

The Regional Greenhouse Gas Initiative (RGGI) and Energy Efficiency Helping Maine

A Dream Home Keeps the Johnsons Warm

Case Study

#10



Natural Resources
Council of Maine

When they moved into their dream home in Bucksport, Kim and Jim Johnson, retired nurse and mailman, were disappointed with its poor heating energy efficiency. After experiencing a cold, drafty, and expensive winter, they hired Penobscot Home Performance to complete an energy evaluation and make home heating improvements. The project—financed with Efficiency Maine incentives and a Power Saver loan—dramatically improved the heating, cooling, and air quality in the home, making it their dream home after all.

For more case studies in this series, visit www.nrcm.org

RGGI and Efficiency Maine Saving Energy



At a glance

Challenges

- Heat loss resulting in ice dams damaging roof, ceiling, porch, bedroom
- Drafty and cold in living spaces
- Unpredictable heating system with high oil bills
- Unsealed, difficult to reach, shiplap wood ceiling

Solutions

- Energy audit, identification of holes in building envelope
- Seal and insulate ceiling and attic, increased R value from 20 to 60
- Insulate root cellar and basement
- Replace gutters from ice damage
- Install energy-efficient heat pump and propane heater as primary heating systems
- Reprogram oil-fired boiler to provide reliable radiant floor heating as needed

Financial Analysis

Project cost: \$25,000 (including non-energy elements, such as gutters and radon remediation system)

Efficiency Maine incentive: \$1,500

Projected Payback: 10 years with non-energy saving costs included

Projected Savings: 600 gal. of oil or \$2,260 in combined heating sources

Energy reduction: Approximately 50% in combined heating sources

A Dream Goes Cold in Bucksport

Kim and Jim Johnson left their home in New Jersey in search of their retirement dream: a single-level home, in a rural setting, and a large yard for the grandkids. After scouring New England, they found a small ranch in Bucksport and made the move north. During the first winter, however, the dream home turned out to be a chilling nightmare: Warm air leaked through the unsealed shiplap board ceilings in the kitchen and living room, melting the snow on the roof and creating six-foot ice dams that caused water damage in the bedrooms and bathroom. Cold air crept in through the basement and walls. Worst of all, they found themselves quickly burning through the 900 gallons of heating oil they had purchased at the beginning of the season.



What They Did

The Johnsons enlisted the help of Penobscot Home Performance, who completed an energy assessment and designed a home energy upgrade, complete with rebates from Efficiency Maine. They had the basement and attic air-sealed, the ceiling well insulated, new gutters installed, their boiler serviced and reprogrammed, and a new radon remediation system set up. They also had a new air source heat pump installed by Sun Dog Solar Store of Searsport. The Johnsons saw the project as an opportunity to really spruce up their home in addition to saving energy, and financed the whole project with Efficiency Maine's Power Saver loan.

Results: The Home is Dreamy, Once Again

The Johnsons' project was completed in March 2014, over a two-week period. They felt an immediate difference: "Although it was 38 degrees out at night, we could heat the whole house with just three to four logs in the woodstove. We never could have done that before," says Jim. They had a post-project evaluation and learned that their air leakage had gone down by more

than 70 percent! This reduction in leakage made the home more comfortable and efficient for heating and cooling, and paved the way for the efficient heat pump that heats and cools. Another bonus of the project: When Penobscot Home Performance was sealing and insulating the shiplap ceiling, they removed years of accumulated rodent refuse. All in all, the project drastically improved all of the heating, cooling, and air quality issues in the house, making it, once again, quite dreamy.

RGGI and Energy Efficiency Creating Jobs



Penobscot Home Performance, Bucksport

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Started by Paul Shepherd and Matt Damon in 2008, Penobscot Home Performance provides home energy improvement audits, air sealing, heating system upgrades, insulation, weatherization, and moisture management for new and old homes. With seven employees and growing, Penobscot Home Performance is dedicated to helping homeowners save money, reduce their energy consumption and carbon footprint, and live more comfortably. They make it easy for clients to receive Efficiency Maine Home Energy Savings Program rebates and Power Saver loans, even helping to complete the paperwork.

“Matt and his staff just made everything easy and pleasant—they were all very pleasant and nice to have in the house,” says Jim.

Recipe for Success

Matt has had very positive experiences with Efficiency Maine incentives: “Most clients finance their projects out-of-pocket or with the Power Saver or PACE loan,” says Matt.

“Efficiency Maine incentives—both the loans and cash back rebates—are definitely a boost to our business and to homeowners in Maine. Many folks don’t have the resources to make upfront investments in energy efficiency, but with the easy financing, homeowners are able to spread out their investment over 5, 10, or 15 years, making the project possible.”

Financing home energy upgrades often turns the project to be cash positive immediately—meaning that the savings on fuel is larger than the monthly loan payment for financing the upgrade. According to Damon: “PACE and Power Saver loans allow more people to afford and complete efficiency upgrades. Without these loans, we would probably not have seen the growth we’ve seen in recent years.”

With the aid of Efficiency Maine’s programming and funds from RGGI, Penobscot Home Performance and many homeowners in Maine are looking towards a warm future.

The Regional Greenhouse Gas Initiative (RGGI) is a market-based effort among nine states to reduce climate-changing carbon pollution from power plants and spur investments in energy efficiency and clean energy. The program began in 2009, and today delivers cleaner, more efficient electricity, and a more energy-independent and competitive economy for Maine.

RGGI-Funded Grants

Bath Iron Works
Bowdoin College
Corning Life Science
GAC Chemical
Hannaford Brothers
Huhtamaki
Irving Forest Products
Jackson Labs
Lewiston-Auburn Water Authority
Madison Paper
Maine General Heath
Maine Wild Blueberry
Mid Coast Hospital
Mid State Machine
Moose River Lumber
Mt. Abram
Old Town Fuel & Fiber
Poland Spring / Nestle
Portland Water District
Pratt & Whitney
Prime Tanning
Rumford Paper Company
SAPPI Paper
Smith & Wesson
State of Maine
Sugarloaf
Sunday River Ski Resort
Twin Rivers Paper
University of Maine
University of New England
University of Southern Maine
Verso
Woodland Pulp

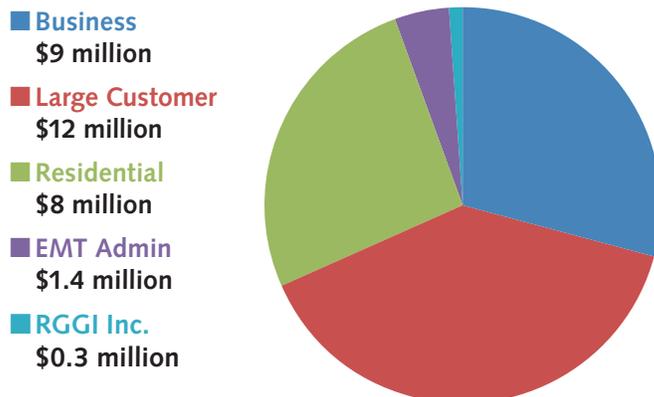
Starting in the fall of 2013, a portion of RGGI funds will be devoted to residential heating oil efficiency programs by Efficiency Maine. The Home Energy Savings Program offers technical and financial assistance to homeowners to help them pursue a wide variety of efficiency investments, from weatherization and air sealing to high-efficiency heating systems.

RGGI Protecting Maine's Economy and Climate

For every \$1 of RGGI funds, Maine consumers save \$8 on energy bills, and the state economy grows by \$4

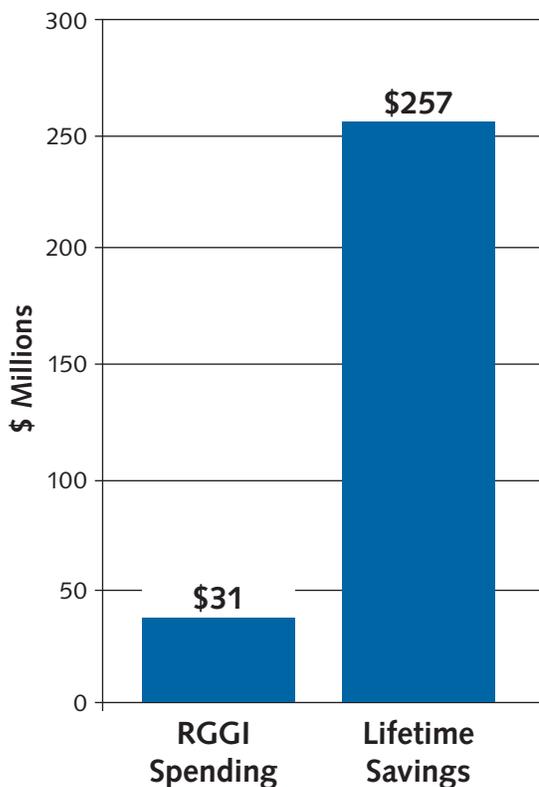
Independent analysis shows that RGGI has driven economic growth in Maine, primarily through investments in money-saving energy efficiency. As of December 2013, Maine had invested more than \$31 million of RGGI-generated funds in energy efficiency improvements in homes, businesses and industrial facilities, creating \$257 million of savings over the lifetime of the improvements, including \$75 million for Maine residents. Maine's gross state product (GSP) increases by \$4 for every \$1 invested in energy efficiency programs. To date, Maine's GSP has grown by more than \$100 million because of RGGI.

Allocation of RGGI Spending in Maine (2008-2013)



Source: Efficiency Maine

Total Energy Savings in Maine from RGGI



RGGI is Central to Efficiency Maine Saving Millions for Homes and Businesses

The largest portion of RGGI funds has gone to large customer projects, from paper mills to hospitals. In addition, substantial RGGI funds have gone to households and smaller businesses to help them cut electric bills. In late 2013, Efficiency Maine began using RGGI money to fund weatherization programs that predominantly reduce home heating oil bills. Going forward, 35% of all RGGI funds are being used to help homeowners insulate and tighten up homes, and for investment in high-efficiency heating equipment. So far this weatherization program has helped homeowners reduce heating bills by an average of 33% or \$1,100 per year.

Proposed EPA Limits on Carbon Pollution from Power Plants

RGGI gains new relevance in 2014, as the U.S. Environmental Protection Agency is working to establish national carbon limits for power plants to help address climate change. The EPA plan rewards Maine's leadership with RGGI, and our economy and climate will benefit as our other regions come closer to our standards of clean power.

For more information:

1. To save money in your home or business with energy efficiency, contact **Efficiency Maine**, at www.energymaine.com or call toll-free 1 (866) 376-2463.
2. Learn more about RGGI, energy efficiency opportunities and benefits, clean energy jobs, or additional case studies by visiting the **Natural Resources Council of Maine (NRCM) online** at www.nrcm.org.
3. Please help support strong energy efficiency policies and programs in Maine. Stay informed by joining **NRCM's Action Network**: visit www.nrcm.org or contact Emmie Theberge at emmie@nrcm.org or (207) 430-0105.



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