

RGGI Expansion of the CORE NH Energy Efficiency Programs

“RE-CORE”

August 19, 2009 – December 31, 2010
Final Report



New Hampshire Electric Utilities

Granite State Electric Company d/b/a National Grid
New Hampshire Electric Cooperative, Inc.
Public Service Company of New Hampshire
Unitil Energy Systems, Inc.

Executive Summary

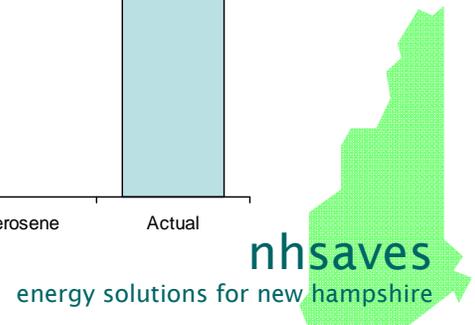
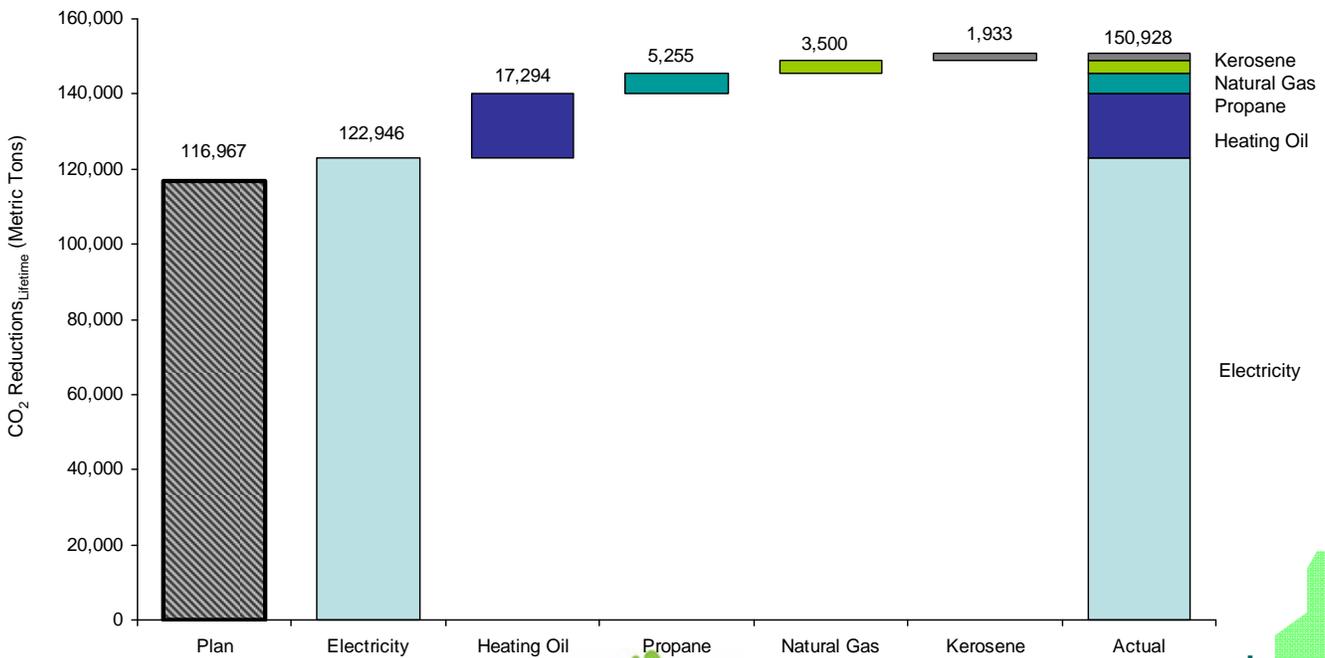
The four New Hampshire Electric Utilities (PSNH, National Grid, NHEC, and Unitil hereafter known as “The Utilities”) are grateful to the Sustainable Energy Division of the NH Public Utilities Commission for awarding us \$7.4M from the Greenhouse Gas Emissions Reductions Fund to expand the NH CORE Energy Efficiency Programs and to test some innovative new programs. The Utilities are pleased to report that not only did the group achieve what it set out to do, but they exceeded the goals for estimated reduction in greenhouse gases by 29%. These accomplishments were not done alone. Partners in this endeavor included customers who were also willing to invest their own funds in addition to the RGGI incentives to implement energy efficiency projects. Also, more than 60 small business services companies, including electricians and installation contractors that were hired by customers, were crucial to getting energy efficient equipment installed. And finally, 261 local retailers provided products purchased by customers - products such as energy efficient lighting and appliances. Some highlights include:

- ✓ \$7.4M in RGGI funds leveraged an additional \$5M in customer funding for energy efficiency projects.
- ✓ 51 full-time equivalent positions installed these energy efficiency improvements over an estimated 106,662 work hours.
- ✓ 150,928 metric tons of CO₂ emissions will be reduced over the life of the energy efficiency measures installed, 29% more than projected.

The following chart shows which fuels were saved in the estimated 150,928 metric tons of Lifetime CO₂ greenhouse gas emission reductions.

NH CORE Energy Efficiency Program Expansion (RGGI RE-CORE FUNDING)

Actual CO₂ Emission Reductions Exceed Plan By 29%



As stated above, these savings came mostly from an expansion of the NH CORE electric energy efficiency programs. These programs consist of eight “CORE” programs providing products and services tailored for business, residential and income-eligible customers or members¹. Each year the NH Electric Utilities work together to review the CORE Programs, make adjustments and improvements as needed or suggested by customers, interested parties, NHPUC Staff and program administrators. The plans also include utility-specific programs that are used to test certain aspects of energy efficiency and to try new programs that may be pertinent to one utility’s customers or to test new technologies. In addition to expanding the CORE NH Energy Efficiency Programs, the RGGI funds also allowed the NH electric utilities to implement some new and innovative programs focused on recommendations included in the NHPUC’s “Additional Opportunities for Energy Efficiency in New Hampshire” report that was completed in January 2009.

Expanding the existing CORE programs with these RGGI grant funds resulted in the following achievements:

HOME

- ✓ Weatherization and other energy efficiency services were provided to an additional 680 low income homes or apartments by collaborating with the Community Action Agencies to expand the CORE Home Energy Assistance Program. As part of this collaboration, the Community Action Agencies contributed an additional \$800,000 in other funding, including federal Weatherization Assistance Programs funds, to help weatherize these homes.
- ✓ Certification of an additional 100 homes as ENERGY STAR compliant as an expansion of the CORE ENERGY STAR Homes Program, 34 of which were affordable housing. Sixty three of these homes were also certified to the National Build Green Standard through collaboration with the Home Builders & Remodelers Association of NH.
- ✓ Incited the purchase of an additional 60,000 energy efficient lighting products via rebates at over 146 NH lighting retailers as an expansion of the CORE ENERGY STAR Lighting Program.
- ✓ Incited customers to buy an additional 1,352 energy efficient clothes washers and room air conditioners at one of the 115 participating NH appliance retailers as an expansion of the CORE ENERGY STAR Appliance Program. In addition, 595 customers had their second refrigerator, freezer or air conditioner picked up and recycled as part of a new component of this program.
- ✓ Weatherized an additional 689 homes or apartments as part of the fuel neutral CORE Home Performance with ENERGY STAR Program. These projects not only saved electricity, but also reduced the need for natural gas, oil, kerosene, propane and wood to heat these homes.

¹ Hereinafter the word “customer” will be understood to mean both customers and NHEC members.



BUSINESS and MUNICIPAL

Provide financial incentives and technical assistance leading to the completion of:

- ✓ An additional 99 energy efficiency projects as part of the CORE Small Business Energy Solutions Program.
- ✓ An additional 109 energy efficiency projects and initiated retro-commissioning at 8 customer sites as part of the CORE Large C&I Retrofit Program.
- ✓ An additional 29 energy efficiency projects as part of the CORE C&I New Equipment and Construction Program.

EDUCATIONAL

- ✓ Hosted an additional 4 “Energy Code and Beyond Energy Code” workshops serving 195 students as an expansion of its CORE Education Programs, in partnership with the NH Public Utilities Commission, NH Office of Energy & Planning and GDS Associates.
- ✓ Graduated an additional 25 business facility staff through the 2010 Fall Commercial Energy Auditing Class as an expansion of the CORE Education Programs. Two mini-auditing classes were also held in Nashua and Whitefield in December 2010.
- ✓ Implemented the “Cut the Carbon” Program, a partnership with the NH State Library where 760 “Cut the Carbon” kits were distributed to 235 city and town libraries for people to check out as they would a book. These kits provided tips for saving energy and reducing carbon footprint, and included a watt meter to measure how much energy appliances use when on...and when off!

UTILITY SPECIFIC

- ✓ Provided financial incentives leading to the completion of an additional 16 projects at 4 customer sites as an expansion of PSNH’s Energy Rewards RFP program for larger commercial and industrial customers.
- ✓ Provided financial incentives and certifications leading to the completion of an additional 16 geothermal heat pump heated homes as an expansion of PSNH’s ENERGY STAR Geothermal Homes Program.



GREENHOUSE GAS EMISSIONS REDUCTION FUND

Final Report

August 19, 2009 – December 31, 2010

1. **Program Title:** RGGI Expansion of the CORE Energy Efficiency Programs (RE-CORE).
These programs have resulted in a lifetime Carbon Dioxide reduction of 150,928 metric tons.
2. **Program Type:** RE-CORE is a portfolio of programs for residential, low-income, and business customers. It is based on the CORE Energy Efficiency Programs approved by the New Hampshire Public Utilities Commission in Dockets DE 08-120 and DE 09-170.
 - a. **Energy Star Lighting Program:** Increase spending for energy efficient residential lighting.
 - ✓ Final Results:
 - RGGI funds: \$147,445 (91% of Plan)
 - Number of products rebated: 60,925 (99% of Plan)
 - Lifetime CO₂ Reductions: 8,206 metric tons
 - ✓ The utilities used these funds to provide rebates for customers purchasing 60,925 Energy Star lighting products (mostly CFLs) from the 146 participating lighting retailers and the NHSaves lighting catalog.



One of 146 participating lighting retailers



NHSaves Lighting Catalog

- b. **Energy Star Appliance / Products Program:** Expand the Energy Star Appliance Program to include a turn in/recycle component for room air conditioners and second refrigerators and freezers.
 - ✓ Final Results:
 - RGGI funds: \$260,351 (113% of Plan)
 - Number of appliances rebated or recycled: 1,947 (115% of Plan)
 - Lifetime CO₂ Reductions: 2,365 metric tons
 - ✓ The expanded ENERGY STAR Appliance Program resulted in 944 additional energy efficient clothes washers or room air conditioners to be purchased with incentives. The utilities also experimented with the following two initiatives:





1. Room AC Turn-in Event: As of August 31, 2010, 28 room air conditioners have been turned in during the air conditioner turn-in events or as part of the refrigerator pick up program. The Air Conditioner Turn In event was available from May to the end of July, 2010 at these 9 retail locations: 5 Barron's Appliance Stores (Manchester, Laconia, Concord, Salem and Plaistow) Bay Street Discount in Ossipee, Strafford Appliance in Dover, Top Furniture in Gorham, and State Street Discount in Portsmouth. Customers could turn in old working air conditioners for recycling at no cost, plus they were given \$30 rebates that could be used toward the purchase of new ENERGY STAR air conditioners.

2. Refrigerator/Freezer Pickup/Recycling: The NHPUC's "Additional Opportunities for Energy Efficiency in New Hampshire" report identified "turning in" second freezers and refrigerators as the #1 and #5 energy savings opportunities for residential customers. The four electric utilities partnered with an appliance recycler to do just this. We created a program to pick up and recycle 2nd refrigerators or freezers that were in customers' homes, garages and basements that were using energy just for extra storage during the holidays or to keep a few beverages cool. In total, we picked up and recycled 975 appliances, including 615 refrigerators, 312 freezers and 48 room air conditioners for customers ALL over the state, including customers in the municipal utility service territories.



Refrigerator being turned in for recycling

- ✓ As part of this recycling program, 97,500 pounds of metal, 1463 pounds of glass and 19,500 pounds of plastic were all separated and recycled. An additional 6,640 pounds of foam insulation and various types of refrigerant were recovered and disposed of properly.



- c. **Energy Star Homes (Green Building Certification):** Expand the Energy Star Homes Program to give homeowners the option of participating in the National Green Building Program developed by the National Association of Home Builders. The Program will certify homes as meeting the nationally recognized ANSI approved National Green Building Standard. The utilities used the RGGI funds to pay for the National Green Building verification while also providing a \$500 incentive for builders who do both the required site work and the additional paperwork. The NH electric utilities also worked with builders to certify an additional 100 homes as ENERGY STAR compliant.

✓ Final Results:

- RGGI funds: \$182,595 (91% of Plan)
- Number of Homes Certified: 163 (129% of Plan)
All 163 homes received the ENERGY STAR certification. In addition, 62 homes and 1 subdivision were certified as meeting the National Green Building Standard.
- Lifetime CO₂ Reductions: 3,781 metric tons

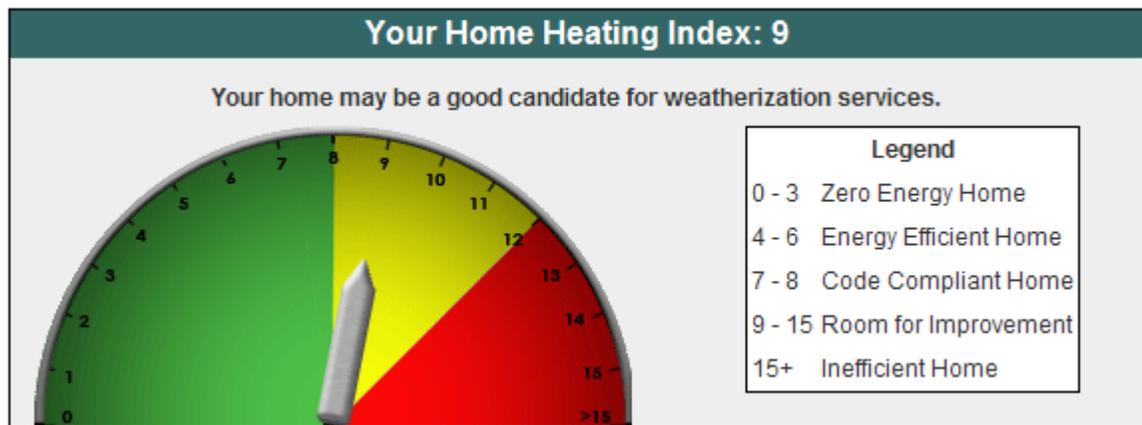


- ✓ Of the 63 homes/units that were registered and earned the National Green Building certification, one home achieved the Emerald level, one received the Gold level and sixty-one received the Silver level.
- ✓ The builders who certified homes in this program include:
 - ABODE Builders (2 Build Green Homes in Moultonborough-Emerald & Orford-Silver)
 - Beechwood Builders, Jeese Jean (1 Build Green Home in Laconia, Gold Level)
 - Cargill Construction, Liam Cargill (2 Build Green Homes in Waterville Valley & Campton)
 - Concord Housing Authority, Ari Pollack (1 Building with 25 units in Concord)
 - Five Eagles Design, Vic St. Pierre (1 Build Green Home in Claremont)
 - JP Courier Construction, Shawn Wakinshaw (1 Build Green Home in Sunapee)
 - Laconia Area Community Land trust Inc., Steve Schuster (2 buildings, total of 28 units in Tilton)
 - Mancusi Builders, Norm Mancusi (1 Build Green Home in Epping)
 - Starr Construction, John Starr, (1 Build Green Home in Whitefield)
 - Super Berbis, Karina Provencher, (1 Build Green Home with 4 apartments in Manchester)



d. **HES (Fuel Neutral Single and Multi-Family Program):** All four utilities expanded this CORE Home Energy Solutions Program (renamed to Home Performance with ENERGY STAR Program in late 2009) to serve all customers regardless of heating fuel. Our Home Heating Index (below) helped screen homes and continues to be an excellent tool for identifying homes that are good candidates for weatherization services.

- ✓ Final Results:
 - RGGI funds: \$994,264 (96% of Plan)
 - Number of Homes Weatherized: 689 (87% of Plan)
 - Lifetime CO₂ Reductions: 14,213 metric tons
- ✓ More single- than multi-family homes were weatherized than projected in the original plan resulting in higher per unit costs and fewer overall homes weatherized.



Home Heating Index used to screen homes based on annual usage of heating fuels and size of home.

e. **Home Energy Assistance Program:** The NH electric utilities worked with Community Action Agencies to significantly expand the number of low income households receiving weatherization services.

- ✓ Final Results:
 - RGGI funds: \$1,229,451 (106% of Plan)
 - Number of Homes or Apartment Units Weatherized: 680 (184% of Plan)
 - Lifetime CO₂ Reductions: 19,594 metric tons
- ✓ In addition to the \$1.2M spent weatherizing these homes, the collaboration with NH Community Action Agencies contributed another \$800,000 in other funding to assist in these projects with additional weatherization, health & safety measures and heating system replacements.



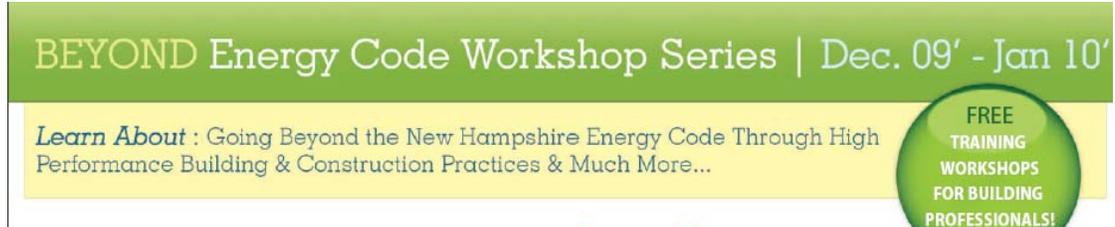
- f. **Small Business Retrofit:** Increase spending for small business energy efficiency projects. The NH electric utilities worked with customers and contractors to implement 99 projects as part of the CORE Small Business Energy Solutions Program.
- ✓ Final Results:
 - RGGI funds: \$528,583 (98% of Plan)
 - Number of Small Business projects: 99 (136% of Plan)
 - Lifetime CO₂ Reductions: 13,477 metric tons
 - ✓ The 99 small business projects resulted in an average project savings of 20,000 kWh/year.
- g. **Large Business Retrofit Program:** Increase spending in the Large Business Retrofit Program to support retro-commissioning projects as well as traditional energy saving measures. The NH electric utilities worked with customers to retrofit existing systems to more energy efficient equipment, with 109 projects completed as part of the CORE Large C&I Retrofit Program.
- ✓ Final Results:
 - RGGI funds: \$1,081,748 (89% of Plan)
 - Number of Large Business projects: 109 (179% of Plan)
 - Lifetime CO₂ Reductions: 61,960 metric tons
 - ✓ The 109 large business projects resulted in an average project savings of 82,000 kWh/year.
 - ✓ Retro-commissioning is a process that identifies low-cost operational and maintenance improvements in existing buildings to ensure that all equipment and control systems are performing at peak efficiency. The NH utilities used RGGI funds to initiate retro-commissioning projects with 7 customers. Five of these customer projects focused on compressed air systems, while the other two focused on the heating, cooling, ventilating and lighting at the customers' facilities. So far these retro-commissioning efforts have identified savings of 212 kW demand, 1,202,000 annual kWh and additional fossil fuel savings. The next step is for these customers to implement the no/low cost energy saving measures before deciding how best to move forward with other more expensive measures
- h. **New Equipment & Construction Program:** Increase spending for new equipment and new construction energy efficiency projects. The NH electric utilities worked with customers to purchase more efficient equipment when making new purchases or building new or expanding facilities. A total of 29 new projects were completed as part of the CORE C&I New Equipment & Construction Program.
- ✓ Final Results:
 - RGGI funds: \$165,634 (101% of Plan)
 - Number of New Equipment & Construction projects: 29 (145% of Plan)
 - Lifetime CO₂ Reductions: 7,052 metric tons
 - ✓ These 29 projects resulted in an average project savings of 30,000 kWh/year.



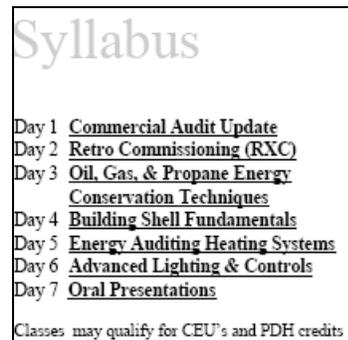
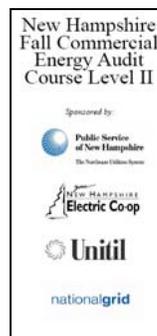
- i. **Education:** Advance educational training efforts in three areas: Energy Code Training, Building Operator Certification (BOC), and BPI Building Analyst training course development. A fourth will be a new self-directed educational component that will allow customers to better understand their energy usage by borrowing a watt-monitor from their local library.

✓ Final Results:

- RGGI funds: \$135,217(83% of Plan)



- ✓ **Energy Code Training:** A total of four energy code training sessions were held in December 2009 and January 2010. The Residential Energy Code Training sessions were held in Manchester on Dec. 2, 2009 (42 attendees) and in Plymouth on Jan. 14, 2010 (62 attendees). The Commercial Energy Code Training sessions were held in Plymouth on Jan. 12, 2010 (28 attendees) and in Manchester on Jan. 13, 2010 (63 attendees).



- ✓ **Commercial Energy Auditing Class:** In lieu of a BOC Level 2 class, a separate Commercial Energy Auditing Level II Class was offered in the Fall of 2010, with 25 attendees including energy consultants, employees from the NH Retail Merchants Association, and facility managers from business and towns around the state. This 7-day class had one day defined for different energy systems a customer may have, and provided information on how to make those systems more energy efficient. The last day of class was dedicated to the attendees providing an overview of what they found at their facilities, and what they did or plan to do to implement energy saving measures. Some of the student's comments include:
- "I would not have looked for the energy savings I found had it not been for this course".
 - "The atmosphere was one that inspired me to think more creatively on other energy savings at home and work."
 - "I wanted to comment that due to this class and during the class time I was able to save my company 340,000 kWh per year, 10,611 Therms/year, which will result in over \$68,000 in reduced utility cost. Without this class I would not have had the motivation, need, or management support to spend my time looking for these savings."



- ✓ The utilities also hosted **two mini Commercial Energy Auditing Classes** in Nashua on December 13, 2010 and Whitefield on December 14th.

Energy Resolutions For 2011

Public Service of New Hampshire (PSNH) invites you to attend a special event just in time for your New Year's Resolutions. Instead of resolving to reduce your waist-line, learn how to reduce your company's bottom line.

This new seminar is a high-level, informative overview of the major energy systems used at typical commercial or industrial site today. You will be provided with a top 10 list of the most effective actions you can take to control your energy bills. Discover methods to implement more efficient:

- Lighting and Occupancy Sensors
- Electric Motors / VFDs
- Compressed Air Systems


Public Service of New Hampshire
A Northeast Utilities Company

Identify opportunities to cut operating expenses in the upcoming year!

Nashua, NH
Monday, December 13, 2010
 8am - 3:30pm
 Courtyard by Marriott
 2200 Southwood Road
 Nashua, NH 03063
 On-site Phone: 603-880-9100

Whitefield, NH
Tuesday, December 14, 2010
 8am - 3:30pm
 Mountain View Grand Hotel
 Mountain View Road
 Whitefield, NH 03598
 On-site Phone: 866-484-3843
Will include optional tour of hotel's on-site wind turbine.



- ✓ **BPI Building Analyst training course development:** The BPI Building Analyst training program had already received some CORE funds along with other RGGI funds to get it up and operational. The NH electric utilities used the RGGI funds planned for this effort to purchase a "House of Pressure" that is used to visually demonstrate Home Performance Testing using Pressure Diagnostics. The House is made of clear Lexan, a polycarbonate resin thermoplastic, so the inside is visible from all 4 sides. The House has an operable Forced Air Duct system, a dryer, bathroom fan, fireplace, and water heater. There are smoke generators for the fireplace, water heater, and car exhaust. The House of Pressure has been in use for over 10 years and it has been used for presentations at DOE Regional and National Weatherization Conferences, Affordable Comfort Conferences, as well as numerous state weatherization conferences and trainings.



House of Pressure used in BPI Training at the Manchester Community Technical College



For lower electric bills and a cleaner New Hampshire,
**make tracks to
 your local library!**

Take the first step to lower electric bills and a smaller carbon footprint. Check out our **CUT the CARBON** Kit for FREE from your local library today! Use the Kill a Watt Energy Detector to find out just how much electricity each device in your home is using.

Our **CUT the CARBON** Kit is not only informative and fun; it could also save you real money on your next electric bill by following any of the ten simple energy-saving tips provided.

For more information, visit
nhsaves.com
 energy solutions for New Hampshire
 In partnership with the New Hampshire State Library

You may also purchase a Kill A Watt Energy Detector online at nhsaves.com

Public Utilities of New Hampshire
 NH Municipal Electric Co-op
 nationalgrid
 Unil

"Cut the Carbon" Poster



Barbara Bernstein (NHPUC), Jack Schelling (PSNH), Audrey Simpson (NHEC), Janet Eklund (NH State Library) and Jack Ruderman (NHPUC) unloading the "Cut the Carbon" kits at the NH State Library.

- ✓ **"Cut the Carbon" Program.** Since RGGI funding is all about reducing carbon dioxide, the electric utilities developed a "mass market" program designed to do just that. Partnering with the NH State Library, we put together a kit that is checked out like a book or movie and provided 760 kits to 235 local libraries as well as the NH State Library. The materials in the kit include 10 tips on how to "Save Energy and Reduce Your Carbon Footprint" along with a Watt Meter. The kits were a "hit" at libraries around the state; appreciated both by librarians who saw this new loaner item as an incentive to bring new people into the libraries as well as for the people "checking it out".

This program allows New Hampshire residents to check out the kit and the Watt Meter through their local library, free of charge, to help them identify how much power is consumed by a variety of appliances used in their home or office. The Watt Meter allows people to discover the true cost to operate a toaster, TV, computer, microwave, dehumidifier, primary or secondary refrigerator, etc. The meter also identifies any "phantom loads" on items that consume power even while turned off yet still energized. Armed with the information provided through the use of this meter, homeowners and renters are able to identify opportunities to save energy and reduce electric bills. This program benefits all residential sectors including low income.



Early in 2010, the librarians were surveyed and 79 responded with many favorable comments about these kits. A customer survey that goes out with each meter, had 94 responses in mid-2010 with the following comments based on a 1-5 scoring method, with 5 being the best.

- overall impression 4.4
- ease of use of the watt meter 4.3
- convenience 4.9
- When asked if they found ways to save energy after using these meters, customers have said:
 - "Turning off the computer, printer and speaker saves approx \$9 per month. Turning off certain chargers (battery) saves another \$3.00 per month."
 - "Amazed how much toaster & coffee maker use while in use!"
 - "Decided to use power surge strips on some appliances."
 - "Put computer in standby manually - don't wait for it to shut down."
 - "I'll be turning off computer and surge protector that powers TV/DVD when not in use."
 - "Turning off computer and all accessories may save about \$10.00 per month. TV savings are less but would not want to always have to reset clock and recording times."
 - "We put green dots on items with cords that could be left plugged in due to no phantom load - red on those that should be unplugged."

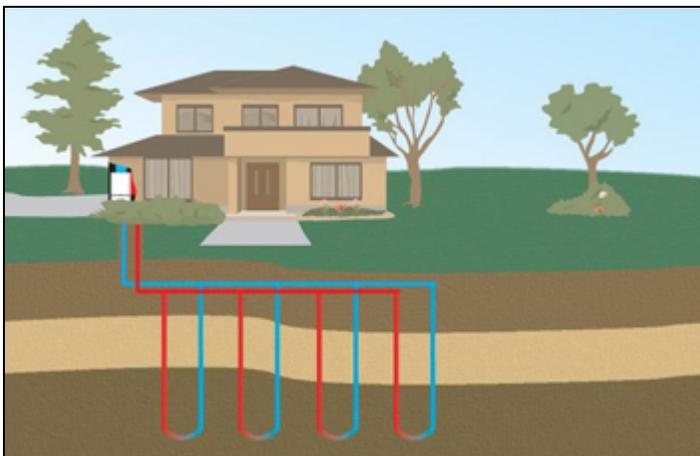
Marketing for this program included posters for the libraries, and newspaper ads promoting these kits were run in April 2010 to coincide with the 40th Anniversary of Earth Day 2010.

- j. **PSNH Energy Rewards RFP:** Increase spending for new RFP energy efficiency projects.
- ✓ Final Results:
 - RGGI funds: \$313,603 (100% of Plan)
 - Number of RFP: 16 projects at 4 businesses
 - Lifetime CO₂ Reductions: 12,432 metric tons
 - ✓ Training was held in December 2009 with customer projects submitted in January and February 2010. Selection of the projects was completed in March 2010 with 16 projects at 4 customer sites incented as an expansion of PSNH's Energy Rewards RFP program for larger commercial and industrial customers.



k. **PSNH Energy Star Homes – Geothermal:** Increase spending for new geothermal homes.

- ✓ Final Results:
 - RGGI funds: \$99,636 (100% of Plan)
 - Number of Geothermal Homes certified: 16 (114% of Plan)
 - Lifetime CO₂ Reductions: 7,847 metric tons
- ✓ One of these geothermal ENERGY STAR homes, a 2,189 square foot home heated with a geothermal heat pump, also installed solar photovoltaic panels, resulting in the following estimated annual electricity usage for this “carbon free” home:
 - Heating: 3,499 kwh/year
 - Cooling: 1,125 kwh/year
 - Hot Water: 3,106 kWh/year
 - Lighting & Appliances: 4,722 kWh/year
 - Solar Photovoltaic: -2,832 kwh/year



A rendering of how geothermal heat pumps extract heat from the earth.

i. **RGGI Funds for Revolving Loan Fund:**

- ✓ Final Results:
 - Number of loans granted as of January 31, 2010: 110
 - Lifetime CO₂ Reductions: included in RGGI or CORE Energy Efficiency Programs
- ✓ The Utilities developed, filed, and received Commission approval to establish revolving loan funds in support of efficiency programs.
- ✓ The revolving loan funds are operational and 100% or \$1,728,000 of the RGGI monies budgeted for loans was used to set up the loan accounts. As loans are repaid, the funds will be re-loaned to other customers – enabling these customers to implement new efficiency projects with additional energy and CO₂ reductions. These future reductions have not been captured or accounted for in this report, but they are potentially significant and will be an ongoing legacy of the RE-CORE program.



m. **Transitioning Of Ongoing Programs:** This constitutes the final report for the period August 19, 2009 through December 31, 2010. Programs or initiatives that were developed exclusively for RGGI grant funding are complete. Others such as the “Cut the Carbon” kits continue to serve NH residents, or have been transitioned over to the 2011 CORE Energy Efficiency Programs.

n. **Please document any jobs created.**

- ✓ We have not tracked any new jobs created directly as a result of spending RGGI funds. However, using an estimated assumption of 3.5 FTEs per \$1,000,000 spent on Energy Efficiency for the Commercial & Industrial Sector, and 7.0 FTEs per \$1,000,000 spent in the Residential Sector, the \$10.1M spent (RGGI funds plus matching customer funds) translates into **51 Full Time Equivalent (FTEs)** or **106,662 hours worked** (using 2,080 hours per year for each FTE).

	Res	C&I	Total
RGGI \$ Spent	\$2,913,743	\$2,229,986	\$5,143,729
Customer \$ Spent	\$1,599,796	\$3,394,336	\$4,994,132
Total \$ Spent	\$4,513,538	\$5,624,322	\$10,137,860
FTEs / \$1M Spent	7.00	3.50	
Estimated FTEs	31.59	19.69	51.28
Work Hours per Year	2,080	2,080	
Total Annual Hours Worked	65,717	40,945	106,662

- ✓ The 3.5 FTEs / \$1M spent on C&I customer projects and 7.0 FTEs / \$1M spent by Residential customer projects is an estimate of direct labor costs. This estimate does not include any numbers for indirect labor or induced labor.

o. **Explain any obstacles encountered or any milestones not reached.**

- ✓ In the Home Performance with ENERGY STAR program, we spent 96% of the budget (\$994,264) and only served 87% of the homes. More single- than multi-family homes were weatherized than projected in the original plan resulting in higher per unit costs and fewer overall homes weatherized.
- ✓ The room AC turn-in numbers were lower than expected in May-June of 2010. The utilities and retailers worked to increase the numbers turned-in during July expecting that the hot weather and retailer advertising would help, but we still came in with lower than expected results.



- p. **Beyond the Contract:** other activities, partnerships, funding or other synergies that have occurred as a result of this funding.
- ✓ The New Hampshire Electric Utilities continue working with the Homebuilders & Remodelers Association of NH on the Build Green NH program. The Homebuilders provided seminars and outreach while the utilities focused on certifying homes to the National Green Building Standard. This standard looks at how the builder: designs the lot & site; includes energy & water efficiency in the construction; uses local materials; reduces/reuses/recycles building material waste; improves indoor air quality at the home, and educates the homeowner with the homes use, maintenance and green components. Working with the HBRANH, the electric utilities brought builders and heating system installers to their educational programs, and worked with our Home Energy Raters to certify 63 homes/units working with 10 builders. The RGGI funds helped the Build Green NH program gain awareness and momentum as builders and consumers became more aware of the National Green Building Standard.
 - ✓ RGGI funding has allowed the utilities to partner with the NH State Library on the “Cut the Carbon” Kill-A-Watt library loan program. The synergies associated with having a library loan out this new technology benefits consumers (they have free and easy access to the kill-a-watt meters) and it also benefits the libraries as they may get new customers to serve. The libraries are also fully equipped to loan these out and they provide access to the meters to EVERY town in New Hampshire. Library visitors have been very receptive to this program.
 - ✓ The Revolving Loan Program will continue to provide energy savings and carbon reductions for the foreseeable future. As customers repay their loans, the funds will be loaned to other customers – enabling these customers to implement new efficiency projects with additional energy savings and CO₂ reductions. These future reductions have not been captured or accounted for in this report, but they are potentially significant and will be an ongoing legacy of the RE-CORE program.
3. **Brochures, workshop announcements, or other materials** developed to promote grant activities have been included as copies throughout the reporting period (Q1-Q4 reports), in this final report, and in the following pages. Mr. Ruderman was given a “Cut the Carbon” package at the unloading event.
4. **Budget vs. Actual Expenditures** are found in Attachment 1 and include:
- ✓ the Statewide budgets/expenses (\$7,421,340 RGGI funds expended)
 - ✓ Annual energy and CO₂ savings (11,427 metric tons)
 - ✓ Lifetime energy and CO₂ savings (150,928 metric tons)



Regional Greenhouse Gas Initiative
RGGI Expansion - CORE Energy Efficiency Programs
Q5 (August 19, 2009 - December 31, 2010 Reporting Period)

Program

Program	RGGI BUDGET					Q1 - Q5 Actual Expenditures					Matching Funds (Customer Contributions)				
	National Grid	NHEC	PSNH	UNITIL	Total RGGI Budget	National Grid	NHEC	PSNH	UNITIL	Total Actual Expenditures	National Grid	NHEC	PSNH	UNITIL	Matching Funds (Customer Contributions)
CORE EE Programs (additional funds)															
Energy Star Lighting	\$40,826	\$66,886	\$0	\$54,295	\$162,007	\$40,826	\$51,079	\$0	\$55,540	\$147,445	\$13,508	\$51,002	\$0	\$104,220	\$168,729
Energy Star Appliances / Products (Room AC Turn-in, 2nd Ref pickup)	\$24,307	\$60,136	\$100,000	\$46,000	\$230,443	\$21,112	\$77,461	\$108,782	\$52,996	\$260,351	\$0	\$84,710	\$0	\$61,435	\$146,145
Energy Star Homes (+ Build Green NH Certification)	\$56,313	\$47,196	\$50,000	\$48,000	\$201,509	\$42,900	\$48,362	\$36,535	\$54,798	\$182,595	\$0	\$52,254	\$0	\$0	\$52,254
HES (Fuel Neutral Multi-Family Weatherization)	\$423,908	\$251,111	\$250,000	\$113,935	\$1,038,954	\$399,814	\$253,344	\$225,163	\$115,944	\$994,264	\$153,271	\$98,528	\$135,759	\$31,874	\$419,433
HEA (approximate 50% increase in homes/units for each utility) ¹	\$113,117	\$110,354	\$800,000	\$140,348	\$1,163,819	\$113,117	\$114,438	\$862,445	\$139,451	\$1,229,451	\$4,284	\$0	\$713,373	\$0	\$717,657
Small Business Retrofit	\$182,037	\$112,910	\$0	\$245,127	\$540,074	\$174,369	\$110,888	\$0	\$243,326	\$528,583	\$66,806	\$127,535	\$0	\$234,246	\$428,587
Large Business Retrofit (more rebates + \$ for Retro-commissioning)	\$20,000	\$115,188	\$800,000	\$275,102	\$1,210,290	\$0	\$114,995	\$794,776	\$171,977	\$1,081,748	\$0	\$306,113	\$1,856,789	\$194,064	\$2,356,966
New Equipment & Construction	\$0	\$63,491	\$100,000	\$0	\$163,491	\$0	\$59,954	\$105,680	\$0	\$165,634	\$0	\$123,706	\$56,735	\$0	\$180,441
Education (Energy Code Training, BOC 2, Tech College BPI Training)	\$6,099	\$21,700	\$100,595	\$35,000	\$163,394	\$5,202	\$14,520	\$96,465	\$24,232	\$140,419	\$0	\$0	\$5,500	\$0	\$5,500
Utility Specific Programs (additional funding)															
Energy Rewards RFP	\$0	\$0	\$315,000	\$0	\$315,000	\$0	\$0	\$313,603	\$0	\$313,603	\$0	\$0	\$422,842	\$0	\$422,842
High Efficiency Heat Pump Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Smart Start Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
ESHomes Geothermal	\$0	\$0	\$100,000	\$0	\$100,000	\$0	\$0	\$99,636	\$0	\$99,636	\$0	\$0	\$95,577	\$0	\$95,577
EE Website & Home Energy Audit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
SmartStart - RGGI \$ for revolving loan fund	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Funds for Loan Fund Capital (RLF)															
RGGI Funds for Revolving Loan Fund	\$303,000	\$200,000	\$500,000	\$725,000	\$1,728,000	\$303,000	\$200,000	\$500,000	\$725,000	\$1,728,000	\$0	\$0	\$0	\$0	\$0
TOTAL (not including RGGI Funds for Revolving Loan Fund)	\$ 866,607	\$ 848,972	\$ 2,615,595	\$ 957,807	\$ 5,288,981	\$ 797,340	\$ 845,041	\$ 2,643,085	\$858,263	\$ 5,143,729	\$ 237,869	\$ 843,848	\$ 3,286,576	\$ 625,839	\$ 4,994,132
Performance Incentive ²	\$ 69,329	\$ 67,918	\$ 209,248	\$ 76,625	\$423,118	\$97,753	\$ 67,199	\$ 299,002	\$ 85,657	\$549,612					
TOTAL (including performance incentive)	\$ 935,936	\$ 916,890	\$ 2,824,843	\$ 1,034,432	\$ 5,712,099	\$ 895,093	\$ 912,240	\$ 2,942,087	\$ 943,920	\$ 5,693,340					
GRAND TOTAL (including Revolving Loan Fund)	\$ 1,238,936	\$ 1,116,890	\$ 3,324,843	\$ 1,759,432	\$ 7,440,099	\$ 1,198,093	\$ 1,112,240	\$ 3,442,087	\$ 1,668,920	\$ 7,421,340					

Note 1: Customer Contribution for HEA is actually other funding such as WAP, ARRA, Gas Utility EE Funding, etc.
Note 2: At Risk Performance Incentive, 0-12%, shown at 8% incentive level.



Regional Greenhouse Gas Initiative
RGGI Expansion - CORE Energy Efficiency Programs
Q5 (August 19, 2009 - December 31, 2010 Reporting Period)

Method # 2, using MWH & MMBtu (million Btus)

Reductions from	Enter Reductions in Units shown in next Column (Annual MMBtu savings) - NGRID	Enter Reductions in Units shown in next Column (Annual MMBtu savings) - NHEC	Enter Reductions in Units shown in next Column (Annual MMBtu savings) - PSNH	Enter Reductions in Units shown in next Column (Annual MMBtu savings) - UNITIL	Enter Reductions in Units shown in next Column (Annual MMBtu savings) - TOTAL	Units	CO2 Emission Factors in lbs/unit	Estimated CO2 Emission Reductions in pounds (lbs.)	Estimated CO2 Emission Reductions in Metric Tons
Electricity	1,010	3,402	11,427	4,302	20,141	MWH	1,087	21,893,158	9,928.87
Natural Gas	0	0	2,522	1,068	3,590	MMBtu	117.1	420,404	190.66
Distillate Fuel Oil (#1, 2 & 4)	2,640	3,050	5,949	1,180	12,819	MMBtu	161.4	2,069,011	938.33
Residual Fuel Oil (#5 & 6)	0	0	0	0	0	MMBtu	173	0	0.00
Kerosene	2	334	708	203	1,247	MMBtu	159.5	198,873	90.19
LPG	0	0	0	0	0	MMBtu	139	0	0.00
Propane	457	1,317	2,549	100	4,424	MMBtu	139.2	615,784	279.27
Wood or Wood Pellet	9	883	673	238	1,802	MMBtu			
Other	0	0	0	0	0	MMBtu			
								TOTAL	11,427.32

Electric Line Loss

Source of CO2 Emission Factors in lbs/unit:

<http://www.eia.doe.gov/cneaf/electricity/epa/epata3.html>



Regional Greenhouse Gas Initiative
 RGGI Expansion - CORE Energy Efficiency Programs
 Q5 (August 19, 2009 - December 31, 2010 Reporting Period)

Method # 2, using MWH & MMBtu (million Btus)

Reductions from	Enter Reductions in Units shown in next Column (Lifetime MMBtu savings) - NGRID	Enter Reductions in Units shown in next Column (Lifetime MMBtu savings) - NHEC	Enter Reductions in Units shown in next Column (Lifetime MMBtu savings) - PSNH	Enter Reductions in Units shown in next Column (Lifetime MMBtu savings) - UNITIL	Enter Reductions in Units shown in next Column (Lifetime MMBtu savings) - TOTAL	Units	CO2 Emission Factors in lbs/unit	Estimated CO2 Emission Reductions in pounds (lbs.)	Estimated CO2 Emission Reductions in Metric Tons
Electricity	12,611	38,277	148,718	49,794	249,399	MWH	1,087	271,096,989	122,946.48
Natural Gas	0	0	44,880	21,023	65,903	MMBtu	117.1	7,717,249	3,499.89
Distillate Fuel Oil (#1, 2 & 4)	31,681	64,040	118,246	22,291	236,259	MMBtu	161.4	38,132,227	17,293.53
Residual Fuel Oil (#5 & 6)	0	0	0	0	0	MMBtu	173	0	0.00
Kerosene	20	7,526	15,018	4,155	26,719	MMBtu	159.5	4,261,688	1,932.74
LPG	0	0	0	0	0	MMBtu	139	0	0.00
Propane	5,573	30,893	44,776	2,002	83,243	MMBtu	139.2	11,587,426	5,255.07
Wood or Wood Pellet	103	19,006	13,479	4,842	37,431	MMBtu			
Other	0	0	0	0	0	MMBtu			
								TOTAL	150,927.70

Electric Line Loss

Source of CO2 Emission Factors in lbs/unit:

<http://www.eia.doe.gov/cneaf/electricity/epa/epata3.html>

