, save 45,000 kWh annually, and save as much as $500 annually for each unit. Since tenants pay for their own utilities at this site, they will receive the immediate economic benefit of lower utility bills.	RGGI funds combined with SBC charges to fund program	"Efficiency as our First Fuel: Strategic Investments in Massachusetts' Energy Future," The 2010 Report of the Massachusetts Energy Efficiency Advisory Council, June 2011.
MA	**Combined Heat & Power in Small Business: YMCA in Lawrence Partner: Columbia Gas of Massachusetts** The Merrimack Valley YMCA in Lawrence partnered with Columbia Gas of Massachusetts in 2010 to rebuild and upgrade an older combined heat and power system (CHP) into a high efficiency unit capable of using excess heat to provide useful service to other applications in the building. The innovative design now takes the highest temperature water to heat the single occupancy rooms in the building, then uses the same water, now slightly cooler, to heat domestic hot water units. Finally, this water is used to heat the swimming pool to approximately 83 degrees, saving over 30,000 therms annually. The total cost of the project was approximately $267,143, but with the $100,000 incentive from Columbia Gas and the estimated annual savings of $42,500, the project will pay for itself in just over four years. These savings will enable the YMCA to offer more financial aid for kids, family programs, camps and teen mentoring.	RGGI funds combined with SBC charges to fund program	"Efficiency as our First Fuel: Strategic Investments in Massachusetts' Energy Future," The 2010 Report of the Massachusetts Energy Efficiency Advisory Council, June 2011.
MA	**Equipment Upgrades & Technical Assistance: Atlantic Lighting in Fall River Partner: New England Gas** Fall River has consistently had one of the highest unemployment rates in the Commonwealth, and local officials are working diligently to create "green jobs" in the community. One of the core goals of New England Gas Company and the Green Communities Act is to foster local economic benefits through implementation of energy efficiency. Atlantic Lighting is a Fall River manufacturer of energy efficient LED lighting fixtures. New England Gas worked with the company to install a high efficiency catalytic curing oven, and a high efficiency washer and dry-off oven that improves the production process and helps Atlantic Lighting save energy at the same time. New England Gas provided a $23,400 rebate and estimates energy savings for these projects will be approximately 23,400 therms per year. Annual savings are estimated to be $32,526 per year.	RGGI funds combined with SBC charges to fund program	"Efficiency as our First Fuel: Strategic Investments in Massachusetts' Energy Future," The 2010 Report of the Massachusetts Energy Efficiency Advisory Council, June 2011.

State	Project/Program Example	Funding Source/Additional Information	Source
MA	**Net Zero Goals: Cape Air in Hyannis Partner: Cape Light Compact** Cape Air is one of the largest independent regional airlines, flying over 610,000 passengers to destinations across the country. When the company, now in its 21st year, made a commitment to make its operations center in Hyannis a net-zero electricity importer and to reduce electricity usage by 25 percent, it formed a productive relationship with its Mass Save Program Administrator, the Cape Light Compact (CLC). To meet Cape Air‘s ambitious goals, the CLC conducted a comprehensive energy assessment of Cape Air‘s operations building and recommended a host of cost-effective energy efficiency and weatherization improvements. Based on these recommendations, Cape Air installed highly efficient and state-of-the-art lighting upgrades, such as lighting relay panels, occupancy sensors, photocells, and override switches to provide area control to lighting in the hangar restrooms, storage rooms and offices, as well as other areas of the facility. Together, these measures are expected to reduce Cape Air‘s electricity consumption by more than 60,000 kWh annually. To reduce natural gas consumption and achieve 3,592 annual therm savings, Cape Air added insulation to its facility and sealed air leaks. For implementing these robust upgrades, Cape Air received incentives valued at $35,515 from the Cape Light Compact, and will benefit from over $9,000 in annual energy savings. The company realized a 25 percent reduction in electricity use at its operations center and is on its way to reducing heating and cooling use by 25 percent. Future plans involve upgrades to the building, including a high efficiency HVAC system, new windows, doors and additional insulation.	RGGI funds combined with SBC charges to fund program	"Efficiency as our First Fuel: Strategic Investments in Massachusetts' Energy Future," The 2010 Report of the Massachusetts Energy Efficiency Advisory Council, June 2011.
MA	**Corporate Sustainability: ALADCO Linen Services in Adams Partner: Berkshire Gas** ALADCO Linen Services of Adams provides linen services such as table and kitchen linens, bed linens, uniforms, entrance mats and dust control to a variety of hospitality, institutional, and academic customers throughout New England, New York, and the Route 91 corridor. ALADCO is committed to being the linen rental industry leader in the sustainability movement and is the first hospitality linen rental facility in the nation to commit to driving operations in a sustainable manner. ALADCO participated in Berkshire Gas‘ Commercial & Industrial Energy Audit Program and worked with the company to create a long-term plan to increase its energy efficiency. The first step was to gut and retrofit a 19th century building, and invest in a new Pulse-Flow continuous batch washing system that replaced eight regular industrial washer/extractors. ALADCO currently processes 600,000 pounds in linen products per month. The old process used 2.5 gallons of water per pound compared to 0.4 gallons today, 1,250,000 gallons of water saved each month. In addition to the reduction in water usage, there was a significant reduction in natural gas and electricity required to heat 84 percent less water than the old system. Berkshire Gas provided technical assistance and a $50,000 incentive. Projected savings from this project are over 81,000 therms annually and nearly 1.7 million therms over the life of the equipment. These annual savings equate to the amount of natural gas needed to heat approximately 70 homes per year. The project also is estimated to save over 171,000 kWh per year, representing $17,100 savings per year.	RGGI funds combined with SBC charges to fund program	"Efficiency as our First Fuel: Strategic Investments in Massachusetts' Energy Future," The 2010 Report of the Massachusetts Energy Efficiency Advisory Council, June 2011.
MA	**Serving Cities and Towns: Town of Andover Partner: National Grid** Andover has a strong tradition of investing in education, library and community services, environmental conservation and energy efficiency. Andover rededicated itself to saving energy after Hurricane Katrina caused spikes in utility and fuel prices. It made town employees the center of municipal efforts, adopting the slogan, “Every dollar of energy saved is a piece of someone‘s salary." It also met five benchmarks to become one of the state‘s first Green Communities in 2010 and spent its $160,000 grant on lighting retrofits. Andover has worked very closely with National Grid, using technical assistance and financial incentives for a variety of energy saving initiatives, including participation in National Grid‘s Whole Building Assessment, installation of high efficiency lighting systems in the Town Office and School Administration buildings, implementation of a "dark schools" program, operation of a town-wide program to address building envelope heat loss, conversion of all school buildings to dual fuel boilers, and a town/school-wide energy management system to control, monitor and troubleshoot HVAC equipment. Altogether, Andover‘s energy efficiency efforts are saving the Town $750,000 a year.	RGGI funds combined with SBC charges to fund program	"Efficiency as our First Fuel: Strategic Investments in Massachusetts' Energy Future," The 2010 Report of the Massachusetts Energy Efficiency Advisory Council, June 2011.

State	Project/Program Example	Funding Source/Additional Information	Source
MA	**Jobs & Job Benefits: PACE, Inc. YouthBuild's Urban Energy Solutions in New Bedford** YouthBuild New Bedford, an affiliate of the 20-year-old YouthBuild USA, works with young people from low-income communities to obtain their high school diploma or equivalency and acquire skills in building affordable housing. For the past four years, PACE YouthBuild New Bedford has been interested in energy conservation and the environment. At the same time, the organization has been looking to develop a small business that would result in an income stream to support its programs. Ultimately the goal is to provide employment opportunities for New Bedford youth. When Massachusetts' expanded energy efficiency programs and the EEAC-sponsored Community Mobilization Initiative (CMI) pilot programs emerged, the timing was perfect to catalyze the founding of YouthBuild New Bedford's new company, Urban Energy Solutions. YouthBuild New Bedford, in partnership with the city of New Bedford, received over $300,000 in grants from the U.S. Conference of Mayors to support the launch of its energy efficiency and weatherization trainings, and materials needed to start the company. The staff of the small but motivated company became participating Mass Save contractors in the fall of 2010 and the company was selected as the lead contractor for the New Bedford CMI pilot project. Through Urban Energy Solutions, YouthBuild New Bedford has trained and employed five local residents to install efficiency improvements as part of the CMI residential efficiency pilot. Company leaders are eager to expand their business beyond the pilot to serve any New Bedford resident participating in the Mass Save program. Chief Operating Officer Gloria Williams says the efficiency work is a perfect match for the skills that YouthBuild New Bedford provides to its young participants. Ms Williams says they are acting on the inspiring words by former Obama Special Advisor on Green Jobs, Van Jones, "doing the work that needs doing by the people who need to do it most."	RGGI funds combined with SBC charges to fund program	"Efficiency as our First Fuel: Strategic Investments in Massachusetts' Energy Future," The 2010 Report of the Massachusetts Energy Efficiency Advisory Council, June 2011.
MA	**MassGREEN Initiative Job Training Program** MassCEC awarded Springfield Technical Community College (STCC) a three-year $1,875,000 award to administer and develop the MassGREEN Initiative through its community college partners across the Commonwealth. MassCEC made an additional $500,000 to STCC which was approved by our Board in July 2011. Since September 2009, MassGREEN has served as a training affiliate of the nationally recognized Building Performance Institute (BPI), developed and deployed weatherization skills training and business development courses, trained an infrastructure of 20 BPI certified instructors and established five highly-standardized, geographically accessible training facilities. Since October 2010, 51 trainees have completed MassGREEN's 8-week BPI-Residential Building Efficiency Whole House Air Leakage Control Installer Course with another 19 on track to complete the course this summer. Most of the 70 program participants (i.e., installers, supervisors, builders, contractors, construction trades, and veterans) are workers seeking to improve skills in the fundamentals of energy efficiency and building science as well as achieve certification in the BPI-Installer level exam. As a testament to the comprehensive instruction for this course, 100% of the people who have taken the BPI Installer exam have passed. Some of those trained (27) were un/underemployed workers seeking to enter the weatherization field, many of whom had little or no construction or weatherization experience. Of those who were un/underemployed when they entered the program, 10 have obtained work as air sealing and insulation technicians for local companies. MassGREEN will add two new training sites this fall and expand its scope of courses to include an accelerated BPI	100% funded by RGGI proceeds Disbursed to Mass CEC's Workforce Development Division's Energy Efficiency and Building Science Initiative (MassGREEN)	AG interview with MA DOER staff
MA	**Power Monitor Pilot Program** Implemented by Cape Cod Light Compact in 2010. The objective of the Power Monitor Pilot is to investigate the effectiveness of providing customers with a simple power cost monitor that offers real-time information about their home or business electricity use. The monitors also connect with an interactive website that allows participants to compare their electricity use to that of others in their community. The Power Monitor Pilot will assess the costs and benefits of smart energy monitoring and demand reduction management technology in households in Cape Cod and Martha's Vineyard. In 2010, the Compact will be looking to expand this pilot to include commercial applications. The pilot design includes a plan to install power monitors and gather information on customer satisfaction and behavior modification, and a plan for testing various marketing methods.	RGGI funds combined with SBC charges to fund program	2010 expenditures, achievements, and benefits from: "Quarterly Report of the Program Administrators," Q4 2010, Part 2, Feb 3, 2011.

State	Project/Program Example	Funding Source/Additional Information	Source
MA	**Green Communities Division Grant Program: Acton** Grant will fund energy conservation measures at the public library, an HVAC analysis of the town hall, tankless hot water heaters and an energy education and outreach program.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Andover** Grant will fund a municipal lighting retrofit project at six school buildings and two municipal buildings.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Arlington** Grant will be used to improve energy efficiency of lighting and steam traps, and for an energy management system at the Hardy School.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Athol** Grant will fund energy efficiency improvements at the senior center, an HVAC analysis of the Town Hall and library, and a solar hot water system at the fire station.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Becket** Grant will fund a two-phased project for two municipal buildings; Town Hall and Town Garage. First, to fund energy audits to identify energy usage and potential energy efficiency measures. Second, to fund implementation of energy conservation measures determined appropriate and cost effective in the two buildings.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Belchertown** Grant will be used to buy down cost of town's energy management services contract for municipal buildings.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Boston** For energy conservation measures including auto igniters for natural gas streetlights and lighting controls at municipal ball fields; and an upgrade of the energy management system for Copley Library and four library branches.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.

State	Project/Program Example	Funding Source/Additional Information	Source
MA	**Green Communities Division Grant Program: Cambridge** Grant used for an energy efficiency revolving fund for municipal facilities.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Chelmsford** Grant used for 30-kilowatt (kW) solar photovoltaic (PV) system at Parker Middle School.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Dedham** Towards its energy savings performance contract in municipal buildings.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Easthampton** High-efficiency LED streetlights.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Easton** For energy conservation measures in municipal buildings including replacement of the rooftop HVAC air handling unit at the Police Station and new energy efficient boiler at Town Hall.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Gardner** For energy conservation measures including energy efficient boiler replacements, insulation, air sealing and a heating system evaluation at the High School and Senior Center; and a solar PV assessment.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Gloucester** For energy conservation measures including improvements to the O'Maley Middle School building envelope, demand control ventilation upgrades, and the installation of an energy saving ceiling (Low E) and heat exchanger at the O'Maley Rink.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.

State	Project/Program Example	Funding Source/Additional Information	Source
MA	**Green Communities Division Grant Program: Greenfield** Grant will support an energy management services company contract, community energy efficiency programs, and consulting services.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Hamilton** Grant will be used to buy down the cost of an energy savings performance contract for implementation of energy conservation measures at the Town Hall, Council on Aging, Recreation Department and Public Safety Building.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Hanover** Incremental costs of a hybrid public safety command vehicle, energy efficiency measures in municipal buildings and to support an energy staff person.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Harvard** For energy conservation measures including; demand control ventilation and mechanical upgrades at the Elementary School, an HVAC upgrade at the Police Station, energy efficient boiler replacement at the Fire Station, and a deep energy retrofit analysis for Town Hall.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Hatfield** For energy conservation measures including; insulation and heating system upgrades at the Water Filtration Plant office, installation of a heat recovery system at the Wastewater Treatment Plant, an energy conservation study for Town Hall, and purchase of an electric light duty truck for multiple department use.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Holyoke** For conversion of exterior parking lot lighting to LEDs at all twelve schools, for high-efficiency LED traffic and street lights and to insulate City Hall.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Hopkinton** Various municipal building energy efficiency measures.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.

State	Project/Program Example	Funding Source/Additional Information	Source
MA	**Green Communities Division Grant Program: Kingston** Grant will fund energy efficiency measures at the Kingston Elementary School, Kingston Public Library and Smith's Lane Fire Station, and to fund an Idleright fuel management system for police vehicles.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Lancaster** Various energy efficiency measures, a solar PV project, an energy analysis of the town hall, and the incremental costs of a hybrid vehicle.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Lenox** For energy efficiency measures and training, energy expert consulting services, community wind forums and a mini-grants program for solar and hot water systems on commercial and residential properties.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Lexington** For an energy efficient street lighting project.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Lincoln** School and other town building energy efficiency measures.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Lowell** To supplement existing residential and commercial energy efficiency incentive programs and to buy down the cost of an energy savings performance contract for implementation of energy conservation measures across all municipal buildings.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Marlborough** For energy conservation measures at several municipal buildings; purchase of a hybrid vehicle, and a site evaluation for a solar PV system, and to fund an Energy Efficiency Manager position.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.

State	Project/Program Example	Funding Source/Additional Information	Source
MA	**Green Communities Division Grant Program: Mashpee** For energy efficiency measures at the Town Hall, the Police Department, and KC Coombs Elementary School, and to hire an engineering firm.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Medford** For energy efficiency measures at Medford High School and to update the municipal climate action plan.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Medway** For energy conservation measures and energy audits at several town buildings including; LED lighting replacements, anti-idling devices on all town vehicles, and window replacements.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Melrose** For an energy efficient roof at Melrose High School, for energy expert consulting services, and to support the salary of an energy efficiency coordinator.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Milton** For energy conservation measures at several municipal buildings and funding towards the installation of a wind turbine on municipal land.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Montague** To buy down the cost of a performance contract on eight municipal buildings: Town Hall, Carnegie Library, Montague Center Library, Millers Falls Library, Wastewater Treatment Facility, Montague Parks and Recreation Office, Sheffield Elementary School, and Hillcrest Elementary School.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Natick** For a solar PV power purchase agreement at the middle school, for the incremental cost of hybrid vehicles, and for carbon dioxide sensors at Town Hall.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.

State	Project/Program Example	Funding Source/Additional Information	Source
MA	**Green Communities Division Grant Program: Newton** To be leveraged with other funding for a deep energy efficiency retrofit of the Lower Falls Community Center.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: New Salem** For a 20 kW solar PV system on town property.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Newburyport** Towards its energy savings performance contract in municipal buildings.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Northampton** For a 51 kW solar power project on the Smith Vocational and Agricultural High School (SVAHS) and to purchase an energy auditor/building performance education kit for the SVAHS Home Building Program.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Palmer** To buy down the cost of an energy service company contract related to efficiency measures at the Palmer Town Building.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Pittsfield** For an energy management system at City Hall.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Salem** For energy efficient streetlights, to buy down the cost of an energy service company contract, a residential weatherization pilot program and a bike sharing pilot program.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.

State	Project/Program Example	Funding Source/Additional Information	Source
MA	**Green Communities Division Grant Program: Scituate** For energy conservation measures in municipal buildings, including insulation and weatherization.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Springfield** To replace inefficient boilers at the Mary Lynch and Freedman Elementary Schools and the Fire Repair Building, installation of vending machine misers at the Freedman and Brunton Elementary Schools and the Fire Repair Building, and for five energy management systems at the Mary Lynch, Brunton and Zanetti schools, the Fire Repair Building and the Sixteen Acres Branch Library.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Sudbury** For energy efficiency measures in five town schools, the Fairbanks Community Center and the Lincoln/Sudbury Regional High School, and for the incremental costs of a fuel efficient vehicle.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Swampscott** For energy conservation measures at municipal school buildings including lighting retrofits and steam trap upgrades, and funding for a part-time Energy Manager.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Tyngsborough** For building envelope improvements in town offices and the Tyngsborough Middle School and Administration Offices.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Watertown** For energy conservation measures including replacement of street and parking lot lighting with LED technology.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Wayland** For energy conservation measures at several municipal and school buildings including; lighting upgrades and retro commissioning, and design of an energy retrofit for Town Hall to improve energy efficiency.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.

State	Project/Program Example	Funding Source/Additional Information	Source
MA	**Green Communities Division Grant Program: Williamstown** For energy conservation measures at several municipal buildings, installation of a 6 kW solar PV array at the Cemetery office building, and to fund an energy education and outreach program.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Scituate** For energy conservation measures in municipal buildings, including insulation and weatherization.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Winchester** For energy conservation measures at municipal buildings and to fund an Energy Conservation Coordinator position.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
MA	**Green Communities Division Grant Program: Worcester** To fund a residential stretch code implementation program that provides grants to property owners to upgrade existing buildings to meet the performance requirements of the Stretch Energy Code and to fund an outreach campaign to market the program and educate residents.	Grant program funded 100% from RGGI proceeds	Executive Office of Energy and Environmental Affairs, Department of Energy Resources, Green Communities Division, *Annual Report to the Massachusetts General Court* , April 2011.
NH	**Bromley Building Heat Distribution Upgrade: Crotched Mountain Rehabilitation Center** Crotched Mountain replaced a failed heating distribution and control system in its 45-year old Bromley building. The Bromley building is 12,800 SQ FT and houses primarily low-income occupants. The previous heating system operated on a pair of older oil-fired boilers which led to significantly more oil consumption than was actually required to heat the building. A contributing factor to the high oil consumption was poor control systems that led to building overheating. This project complemented a recent upgrade in an adjacent rehabilitation hospital by allowing the Bromley building to connect in to the 2 year old central biomass heating system at no additional cost. In addition, to connecting in to the central heating system, each room in the facility had their old steam heating units replaced with new hot water units, each which was fitted with an individual control. The project began on August 1, 2009 and was completed on September 30, 2009. The project is currently successfully operating and has met its goal of eliminating oil usage. The overheating problem appears to have been eliminated with windows remaining closed and occupants reporting that they are very comfortable. BTU savings resulting from the upgrade are being monitored by a $3,200 sensor purchased. While the oil boilers remain as backup, there has not been any oil usage since project completion.	RGGI proceeds funded 88% of project	New Hampshire's Greenhouse Gas Emissions Reduction Fund Project Summaries

State	Project/Program Example	Funding Source/Additional Information	Source
NH	**NH Business Energy Conservation Revolving Loan Fund: Business Finance Authority of the State of New Hampshire** The New Hampshire Business Finance Authority (NHBFA) has established the Business Energy Conservation Revolving Loan Fund to help NH business reduce energy use by loaning funds to companies to complete cost effective energy efficiency improvements. The program has two different lending models: a model with little to no interest for non-profits and a low interest program for -profits. Priority will be given to those organizations that do not qualify for existing efficiency programs. Loan principle repayments will be recycled and used to help other businesses.	RGGI proceeds fund 100% of program	New Hampshire's Greenhouse Gas Emissions Reduction Fund Project Summaries
NH	**Mechanical Update and Conversion to Existing Biomass Heating Plant: School Administrative Unit #46** School Administrative Unit #46 (SAU 46) located in Penacook (south-central NH) provides administrative support services to the Merrimack Valley School District. The building is located approximately 200 feet from the Merrimack Valley High School. Since 2006, the high school and middle school have been heated by a highly efficient biomass boiler that burns 40% moisture wood chips. The grant-funded project involved adding 210 feet of insulated pipe to tie the administrative building into the biomass boiler system and also updating inefficient air handling units, controls and lighting. The building left the natural gas equipment in place and operational to support the heating energy needs of the building when necessary. According to Neil Barry, the need for control tuning during the first half of 2010 resulted in the natural gas system being used more often than anticipated. The biomass boiler system only offset about 60% of natural gas use rather than the anticipated 100%. In addition, it was anticipated that the electrical reductions from the lighting and air handling units would be approximately 35% and in the first six months was closer to 12% when compared to baseline use.	RGGI proceeds funded 93% of project	New Hampshire's Greenhouse Gas Emissions Reduction Fund Project Summaries
NH	**Plant Utility Systems Optimization through Energy Controls: Stonyfield Farm, Inc.** In January 2008, Stonyfield Farm installed an extensive, facility-wide energy monitoring and recording system, as a tool for better understanding energy use patterns and loads in order to identify opportunities to reduce loads and peaks. As a result of the energy monitoring system, Stonyfield staff identified a variety of new or improved controls and system modifications that required capital investment to achieve energy savings and greenhouse gas reductions. Four projects were undertaken: - Elimination of steam loss and upgrade of valves on the plant's natural gas steam boiler (the plant's primary heating system). - Variable frequency drives and other controllers were installed in the plant's refrigeration system to reduce energy usage spikes. - The air compressor system at the plant was tuned and a compressed air control valve was installed to reduce electrical energy consumption by lowering overall pressure levels. - Additional insulation, duct work modifications, and the installation of an air break was undertaken between the hottest and coldest areas of the plant.	RGGI proceeds funded 25% of project	New Hampshire's Greenhouse Gas Emissions Reduction Fund Project Summaries
NH	**Energy Cost & GHG Reduction Fremont Safety Complex Police, Fire & Rescue, and Emergency Management Building:** The scope of the project was to provide additional insulation and sealing to the Freemont Safety Complex. A total of 3200 square feet of ceiling area was insulated; and the remaining area of ceiling area was weatherized and sealed for leaks. This included: 1. Applying additional 10" un-faced R-30 (minimum) insulation to accessible areas of ceiling, insulating the ceiling area of the mechanical room to a minimum R-38, 2. Applying rafter vents (propa-vent chutes), where missing, along top plate & rafter areas of exterior wall lines. 3. Insulating areas properly to allow maximum insulation value over top plates, 4. Repairing and replacing insulation in damaged areas between the suspended ceiling and attic ceiling, and 5. Insulating and sealing areas of penetrations – such as attic hatch/scuttle, plumbing and venting penetrations, and mechanical duct penetrations.	RGGI proceeds funded 100% of project	New Hampshire's Greenhouse Gas Emissions Reduction Fund Project Summaries

State	Project/Program Example	Funding Source/Additional Information	Source
NH	**Gorham Fire Department Pellet Boiler: Gorham Fire Department** The Gorham Fire Station installed a new pellet boiler and high efficiency oil boiler. The goal of the oil boiler was to supplement the heating capability of the pellet system if needed.	RGGI proceeds funded 53% of project	New Hampshire's Greenhouse Gas Emissions Reduction Fund Project Summaries
NH	**Energy Audits of the Municipal Buildings of the Town of Hancock, NH: Town of Hancock** The Town of Hancock received a grant from the GHGERF to perform energy audits on six buildings in Hancock: The Town Meeting House (1st floor, town preschool, 2nd floor, meeting space), the Town Hall/Police Station, Fire Station, Department of Public Works Offices and Garage, Post Office, and Library. Energy Audits Unlimited, LLC (Manchester, NH) was contracted to perform the work. Blower door building leakage testing, and infra-red camera scanning was utilized on each building to identify building shell deficiencies. A combustion efficiency test was also performed on each building heating system. Separate reports were generated for each building audited. Blower door test results provided included Natural Air Changes Per Hour, building/space Tightness Limits, Depressurization Limits, and Thermal Conductance Loss Calculations. The audit company used the NEAT (National Energy Assessment Tool) modeling that listed suggested measures, costs, SIRs (Savings to Investment Ratios) and post-installation energy savings.	RGGI proceeds funded 94% of project	New Hampshire's Greenhouse Gas Emissions Reduction Fund Project Summaries
NH	**Professional Energy Audits for Town of Jaffrey Municipal Buildings: Town of Jaffrey** The Town of Jaffrey proposed to have professional energy audits completed for each of its municipal buildings to address energy inefficiencies. The buildings involved in the project are: Police Station, Library, Town Recycling Center, Department of Public Works, Fire Station, Water Department, Parks and Recreation, Wastewater Administration, and Jaffrey Central Storage Building. Although the town had received basic assessments of the buildings' deficiencies before receiving the grant, they required a more in depth audit to move forward with specific energy efficiency measures. The town prepared and energy audit Request for Proposals in the last calendar quarter of 2009. They contracted S.E.E.D.S., a Jaffrey-based company, to complete the energy audits which included inspections, blower door tests and thermographic scanning. The audits did not involve in-depth analysis of mechanical systems, but focused on the building envelope. The audits also provided energy saving tips and recommendations.	RGGI proceeds funded 100% of project	New Hampshire's Greenhouse Gas Emissions Reduction Fund Project Summaries
NH	**Energy Audit of Town Buildings of Warner, NH: Town of Warner** The Town of Warner contracted S.E.E.D.S (Jaffrey, NH) to complete the energy audits which included inspections, blower door tests and thermographic scanning. S.E.E.D.S. completed energy audits of 13 town buildings. The audits were primarily structural and included blower door tests to determine the strength of the buildings' envelopes and infrared tests to detect heat leaks. Other tests included combustion analysis, measuring exhaust fan airflow, analysis of utility bills, moisture content of materials, and visual site inspection. The Town also purchased 2 data logging devices to establish benchmarks for building energy use. They anticipate that this benchmarking data, combined with the results of the audit, will eventually lead to comprehensive retrofits to town buildings.	RGGI proceeds funded 100% of project	New Hampshire's Greenhouse Gas Emissions Reduction Fund Project Summaries
NH	**Contribution to State General Fund** $3.1 million allocated in total for FY 2009 and 2010 (year ended June 30)	Funded 100% through RGGI auction proceeds	Interview with NH PUC staff
NJ	**CBS Research & Mfg. Corp./Bais Rivka Rochel School – 300 kV Solar PV System:** CBS Research & Mfg Corp. is a leading researcher, designer, and manufacturer of innovative automotive aftermarket suspension parts. CBS received a $787,500 CESCI loan for a 300 kW solar PV system for Bais Rivka Rochel School located in Lakewood, New Jersey, which was founded by the CEO of CBS Research and Mfg. Corp.	Funded exclusively through RGGI auction proceeds via NJ's CESCI program	Information provided by NJ DEP, Office of Climate and Energy

State	Project/Program Example	Funding Source/Additional Information	Source
NJ	**DSM Nutritional Products – 7.5 MW Combined Heat and Power System:** DSM Nutritional Products is a supplier of vitamins, carotenoids, other biochemicals, and fine chemicals located Belvidere, New Jersey. DSM received a total of $3,451,573 in CESCI incentives, consisting of a loan/grant mix, for a 7.5 MW combined heat and power system. This project will replace an existing 40 MW cogeneration unit that is too large to operate economically and has been out of service for four years.	Funded exclusively through RGGI auction proceeds via NJ's CESCI program	Information provided by NJ DEP, Office of Climate and Energy
NJ	**Elizabeth Industrial Center – 650 kW Solar PV System:** Elizabeth Industrial Center is a real estate development company located in Elizabeth, New Jersey. Elizabeth Industrial Center received a $2,000,000 CESCI loan for a 650 kW solar PV system.	Funded exclusively through RGGI auction proceeds via NJ's CESCI program	Information provided by NJ DEP, Office of Climate and Energy
NJ	**Hausmann Industries – 190 kW Solar PV System:** Hausmann Industries is a manufacturer and distributor of medical, therapy, and athletic training equipment located in Northvale, New Jersey. Hausmann received a $670,000 CESCI loan for a 190 kW solar PV system.	Funded exclusively through RGGI auction proceeds via NJ's CESCI program	Information provided by NJ DEP, Office of Climate and Energy
NJ	**Merlin Industries – 383 kW Solar PV System:** Merlin Industries is a swimming pool and spa products manufacturer located in Hamilton, New Jersey. Merlin received a $1,000,000 CESCI loan for a 383 kW solar PV system.	Funded exclusively through RGGI auction proceeds via NJ's CESCI program	Information provided by NJ DEP, Office of Climate and Energy
NJ	**Nautilus Solar WPU – 3 MW Solar PV System:** Nautilus Solar WPU is a developer, financier, owner, and operator of solar energy facilities. Nautilus received a $5,000,000 CESCI loan for a 3 MW solar PV system designed for William Patterson University, located in Wayne, New Jersey.	Funded exclusively through RGGI auction proceeds via NJ's CESCI program	Information provided by NJ DEP, Office of Climate and Energy
NJ	**NRG Thermal, LLC – 4.6 MW Combined Heat and Power System:** NRG Thermal, LLC is a developer of combined heat and power energy centers throughout the United States. NRG Thermal received a total of $5,000,000 in CESCI incentives, consisting of a loan/grant mix, for a 4.6 MW CHP system located in Princeton, New Jersey to supply energy to The University Medical Center of Princeton (UMCPP). UMCPP is a 237 single-patient room acute care hospital currently under construction.	Funded exclusively through RGGI auction proceeds via NJ's CESCI program	Information provided by NJ DEP, Office of Climate and Energy
NJ	**South Bertram Inc. – 1 MW Solar PV System:** South Bertram Inc., located in Linden, New Jersey, is a food service disturber serving hospitals, nursing homes, adult care facilities, schools, and supermarkets. South Bertram received a $2,875,000 CESCI loan for a 1 MW solar PV system.	Funded exclusively through RGGI auction proceeds via NJ's CESCI program	Information provided by NJ DEP, Office of Climate and Energy
NJ	**Warren Hospital – 1.25 MW Combined Heat and Power System:** Warren Hospital is a not-for-profit general acute care hospital located in Phillipsburg, New Jersey. Warren Hospital received a total of $1,305,173 in CESCI incentives, consisting of a loan/grant mix, for a 1.25 MW combined heat and power system.	Funded exclusively through RGGI auction proceeds via NJ's CESCI program	Information provided by NJ DEP, Office of Climate and Energy
NJ	**WM Renewable Energy, LLC – 2.25 MW Solar PV System:** WM Renewable Energy, LLC is a wholly owned, indirect subsidiary of Waste Management, Inc (WM), the leading provider of comprehensive waste and environmental services in North America. WM Renewable Energy received a $5,000,000 CESCI loan for a 2.25 MW solar PV system at a landfill located in Mount Holly, New Jersey.	Funded exclusively through RGGI auction proceeds via NJ's CESCI program	Information provided by NJ DEP, Office of Climate and Energy
NJ	**Contribution to State General Fund** $65,000,000 allocated to NJ general fund during 2011 fiscal year (through June 2011)	Funded 100% through RGGI auction proceeds	Information provided by NJ DEP, Office of Climate and Energy

State	Project/Program Example	Funding Source/Additional Information	Source
NY	**Cayuga Community College Solar Project:** Cayuga Community College's Auburn, N.Y. campus had 126 solar panels installed on its gymnasium roof in Fall 2010 by NYSERDA-qualified PV installer Solar Liberty Energy Systems Inc. as part of an effort to save energy. The 25.2 kilowatt system is expected to produce 26,844 kilowatt hours of electricity each year, reducing the college's carbon footprint by 280 tons of CO2 over the 25-year system lifetime. During low-usage periods, any excess power will be routed to the NYSEG grid and the college will receive a credit. The college expects to save approximately $3,600 on its annual electric bill. New York RGGI proceeds were used to fund half the system cost.	RGGI proceeds funded 50% of project	Information provided by NYSERDA
NY	**Developer Invests in Solar Panels to Cut Electricity Costs for Medical Group:** Benerofe Properties, a 3rd generation family real estate business with properties in the Eastern United States, has installed 308 solar modules on the rooftop of its property in Harrison, N.Y. to help its tenant, WestMed Medical Group, cut electricity costs. The 80 kilowatt system is expected to produce approximately 93,000 kilowatt hours of electricity each year, reducing the building's carbon footprint by 960 tons of Co2 over the lifetime of the system. Mercury Solar Systems, the NYSERDA-qualified PV installer, estimates that WestMed Medical Group will save approximately $14,000 in electricity costs each year. WestMed Medical Group is a Westchester County-based medical group that has been helping the community since 1996. NYSERDA supported this project with $200,000 in RGGI funding, which made it affordable for Benerofe Properties.	RGGI proceeds partially funded total project cost	Information provided by NYSERDA
NY	**EmPower New York EE Upgrades to Watertown, NY Low-Income Family Home:** The EmPower New York program used $4,000 in RGGI funds to provide a Watertown, N.Y., family with attic insulation, several hours of blower-door assisted air sealing and a programmable thermostat. The contractor, certified by the Building Performance Institute, reduced air leakage paths above 15 recessed lights, repaired the bathroom vent and vented the dryer to the outside. In addition, high efficiency lighting was funded through New York's System Benefits Charge. The family reports that the house is quieter as well as less drafty, and the program estimates that the household will save $670 a year in the cost of home heating oil, and $60 in electricity bills annually. EmPower serves households with income below 60 percent of state median income and pays for 100 percent of the approved work scope.	RGGI proceeds funded 100% of project	Information provided by NYSERDA
NY	**RGGI Funds are Catalyst for Revitalization in Village of Patchogue:** In New York State, New York State Energy Research and Development Authority (NYSERDA)-awarded RGGI funds are a catalyst, leveraging federal, state and private investments to revitalize local economies while improving the environment. In the Village of Patchogue on Long Island, for example, $27,000 of RGGI funds were used to identify energy efficient opportunities for the construction of an upgraded waste water treatment plant that will result in an overall reduction of carbon emissions, while improving economic and environmental performance. These funds leveraged $11.4 million in federal and state funds, $9.7 million of which were appropriated from the American Recovery and Reinvestment Act (ARRA) of 2009 through the New York State Environmental Facilities Corporation. Since the village committed to improving the plant and increasing its capacity, $100 million in private investment has made downtown Patchogue come alive. Blighted properties are now gone. In their place are 175 market rate residential units, 125 affordable housing units and five new restaurants. The new plant will also address water quality issues in the Great South Bay, part of the South Shore Estuary Reserve, setting the stage for a return of clamming and recreational fishing in the future.	RGGI proceeds partially funded total project cost	Information provided by NYSERDA
NY	**Deficit Reduction Plan Transfer** $90 million allocated to NY general fund in 2010	Funded 100% through RGGI auction proceeds	

State	Project/Program Example	Funding Source/Additional Information	Source
RI	**C&I Revolving Loan Fund**		Rhode Island Regional Greenhouse Gas Initiative, Inc. Auction Proceeds Report Presented by National Grid, March 1, 2011.
RI	**Homes Tier III pilot**		Rhode Island Regional Greenhouse Gas Initiative, Inc. Auction Proceeds Report Presented by National Grid, March 1, 2011.
RI	**Deep Energy Retrofit:** Project goal is to achieve at least 50% better energy performance than a code built or Federal Energy Yardstick home. Financial incentives and targeted technical support are provided.		Rhode Island Regional Greenhouse Gas Initiative, Inc. Auction Proceeds Report Presented by National Grid, March 1, 2011.
RI	**HEAT Loan pilot:** Provides financing assistance for residential customers that seek to install improvements in the following areas: *Insulation and/or Air Sealing Upgrades* *Energy Efficient Heating System Replacement* *Duct Sealing and Duct Insulation* *Energy Efficient Domestic Hot Water System* *ENERGY STAR® Thermostat(s)*		Rhode Island Regional Greenhouse Gas Initiative, Inc. Auction Proceeds Report Presented by National Grid, March 1, 2011.
RI	**Renewable and/or energy efficiency projects at schools (K-12)**		Notice of Proposed 2011 RGGI Allocation Plan
RI	**Education programs targeted to low-income rate payers**		Notice of Proposed 2011 RGGI Allocation Plan
VT	**Efficiency Upgrades: Gibney Family Vision Center** Completed in February 2009, the new headquarters of the Gibney Family Vision Center in South Burlington, VT was designed with consultation from Efficiency Vermont with energy savings as a key focus. Of the $2,100,000 project cost, $16,800 was used for energy efficiency upgrades. These upgrades included the installation of an efficient HVAC system, high R value wall and window materials, and strategic lighting controls (i.e., a lighting control system that prioritizes natural light over electric light).	RGGI proceeds funded 38% of project	"Project Case Study: Gibney Family Vision Center," Efficiency Vermont project summary, <http://www.efficiencyvermont.com/EVT/docs/for_my_business/success_stories/Gibney%20Family%20Vision%20Center.pdf>, accessed August 3, 2011.
VT	**Residential Efficiency Upgrades: Home of Phyllis Severance** Following an initial energy audit in November 2008, homeowner decided to undertake a number of improvements to her 3,100 sq. ft. structure, including: - basement air-sealing and insulation - re-insulation of the attic and a recent addition - structure-wide air-sealing based on blower-door testing Testing showed an improvement in air leakage of approximately 37%.	RGGI proceeds funded 11% of project	"The Phyllis Severance Home: An Energy Investment," Efficiency Vermont project summary, received from Efficiency Vermont.

State	Project/Program Example	Funding Source/Additional Information	Source
VT	**Residential Efficiency Upgrades: Home of Beverly Nichols** Following an initial energy audit in 2009, homeowner decided to undertake a number of improvements, including: - home-wide insulation - structure-wide air-sealing based on blower-door testing - repair of an exhaust vent. Following the installation of the above, improvements of 34% were observed.	RGGI proceeds funded 32% of project	"The Beverly Nichols Home: An Energy Investment," Efficiency Vermont project summary, received from Efficiency Vermont.
VT	**Residential Efficiency Upgrades: Home of the Mellinger Family** Following an initial energy audit in 2009, homeowner decided to undertake a number of improvements, including: - structure-wide air-sealing - addition of blown-in insulation - replacement of the existing boiler. Following the installation of the above, improvements of 40% were observed.	RGGI proceeds funded 14% of project	"The Mellinger Home: An Energy Investment," Efficiency Vermont project summary, received from Efficiency Vermont.
VT	**PACE Financing Program for Residential Customers** RGGI funds contribute to reserve fund. Program to begin in Jan. 2012.		AG interview with VT Energy Investment Corporation