



## CONNECTICUT'S INVESTMENT IN ENERGY EFFICIENCY

2010 Report of the Energy Efficiency Board



1 March 2011



## The Year in Review: Expanding Our Commitment to Connecticut's Environment

### A Message from the Chair and Vice Chair

We are pleased, as the Energy Efficiency Board's Chair and Vice-Chair, to proudly deliver the Board's Year 2010 Programs and Operations Report to the Connecticut legislature. Within this annual report, we will detail how the Energy Efficiency Fund has fulfilled its primary objectives of advancing the efficient use of energy to:

- (1) reduce ratepayer bills;
- (2) promote economic development and provide energy security/affordability; and
- (3) reduce air pollution and other negative environmental impacts.<sup>1</sup>

2010 was a positive year in the fulfillment of our mission. Continuing a positive trend started in 2000, Connecticut has once again been ranked among the top ten states in the nation for energy efficiency policies and implementation. This is a tribute to the willingness of the state's residents and business owners to embrace our commitment to a more energy-efficient future and a tacit endorsement of the policies and legislation that created the Connecticut Energy Efficiency Fund in 1998. Because Connecticut has such a large and active portfolio of successful programs in place, the state was the recipient of American Recovery and Reinvestment Act (ARRA) funding to supplement these award-winning energy-saving programs. This critical funding played an important role in 2010 and will continue to be expended in 2011.

It is important to note that energy-saving programs offered through the Energy Efficiency Fund play a vital economic role for Connecticut. For every \$1 spent on energy efficiency, Connecticut receives electric, gas and fuel oil system benefits of more than \$3. This return demonstrates that Energy Efficiency Fund programs are a powerful agent in resolving the state's economic crisis: they reduce customer costs, generate critical green jobs, and make the state more competitive by lowering business operating costs.

It is in this context, then, that we urge the state legislature to refrain from allocating Energy Efficiency Fund resources—resources paid by the state's ratepayers—as part of a solution to close the state's budget gap. It will not only stall the momentum we have all worked so hard to achieve, but would represent unsound economic policy as well. The state budget passed in 2010 includes re-allocation of Energy Efficiency Fund resources to the state's General Fund beginning in 2012. We hope this report underscores the importance of continued funding of these programs for the environmental and economic well-being of the state.

The Energy Efficiency Board is grateful for your support in the past and looks forward to enjoying your continued support in the coming years. We are committed to working cooperatively with legislators and all of Connecticut's energy stakeholders to continue the state's leadership position in the important national energy efficiency effort.

Sincerely yours,

Richard W. Steeves  
Energy Efficiency Board,  
Chairperson

Jeffrey R. Gaudiosi  
Energy Efficiency Board,  
Vice-Chairperson

<sup>1</sup> Conn. Gen. Stat. §16-245m. reference 16-32f for natural gas measures.

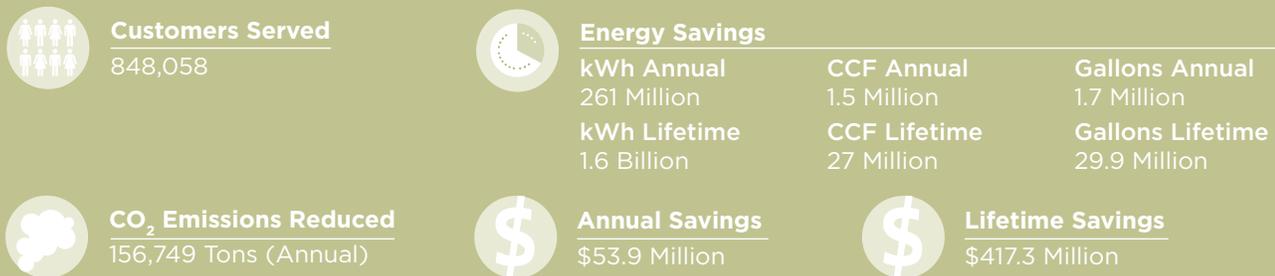
# Connecticut Energy Efficiency Fund 2010 Achievements and Highlights Summary

Connecticut is a nationally recognized leader in implementing high-quality energy efficiency programs. Since 2000, the American Council for an Energy Efficient Economy (ACEEE) has ranked Connecticut as one of the top states for energy efficiency. In the ACEEE's 2010 State Energy Efficiency Scorecard, Connecticut ranked eighth in the nation. This top-tier ranking clearly indicates that Connecticut's energy efficiency programs are national models to be emulated.

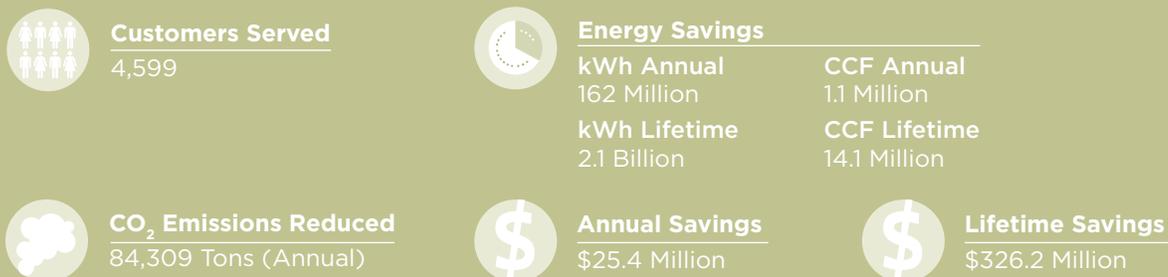
In addition, the Energy Efficiency Fund was recognized both nationally and locally with a variety of awards in 2010.

- **ACEEE: Exemplary State Energy Efficiency Programs**  
Home Energy Solutions/Office of Policy & Management Clean, Tune & Test joint program.
- **Association of Energy Engineers (AEE-CT): Leadership in Energy Efficiency Award, 10 Energy Project Awards**  
Energy Opportunities, Residential New Construction's Zero Energy Challenge, Small Business Energy Advantage, and Retro Commissioning.
- **Business New Haven: Connecticut Green Business Award**  
Home Energy Solutions—Income Eligible.
- **ENERGY STAR®: Sustained Excellence Award**  
Participant in the Northeast Retail Products Initiative.
- **The Connecticut Quality Improvement Award, Inc.: Innovation Prize**  
Gold Prize: Home Energy Solutions/Office of Policy & Management Clean, Tune & Test joint program.  
Silver Prize: Business Sustainability Challenge.

## Energy Efficiency Fund 2010 Residential Program Savings



## Energy Efficiency Fund 2010 Commercial & Industrial Program Savings



Energy Efficiency Fund programs contribute to the more than 2,675 jobs that result directly from energy efficiency and serves as an economic development engine creating private sector businesses which deliver energy efficiency services.

### DOE Grant Funds Green Initiatives

The Energy Efficiency Fund leveraged a \$3 million Department of Energy (DOE) grant to create the Connecticut Green and Healthy Homes Initiative (CTGHHI), which offers limited-income families education on energy assistance and health and safety matters. These funds also provide cross training of partner and program staff while expanding the number of homes weatherized, rehabilitated and made safe and healthy beyond the standard scope of the Energy Efficiency Fund's Income Eligible weatherization program. The strength of the grant is due to private and public partnerships with municipalities, healthcare organizations, social service groups and grassroots organizations.

Created in 1998 with the purpose of helping small and large businesses, homeowners and renters, and state and local governments use energy more efficiently...

## Who We Are and What We Do

Created in 1998 with the purpose of helping small and large businesses, homeowners and renters, and state and local governments use energy more efficiently, our mission is simple yet powerful:

- To advance the efficient use of energy.
- To reduce air pollution and negative environmental impacts.
- To promote economic development and energy security.

The Energy Efficiency Board (formerly known as the Energy Conservation Management Board) is an appointed group of 14 members who represent private and public entities who serve voluntarily and meet year-round. These members reflect a cross section of interests, providing representation for residential, business, community and municipal consumers. The Board is assisted by consultants who are nationally recognized as experts in their respective fields. The original purpose of the Energy Efficiency Board was to advise and assist the state's two electric distribution companies, The Connecticut Light and Power Company (CL&P) and The United Illuminating Company (UI), in both the development and implementation of Energy Efficiency Fund programs. The Energy Efficiency Board's oversight was expanded with the passage of 2005 legislation to include the energy efficiency programs of the Connecticut Municipal Electric Energy Cooperative (CMEEC) and the state's natural gas utilities—Connecticut Natural Gas Corporation, The Southern Connecticut Gas Company and Yankee Gas Services Company. The inclusion of natural gas measures was integrated into the existing portfolio of programs and services, providing additional savings for customers without having to navigate multiple administrative systems. With receipt of American Recovery and Reinvestment Act funds, we have also been able to leverage our services to include more fuel oil measures, an effort already underway through partnerships with State agencies such as the Office of Policy and Management and the Department of Social Services. Additionally, we have established procedures for public comment to factor into our decisions and actions.

### Load Management and Peak Demand

In addition to the Energy Efficiency Fund’s work in the area of energy efficiency, we are equally committed to balancing electric supply and demand, otherwise known as load management. Energy efficiency and load management programs reduce peak demand. These programs result in a broad range of benefits to Connecticut’s residents and businesses including a reduction of Federally Mandated Congestion Charges (FMCCs) on electric bills, decrease in power plant and capital cost improvements, and improvement of transmission system reliability. Additionally, reductions in the quantity of energy and capacity that consumers will need in the future due to efficiency and/or demand response programs result in lower prices because the wholesale markets do not need to purchase the next most expensive unit. This impact of efficiency programs on market prices is referred to as the Demand-Reduction-Induced Price Effect (DRIPE).

The highest point of customer demand is called peak demand. New England’s electrical grid is summer peaking, meaning the highest electrical demand occurs on hot, humid summer weekday afternoons. In addition to the Energy Efficiency Fund-supported and ISO-New England load management programs, the Fund promotes the Wait ‘til 8 campaign—a marketing initiative to publicize energy conservation during peak demand times by encouraging residents to voluntarily shift use of major energy-consuming appliances from mid-afternoon to after 8 p.m.

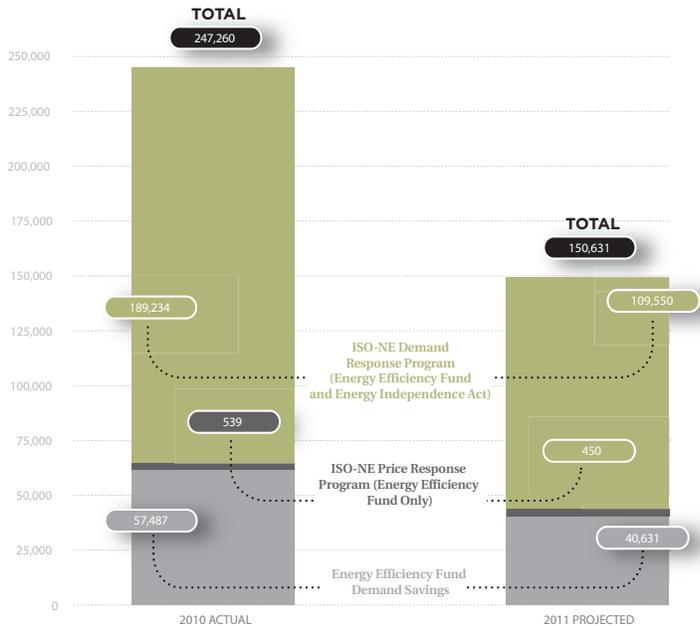
### Verification and Evaluation

The Energy Efficiency Board and the Fund’s administrators recognize the importance of evaluation studies to support continuous improvement of the programs. The programs undergo impact evaluations on a regular basis that are conducted by third-party evaluators. The purpose of impact evaluations is to verify that the reported savings are accurate. Savings are reported to regulatory bodies and used in both the ISO Forward Capacity and Connecticut Class III Renewable markets, and therefore, impact evaluations are a critical aspect of the process.

### Customer Segments

The Energy Efficiency Board and its partner utilities tailor programs to ensure energy efficiency savings are broadly realized by all customer segments.

Peak Demand Savings Available from the Energy Efficiency Fund, CMEEC and ISO-New England Programs (in kW)



Summary of Energy Savings by Customer Sector  
(In millions of kWh, thousands of ccf and thousands of gallons)

Customer Sector	Annual Savings 2010			Lifetime Savings 2010		
	Electric	Natural Gas	Oil	Electric	Natural Gas	Oil
Limited-Income	17	559	727	145	8,230	10,456
Residential (Non Limited-Income)	244	947	981	1,496	18,793	19,428
Commercial & Industrial	162	1,070	0	2,076	14,068	0
<b>Totals</b>	<b>423</b>	<b>2,576</b>	<b>1,708</b>	<b>3,717</b>	<b>41,091</b>	<b>29,884</b>



“ We recommend the Home Energy Solutions program to anyone we know that is thinking of changing or supplementing their heating/cooling units. ”

- Ken and Ellen Rosengrant

## Home Energy Solutions



*Photo credit: Jeff Page*

The flagship residential initiative is the Home Energy Solutions (HES) program. The HES Program began in 2006 as a residential duct sealing pilot. Since that time, it has evolved into a multi-million dollar retrofit program with numerous partner vendors delivering services to customers throughout Connecticut. In 2010, HES served approximately 34,000 households, a record for the program since its inception and an increase of nearly double compared to 2009.

In order to simplify our residential offerings and eliminate confusion, HES and the limited income programs formerly known as WRAP and UI Helps have been combined under the HES program umbrella. The limited income programs will now be known as HES-Income Eligible (HES-IE).

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. This instrument-guided air sealing is one of the quickest and least expensive ways to improve efficiency and lower heating and cooling bills. 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.

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.

“ Without the financial incentives from the Energy Efficiency Fund, we would never have pursued this project. ”

- Dan and Marsha Carson



### Residential Financing Pilot

New residential financing became available in June, allowing residents to borrow from \$2,500 to \$20,000 at below-market interest rates for qualifying improvements recommended through the Home Energy Solutions program and performed by an approved contractor. This funding source makes it easier for customers to act on the recommendations made by technicians during a HES evaluation, thereby extending the depth of energy improvements made throughout the state.

### New Report Card Tool

A new report card was developed for use by HES technicians to create a home energy estimate measure or “yardstick.” The report card helps customers understand the savings and cost-effectiveness of implementing the follow-up recommendations made by the HES technician.

### Promoting Fuel-Blind Energy Efficiency

The infusion of American Recovery and Reinvestment Act (ARRA) funds has enabled the Energy Efficiency Fund to include oil-heat customers at the same, low \$75 co-pay as natural gas and electric-heat customers enjoy. This has been a critical step in promoting fuel blindness in energy efficiency programming and reducing heating oil bills for customers. The HES program took full advantage of the ARRA funding, receiving \$6.2 million and expending it on almost 15,000 projects.

### Home Energy Solutions—Home Performance (HES-HP)

Home Performance (HES-HP) is an advanced approach to energy efficiency. In HES-HP, participants work with their utility program administrators to identify savings and custom energy efficiency measures beyond the basic HES core services. These measures may include installation of additional insulation, new ENERGY STAR® appliances, efficient heating systems, etc. Along with the new financing pilot, these incentives encourage and enable residents to make substantial, comprehensive changes in their home. Modeled after the commercial and industrial retrofit program, this program was created to maximize energy savings opportunities in the residential sector.



## 2010 Home Energy Solutions



**Customers Served**  
34,296



**Energy Savings**  
kWh Annual  
37.7 Million  
kWh Lifetime  
466.1 Million

**CCF Annual**  
808 Thousand  
**CCF Lifetime**  
15.7 Million

**Gallons Annual**  
979 Thousand  
**Gallons Lifetime**  
19.4 Million



**CO<sub>2</sub> Emissions Reduced**  
35,757 Tons (Annual)



**Annual Savings**  
\$10.4 Million



**Lifetime Savings**  
\$156.7 Million



The Energy Efficiency Fund has always made assistance to Connecticut families with limited incomes a high priority.

## Home Energy Solutions—Income Eligible (HES-IE)



The Energy Efficiency Fund has always made assistance to Connecticut families with limited incomes a high priority. Energy bills for these families represent a disproportionate percentage of their expenses, especially during this national economic downturn.

We continue to serve this vital need in Connecticut communities largely through partnerships with a myriad of social service agencies and community groups throughout the state. This network of agencies offers the most direct access to the population in need of assistance, and actively promotes the Home Energy Solutions—Income Eligible program to its client base. While we continue to serve income eligible residents directly, the partnerships we have developed with social service and community organizations has proved fruitful in identifying participants who can benefit from the program.

In some cases, the Energy Efficiency Fund covers all the costs associated with the projects. In other cases, we partner with the Connecticut Department of Social Services (DSS) to leverage funding from both sources for projects which are cost-shared. This enables us to provide greater and more comprehensive services and helps extend our reach to more eligible households.

“This is a great service...Everyone who is eligible should take advantage of this service.” – Karen Barber

## 2010 Home Energy Solutions — Income Eligible



### Customers Served

15,347



### Energy Savings

kWh Annual  
16.7 Million

kWh Lifetime  
145.2 Million

CCF Annual  
558 Thousand

CCF Lifetime  
8.2 Million

Gallons Annual  
727 Thousand

Gallons Lifetime  
10.4 Million



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

20,881 Tons (Annual)



### Annual Savings

\$6.1 Million

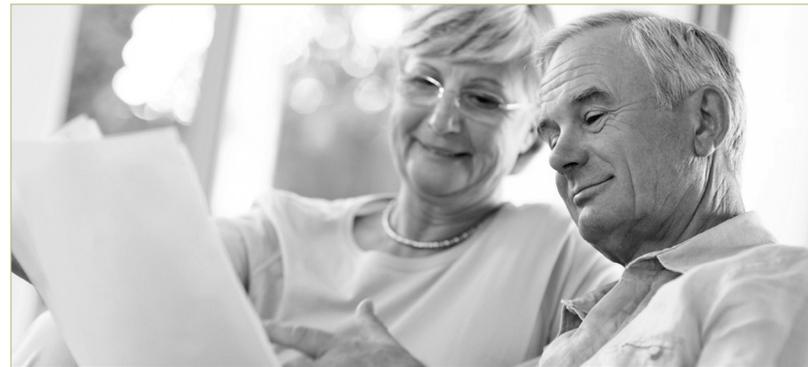


### Lifetime Savings

\$70.4 Million

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.

The Naugatuck Housing Authority's Oak Terrace apartment complex is an excellent example of how the program works in the community. In partnership with the Department of Social Services, major conservation measures were implemented at the 195-unit complex. These measures included air sealing, new ENERGY STAR® Low E Argon windows, energy-efficient lighting, water-saving devices, and the installation of ductless heat pumps. Ductless heat pumps were added to the program services in 2010 after being tested in a limited pilot in previous years. They have proven to be a very cost-effective alternative to expensive electric baseboard heat often found in many apartment complexes and housing authority properties. They reduce heating costs by approximately 40 percent and provide cooling in the summer usually adequate enough to avoid the use of inefficient air conditioning units. Because they do not require ductwork, installation is simple and much



less disruptive to the residents. Incentives of more than \$414,000 will save the complex approximately 9 million kilowatt-hours over the lifetime of the installed measures, and the average energy savings per unit is estimated at more than \$533 per year.

The HES-IE program also serves individuals one household at a time. Through a mailing associated with Bridgeport's B-Green 2020 initiative, Karen Barber of Truman Street was informed about the available program services. Ms. Barber called at once to see if this could actually be true.

**“The technicians were very helpful, polite and really provided understanding to what they were doing,” stated Barber.**

Contractors arrived at her home and set-up the blower door test to find air leakage. The technicians caulked around the windows and realigned the windows in their tracking. A new door sweep and sealing around the door's frame took care of major air leaks. Additionally, energy-efficient light bulbs and water conservation devices were provided and installed. Ms. Barber will save almost 2,800 kilowatt-hours over the lifetime of these installed improvements.



“ The CT Zero Energy Challenge allowed us to demonstrate the viability of designing a New England Farm House that uses no energy. ”

- George and Mary Keithan

## Residential New Construction

The Residential New Construction (RNC) program provides financial incentives and technical assistance to make integrating efficient design and technologies feasible in residential construction projects. Incentives are provided to architects, builders and homeowners to design new homes that incorporate energy-efficient technologies during the design phase.

The RNC program challenges architects and builders to move to a new, higher level of efficiency in construction—high-performance and zero-net energy homes. Incentives are available for electric and natural gas efficiency measures such as ENERGY STAR® for home certification, insulation, gas water heaters, geothermal heat pumps and other electrical HVAC equipment to meet greener building standards.

### Zero Energy Challenge

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. The challenge uses RESNET Rating Standards to determine each completed home's Home Energy Rating System (HERS) Index. The home with the lowest HERS Index, indicating it will use the least energy, wins the competition.

“This home demonstrates that energy efficiency isn't limited to a particular style, shape or look in a home,” said Chris Trolle, Principal, BPC Green Builders. “Building a green house can provide high comfort levels and increased durability as well as lower operating costs.”

## 2010 Residential New Construction



### Customers Served

650



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

1,365 Tons (Annual)



### Annual Savings

\$417 Thousand



### Energy Savings

kWh Annual  
1.7 Million

kWh Lifetime  
27.0 Million

CCF Annual  
91 Thousand

CCF Lifetime  
2.3 Million



### Lifetime Savings

\$7.7 Million



Pictured in the photo from L to R: **First Place Winner**, George Keithan, President, Consulting Engineering Services; **Second Place Winner**, Jeremy & Karann Schaller; **Third Place Winner**, Chris Trolle, Principal, BPC Green Builders

Eighteen Connecticut homes participated in the Challenge (visit [www.ctzeroenergychallenge.com](http://www.ctzeroenergychallenge.com) for a list of participating projects). The following homes were winners in the 2009-2010 Zero Energy Challenge:

### \$15,000 First Prize:

The Killingworth home of George and Mary Keithan was designed as a classic New England home in a farm setting with all of today's modern systems and conveniences, wrapped up into a home requiring zero energy. By incorporating a geothermal heating and cooling system, passive and active solar systems, and an extremely energy-efficient building envelope, among other features, the home produced the best HERS rating of -7.

### \$10,000 Second Prize:

The new home of Jeremy and Karann Schaller is in rural New Hartford. The home features a highly energy-efficient structural insulated panel cladding system, passive and active solar design, innovative heating and cooling technologies, energy-efficient fixtures and appliances, and salvaged, recycled, or

sustainable products as much as practically and economically possible. As a result, the Schaller's home resulted in a HERS rating of 4.

### \$5,000 Third Prize:

The New Canaan home of Chris Trolle is designed to look like a traditional Adirondack lodge, yet featured a wide array of energy-efficient technologies that helped to achieve the goal of certification within the Leadership in Energy and Environmental Design (LEED) for Homes program at the platinum level. Some innovative features included a heavily insulated building envelope, triple glazed windows, a solar thermal array for space heating, domestic hot water and summer pool heating, and thermal mass radiant slab heating for the main living area. The new home produced a HERS rating of 14.

## 2010 Retail Products



### Customers Served

797,157



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

98,262 Tons (Annual)



### Annual Savings

\$37.0 Million



### Products Sold

**CFLs** 5,282,491  
**Hard-Wired** 25,812  
**Appliance Rebates/  
 Other Products** 45,411



### Energy Savings

**kWh Annual**  
 204.3 Million  
**kWh Lifetime**  
 1.0 Billion



### Lifetime Savings

\$181.5 Million

## Retail Products

The highlight of the Energy Efficiency Fund's retail products effort in 2010 continued to center around the promotion of Compact Fluorescent Light bulbs (CFLs). CFLs use 75 percent less electricity than incandescent bulbs while producing the same amount of light. The Fund's award-winning Retail Products program promotes the sale of CFLs in many of Connecticut's grocery, pharmacy, home improvement and big box stores by working with lighting manufacturers to rebate CFLs before they reach the shelf. This allows customers to purchase discounted CFLs without having to submit mail-in rebates or bring coupons to the store.

The Energy Efficiency Fund aggressively marketed the CFL discount program in 2010, including radio and print advertising. That advertising effort, along with in-store signage and promotion efforts, produced notable sales results—more than 5 million bulbs in 2010, which will save customers approximately \$36.3 million annually. In addition, the Fund continues to support the emerging Light Emitting Diode (LED) lighting market, positioning itself to bring this emerging technology to more households in 2011.

The Energy Independence and Security Act of 2007 (EISA 2007) will phase out standard use incandescent bulbs beginning in 2012. However, several large manufacturers have started producing EISA-compliant halogen bulbs, which are approximately 30 percent more efficient than standard incandescent bulbs. These halogen bulbs, however, are far less efficient than standard CFLs. Therefore, it appears that there may be opportunities to continue to promote CFL technology even after the onset of EISA.

### Lighting Fairs

The Fund partners with a local retail lighting vendor and national ENERGY STAR® partner to offer lighting fairs throughout the year. These lighting fairs are 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 unique fundraising program that allows schools and community organizations to raise money by selling CFLs achieves two important goals: it helps organizations such as schools and community groups raise important funds and expands access to CFLs throughout Connecticut.

#### RETAIL REBATES

**\$300 Energy Efficiency Fund Natural Gas Hot Water Heater Rebate**—incentive for installing an energy-efficient indirect water heater attached to a natural gas ENERGY STAR® qualified boiler or an on-demand natural gas-fired tankless water heater.

**Connecticut Recovery Appliance Rebates**—utilizing more than \$3 million in funding from the American Recovery and Reinvestment Act, the Energy Efficiency Fund partnered with the Office of Policy and Management to deliver appliance rebates in 2010 for ENERGY STAR clothes washers, freezers, refrigerators, window air conditioners, central air systems, hot water heat pumps and packaged systems.



### 2010 Natural Gas Hot Water Rebates



#### Energy Savings

CCF Annual  
37 Thousand

CCF Lifetime  
739 Thousand



#### Annual Savings

\$50 Thousand



#### Lifetime Savings

\$1.0 Million



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

223 Tons (Annual)



Geothermal heat pump equipment

## Cool Ways to Stay Warm

### Ductless Heat Pumps

The ductless heat pump rebate program for electric heat customers was launched in Fall 2009 and was successfully extended in 2010. A rebate of up to \$1,000, together with up to \$1,500 in federal tax credits, has made ductless heat pumps a viable retrofit option for residents who currently heat their homes with more costly, less efficient electric resistance heat—they use approximately 40 percent less energy than electric baseboard heating systems.

In addition, the Energy Efficiency Fund has substantially increased its contractor training efforts to build a larger network of installers. That effort will enable the program to be extended to more program participants throughout the state.

### Geothermal Systems

Geothermal heat pumps are a clean and efficient option that may help customers save on their heating and cooling costs. Rebates from the Energy Efficiency Fund of up to \$1,500 are used to encourage the proper installation and testing of geothermal heat pumps. Customers may also qualify for federal tax incentives for qualifying ENERGY STAR equipment.

### Heating/Ventilation/Air Conditioning (HVAC) Rebates

According to the U.S. Department of Energy, heating and cooling accounts for about half of the energy use in a typical American home. This is why the Energy Efficiency Fund provides a \$500 incentive for installing certain ENERGY STAR central air conditioning or heat pump systems.



Ductless heat pump outdoor unit

### 2010 Retail Rebates



#### Rebates by Category

Natural Gas Hot Water	608
HVAC, Including Geothermal Heat Pump	7,798
Appliances (ARRA funded)	45,064



A fundamental priority of the Energy Efficiency Fund is educating Connecticut residents on the many issues related to living a sustainable, energy-efficient lifestyle.

## Education and Outreach: At School, at Work and in Your Community

A fundamental priority of the Energy Efficiency Fund is educating Connecticut residents on the many issues related to living a sustainable, energy-efficient lifestyle. The Fund’s educational outreach is delivered through a variety of mediums, including museum exhibits, public forums, school-based programs (kindergarten through college), trade shows and training seminars. These outreach efforts play a vital role in providing the information and tools needed for businesses, municipalities and residents to reduce energy consumption, lower energy bills and protect the environment.

### **eesmarts™**

In 2010, the **eesmarts** program continued to offer custom and general professional development workshops to nearly 400 educators that gave hands-on, inquiry-based lessons on the basics of energy efficiency, renewable energy and electricity. The program is an energy efficiency and clean, renewable energy learning initiative providing professional development workshops and curriculum free-of-charge to Grade K-9 educators across the state.

**eesmarts** provides custom workshops for school districts and a Summer Institute for individual educators across the state from parochial, private, public and home schools. Workshops are led by the Project to Increase Mastery of Mathematics and Science at Wesleyan University. In 2010, the Energy Efficiency Fund began its eeEvents initiative—forums in which staff gave presentations, led classroom lessons and conducted direct outreach with children—not just educators. This highly successful initiative will continue in 2011.



### 2010 **eesmarts**



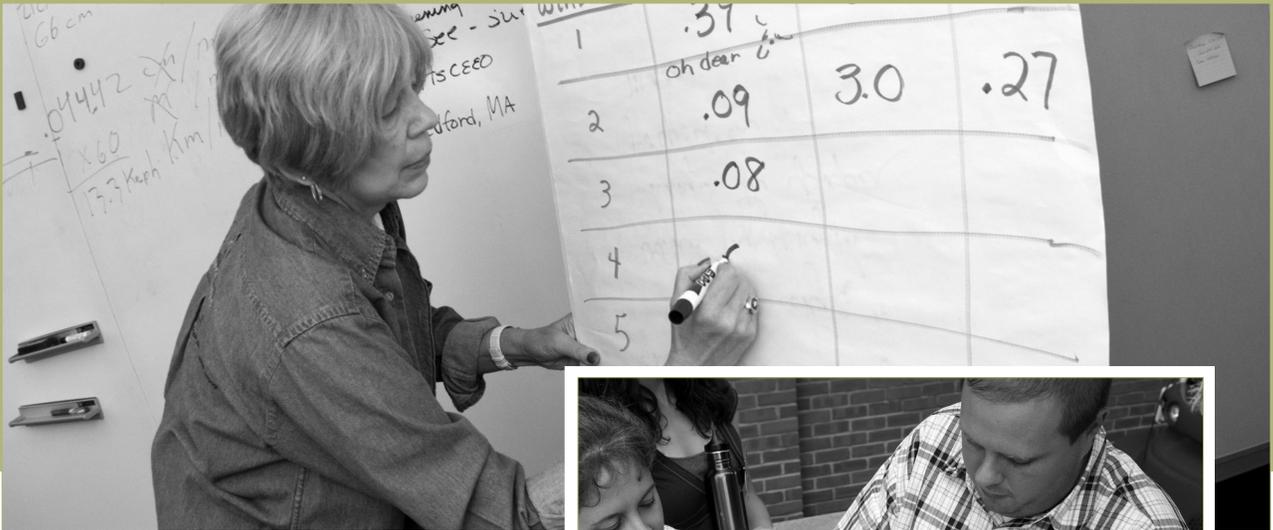
**Educators Trained**  
395



**Curriculum Lessons Distributed**  
5,271



**Events Held**  
9



### eeCommunities

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.

In 2011, the eeCommunities program will expand to even more communities by partnering with the Connecticut Clean Energy Fund to deliver an integrated energy community program.

### Wethersfield

In 2010, the Energy Efficiency Fund worked closely with the Town of Wethersfield's energy committees on an educational initiative and town-wide Conservation Challenge. Two challenge kick-off educational forums were held at the town hall to educate residents, businesses and municipal officials about energy conservation behaviors and Energy Efficiency Fund programs. Fund-sponsored weatherization kits were distributed to the Challenge participants. In addition, the program recruited more than 200 households to participate in the Fund's Home Energy Solutions program and is working with the town to benchmark its municipal building energy performance.



### Cheshire

In 2010, the eeCommunities program collaboratively worked with Cheshire's Town Manager, Cheshire Energy Commission and Home Energy Solutions contractors to leverage American Resource and Recovery Act dollars with Energy Efficiency Fund programs to promote in-home energy assessments. As a result of this partnership, 690 households received Home Energy Solutions program services between April 20 and June 30, 2010.

### Fairfield

With support from Congressman Jim Himes (CT-4) and Fairfield First Selectman Ken Flatto, the Energy Efficiency Fund partnered with the Town of Fairfield to provide a credit for the full cost of a home energy assessment to the first 1,500 qualified homeowners to sign up for the Fund's Home Energy Solutions program. During the four-month initiative, more than 1,400 households were served, resulting in 889,883 annual kilowatt-hours savings and 6,458,213 lifetime kilowatt-hours savings.



Photo Credit: Raw Photo Design

“ The Fund’s generous support of Energy Lab allows museum visitors to learn about renewable energy and environmental stewardship through hands-on experimentation. ”

– Sheri Cifaldi-Morrill, Director of Exhibit Design & Delivery, Stepping Stones Museum

## Education and Outreach: At School, at Work and in Your Community ...continued from previous page.

### Museum Partnerships

Since 2005, the Energy Efficiency Fund has sponsored the creation of several energy exhibits and hosted energy efficiency events as a part of the broader objective of extending information on energy efficiency into as many diverse sources as possible around Connecticut. 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. Visitors can participate in guided tours and special events throughout the year.

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.



Photo Credit: Raw Photo Design



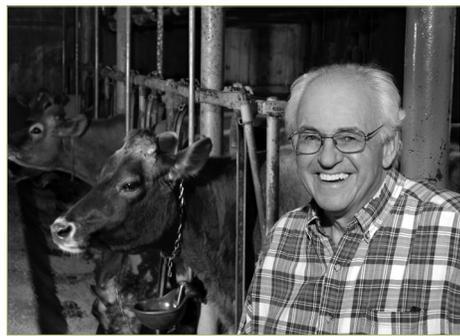
### Technical Training Seminars

In 2010, the Energy Efficiency Fund offered 28 technical training seminars for commercial and industrial customers, trade allies and utility program administrators to learn about emerging technologies, best practices, and new building design standards and codes. More than 1,200 professionals attended these seminars. Topics included day lighting controls, innovative cooling technologies, performance contracting, retro commissioning, high-performance lighting and LEDs, as well as energy efficiency financing and tax incentives. The Fund and utilities also hosted numerous technical sessions to educate and inform energy efficiency trade allies about new technologies, processes, programs and rebates offered affecting 2010 business operations.



### ENERGY REPORTS CONSERVATION PILOT

The Energy Efficiency Fund and its partner utilities are always seeking new opportunities to help customers achieve energy savings. The Energy Reports Conservation Pilot is an innovative educational platform to educate consumers regarding their energy consumption, how they compare to their neighbors, and the steps they can take to curb their energy use. These steps include implementing new energy conservation behaviors (turning off lights and electronic equipment) and participating in Energy Efficiency Fund programs and rebates. The pilot was initiated in late 2010 and will run through 2012.



“ Financial incentives from the Energy Efficiency Fund made it possible to purchase new, more energy-efficient equipment. ”

- Donald Fish, Owner, Fish Family Farm

## Small Businesses: Connecticut's Business Backbone

### Small Business Energy Advantage:

Providing a Competitive Edge for 1,886 Businesses in 2010

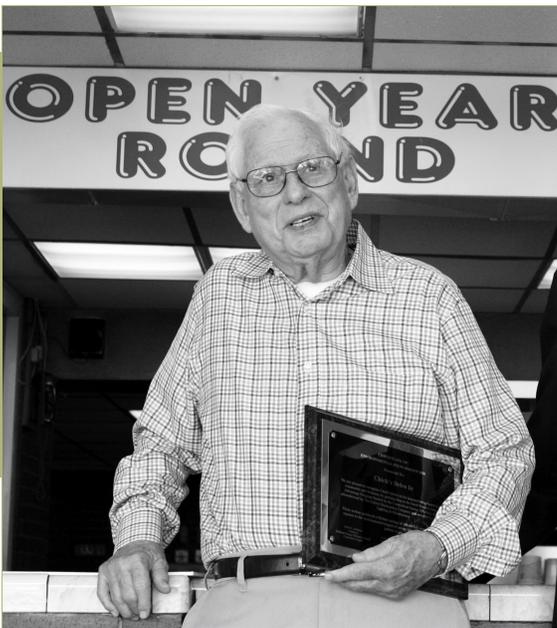
Small businesses are an essential and integral part of Connecticut's communities and towns but continue to face financial challenges associated with a difficult economic environment, rising energy costs, and increased global competition. The Energy Efficiency Fund's Small Business Energy Advantage (SBEA) program offers cost-effective, turnkey, energy-saving products and services to small business customers who do not have the time, financial resources, or in-house expertise necessary to analyze and reduce their energy usage. This program gives those small businesses a competitive edge by increasing their bottom line.

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 energy-efficient improvements translate into monthly electric bill savings that result in a quick payback and a low out-of-pocket investment. In many cases, the energy savings completely offset the cost of the measures.

In 2010 the SBEA program saw an increase in the number of comprehensive projects. The program started years ago as a simple lighting retrofit program, matching pre-qualified lighting retrofit vendors with customers who typically did not have a pre-existing relationship with an electrical contractor, and then expanded to include cash incentives for those retrofit projects. Today, 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.

The Fish Family Farm in Bolton is a great example of a business that took advantage of the SBEA program. New energy-efficient lighting and refrigeration equipment were installed, which will help the creamery and dairy farm save approximately \$5,600 annually.





“ I never thought the savings would be so much. I would recommend it to anyone. ”

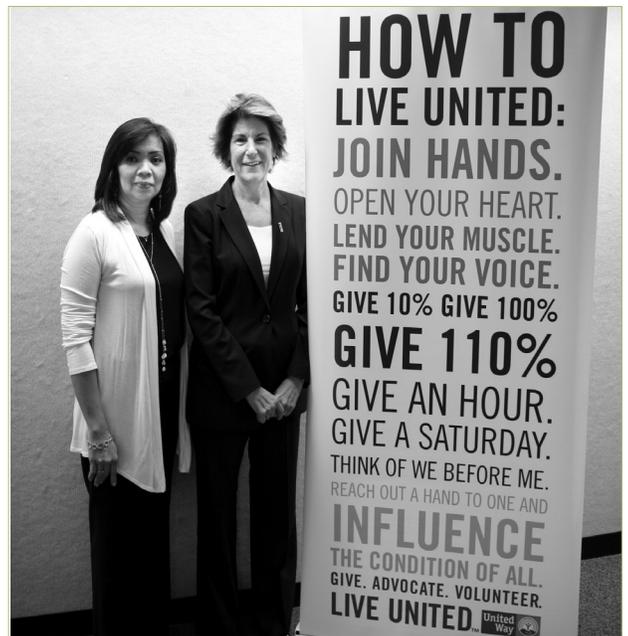
– Joseph Celentano, Owner, Chick’s Drive-In

A SBEA program energy assessment of The United Way of Coastal Fairfield County found the non-profit’s lighting to be outdated. Old fluorescent and incandescent lighting was replaced with energy-efficient, high-performance T8 technology and compact fluorescent lighting (CFL), respectively. From these improvements, the United Way’s lifetime savings is expected to total \$72,408.

McDonald’s restaurant in Vernon was able to upgrade to more energy-efficient induction lighting and make improvements to its refrigeration unit to dramatically reduce energy usage. A financial incentive and a zero-percent interest loan enabled property owners Tim and Tom Walsh to offset the cost of the upgrades and resulted in cost savings of approximately \$9,000 a year.

Chick’s Drive-In in West Haven also was able to make improvements to lighting and refrigeration equipment that are saving owner Joseph “Chick” Celentano hundreds of dollars each month on his electricity bill. The seafood landmark eatery will save approximately 468,000 kilowatt-hours over the lifetime of the new equipment—the equivalent of planting 56 acres of trees or saving more than 17,000 gallons of gas.

SBEA program participants can save natural gas as well by taking advantage of the Fund’s Energy Opportunities program, which is for business customers looking to retrofit existing operational equipment.



**2010 Small Business Energy Advantage Program**



**Customers Served**  
1,886



**CO<sub>2</sub> Emissions Reduced**  
18,350 Tons (Annual)



**Energy Savings**  
kWh Annual  
38.2 Million  
kWh Lifetime  
473.8 Million



**Annual Savings**  
\$5.8 Million



**Lifetime Savings**  
\$72.1 Million



After completing the Energy Conscious Blueprint project, the Bridgeport Holiday Inn's total annual energy savings is \$124,555.

## Commercial & Industrial: New Construction & Equipment

### Energy Conscious Blueprint

The Energy Conscious Blueprint (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. Technical services and financial incentives for this program are based upon the proposed project's complexity, energy savings potential, and the desire of the owner and his or her design team to participate.

The ECB program had a banner year, signing more letters of agreement in 2010 than in any previous year. As these projects typically have long lead times and tend to be very complex, many of them initiated in 2010 will be completed during the next two years.

One project that was completed in 2010 was at the newly renovated Bridgeport Holiday Inn. 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 was another successfully completed project consisting of 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 than 235,000 kilowatt-hours, which equals approximately \$40,000.

## 2010 Energy Conscious Blueprint



### Business Served

804



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

19,547 Tons (Annual)



### Annual Savings

\$5.6 Million



### Energy Savings

kWh Annual  
32.8 Million

kWh Lifetime  
508.3 Million

CCF Annual  
627 Thousand

CCF Lifetime  
9.1 Million



### Lifetime Savings

\$85.7 Million



### Comprehensive Projects

In 2010 the Energy Efficiency Fund aggressively pushed for an increase in comprehensive Energy Conscious Blueprint projects. This includes making improvements to more than one energy end-use such as lighting and heating, or a combination of natural gas and electric energy efficiency measures.

One project that fit this model was a new Price Chopper store in Middletown. Among the many energy-saving aspects incorporated into the new building was 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.

### Building Code Changes

The Energy Efficiency Fund actively supported changes to building codes in Connecticut to better reflect what is happening in the design community. This included working with the State's Codes and Standards Committee and the Department of Public Safety on new code adoption. Multiple training workshops were offered to architects and engineers to educate them on the new proposed codes and how they would be impacted in the future.





“With assistance from the Energy Efficiency Fund, Ashcroft Inc. has improved the appearance of our manufacturing operation while greatly reducing our energy consumption.”

- Bruce Albright, Manufacturing Manager, Ashcroft

## Commercial & Industrial: Existing Buildings

### Energy Opportunities

Similar to the Energy Conscious Blueprint program, conducting comprehensive projects was a focus for the Energy Opportunities (EO) program, which 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.

Ashcroft, Inc., a manufacturer of high-quality pressure gauges in Stratford, 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.

### Advanced Lighting

Lighting upgrades are a major component of the Energy Opportunities program, and the Fund's administering utilities are influential in pushing the most cutting-edge, qualified lighting products to the market. As part of this effort, utility energy engineers are actively involved with the DesignLights™ Consortium, a collaboration of utility companies and regional energy efficiency organizations committed to raising awareness of the benefits of efficient lighting in commercial buildings. In 2010 the EO program supported several emerging technologies such as Light-Emitting Diodes (LED) lamps, which are more rugged and damage-resistant than compact fluorescent lamps and incandescent lamps, as well as induction lighting, which is an advanced, more energy-efficient form of fluorescent technology.

EO program participants can also take advantage of the Fund's Lighting Express Rebate program, which allows facility managers and business owners to be paid expeditiously for the incremental cost of installing high-efficiency lighting fixtures.



“ The Energy Efficiency Fund helped pay for equipment that saves us thousands in monthly operating costs—and reduces our payback to less than two years. ”

- Bob Will, Facilities Manager,  
Connecticut Children's Medical Center

**Beyond Lighting**

Lighting is just one area that businesses can upgrade through the Energy Opportunities program. Energy-saving improvements can also be made to HVAC systems, refrigeration, water heating, and process-related equipment. As an example, the Connecticut Children's Medical Center in Hartford turned to the EO program to improve its HVAC system. Financial incentives helped pay for high efficiency controls that reduce energy consumption by approximately 287,700 kilowatt-hours annually, or \$23,000 in savings, on cooling the Center's facilities year round.

DRS Fermont, a provider of military generator sets, has taken advantage of several Energy Efficiency Fund programs throughout the past few years. Most recently, the company participated in the EO program to make comprehensive upgrades to lighting and cooling equipment in its two Bridgeport locations, along with the installation of a new energy management system. The result was a savings of nearly 1,170,000 kilowatt-hours annually.



**2010 Energy Opportunities**



**Business Served**  
1,355



**Energy Savings**  
kWh Annual  
84.2 Million  
kWh Lifetime  
1.0 Billion

**CCF Annual**  
364 Thousand  
**CCF Lifetime**  
4.2 Million



**Annual Savings**  
\$13.0 Million



**CO<sub>2</sub> Emissions Reduced**  
42,654 Tons (Annual)



**Lifetime Savings**  
\$161.0 Million



“ We’ve knocked down energy consumption by 35 percent and raised our ENERGY STAR® designation from 47 to 88. ”

- Peter Rogers, Chief Plant Operator,  
Greenwich Hospital

## Commercial & Industrial: Existing Buildings

### Operations and Maintenance

Inadequate maintenance can lead to drastic energy losses and high energy costs. The Energy Efficiency Fund’s Operations & Maintenance Services (O&M) program helps customers improve the electrical and thermal efficiency of their operations by making changes and repairs, rather than making costly capital investments. Energy efficiency experts work with customers to identify both electric and gas efficiency O&M improvements. Once these measures are installed, the improvements may qualify for financial incentives to offset a portion of the project cost.

O&M improvements are custom designed for a building’s site, as each facility is unique. Common O&M measures include economizer repairs/conversions, repairs/replacements of steam traps, and rewiring of lighting circuits for more efficient switching. In addition to identifying efficiency measures, energy efficiency experts provide outreach and training to the customers’ in-house personnel so energy-efficient improvements can be maintained over time.

### Retro Commissioning

The Retro Commissioning program identifies energy savings in existing commercial and industrial buildings that are at least 100,000 square feet by improving the operation of a building’s management system. Similar to other Energy Efficiency Fund programs, financial and technical assistance are provided through the Retro Commissioning program. Additionally, this program documents how a facility should be operated to maximize energy-saving opportunities that improve overall performance while helping to develop long-term, sustainable energy management strategies.

Greenwich Hospital needed to reduce energy consumption and costs of its 520,000 square-foot facility, as its energy bills were well over the hospital’s budget. Through the Retro Commissioning program, dozens of measures were implemented across the building, including upgrades to lighting and process systems, as well as improvements to the heating and cooling plants. The result was a 35-percent reduction of energy consumption, which will save the hospital almost \$304,000 annually. Also, the facility’s ENERGY STAR® rating went from 47 to 88 (buildings with a score of 75 or over are eligible for the ENERGY STAR label).

“ The Business Sustainability Challenge will continue to be an ongoing effort to reduce our organization’s carbon footprint and help position us as an environmental leader within the distribution industry. ”

- Don Burton, Vice President of Operations, Eastern Bag & Paper



### Process Reengineering for Increased Manufacturing Efficiency (PRIME)

Manufacturers looking for a competitive edge need to take a systematic approach to evaluating and identifying inefficiencies and waste in their operations. The PRIME program provides businesses with training in “lean manufacturing” techniques in order to streamline product flow, eliminate or reduce waste, improve production efficiency, minimize environmental impact, and reduce electrical energy consumption. Without this program, access to this type of specialized training was often limited to very large businesses that have the foresight and resources to invest in the training.

### Business Sustainability Challenge

The Business Sustainability Challenge (BSC) is specifically designed to help businesses increase their bottom line through an overall operations analysis and ultimately improve their “triple bottom line” of financial, environmental and social value.

Empowering organizations to change their behaviors while providing access to the necessary tools and resources enables them to achieve deeper and longer lasting energy savings and carbon footprint reduction, and helps them meet the challenge of becoming a sustainable business.

Eastern Bag & Paper is a success story for the BSC program, which helped the Milford-based food service product manufacturer develop a comprehensive energy management and sustainability plan and goals. From there, the company was able to implement several measures such as establishing 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.

## 2010 Operations & Maintenance/Retro Commissioning/PRIME



### Business Served

136



### Energy Savings

kWh Annual  
6.5 Million

kWh Lifetime  
46.0 Million

CCF Annual  
78 Thousand

CCF Lifetime  
781 Thousand



### Annual Savings

\$1.0 Million



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

3,581 Tons (Annual)



### Lifetime Savings

\$7.5 Million



The primary focus of the Energy Efficiency Fund continues to be reducing air pollution and improving air quality in the Northeast.

## Protecting the Environment

### Energy Efficiency Reduces Pollution

The primary focus of the Energy Efficiency Fund continues to be reducing air pollution and improving air quality in the Northeast. The generation of electricity from non-renewable fossil fuels (e.g., coal and oil) is the single largest source of carbon dioxide emissions in the United States. Reducing the amount of energy used by businesses, homes and schools results in less plant operation time and significantly lowers the emissions of carbon dioxide, nitrous and sulfur oxides—which are associated with environmental issues such as ozone, climate change, public health problems, acid rain, and smog.

However, legislation has already been put in place to reduce these effects. On June 2, 2008, Governor M. Jodi Rell signed “An Act Concerning Global Warming Solutions,”<sup>2</sup> into law. The law established a statewide greenhouse gas emissions reduction target of 10 percent below 1990 levels by 2020.

Investing in energy efficiency programs also helps to reduce the need for power generation, especially during times of peak demand. This helps Connecticut energy generation owners avoid having to purchase tens of millions of dollars in pollution control equipment. While this abatement equipment does reduce emissions, it does not eliminate them completely, and in fact, decreases the overall efficiency of power plants, resulting in the emission of more air pollutants.

The Energy Efficiency Fund’s programs play an integral part in helping reduce greenhouse gas and air pollutant emissions in Connecticut and the surrounding region. In 2010, program activities resulted in significant environmental benefits, which are all part of the push for greater sustainability across the state.

### Reflecting Reduction in Criteria Pollutants and Carbon Dioxide (in Tons)

	Annual Savings 2010			Lifetime Savings 2010		
	Electric	Natural Gas	Oil	Electric	Natural Gas	Oil
SO <sub>x</sub>	344	—	—	3,031	—	—
NO <sub>x</sub>	119	—	—	1,044	—	—
CO <sub>2</sub>	202,860	15,532	22,232	1,786,292	247,764	388,993

<sup>2</sup> PA 08-98, An Act Concerning Connecticut Global Warming Solutions.



The lifetime energy savings achieved through Energy Efficiency Fund programs in 2010 results in avoided emissions equivalent to:



**442,476**

Homes powered with electricity for a year



**354,676** Cars off the road for a year



**504,355**

Acres of trees reducing carbon

# Demonstrating Economic Benefits Throughout Connecticut

## Job Growth

Since Connecticut does not have any indigenous fossil fuel resources, much of the spending on energy is for fuel imported from other parts of the country and the world. Spending on efficiency however, is largely done in state. A 2009 independent study\* analyzed the size of Connecticut's green jobs marketplace and showed that 2,675 jobs are directly attributed to energy efficiency. These jobs create \$137 million of employment income, at an average of \$50,000 per year across all industry segments (residential, small business, commercial and industrial). An even greater number of jobs result from the energy savings the programs deliver, as consumers and businesses spend and invest the money they would otherwise have spent on energy. Another 4,280 indirect and induced jobs can be attributed to energy efficiency activity in Connecticut.

\* Navigant Consulting, CT Renewable Energy/Energy Efficiency Economy Baseline Study. Phase I Deliverable, March 27, 2009.

## Assistance to Customers in Connecticut Towns

This list includes energy efficiency and conservation benefits provided to residential, commercial and industrial customers of the electric and gas utilities and the Connecticut Municipal Electric Energy Cooperative (CMEEC), which exceeds \$98 million in incentive benefits.

ANDOVER	\$	41,139	DERBY	\$	389,128
ANSONIA	\$	477,390	DURHAM	\$	254,514
ASHFORD	\$	86,434	EAST GRANBY	\$	205,236
AVON	\$	414,504	EAST HADDAM	\$	128,093
BARKHAMSTED	\$	31,419	EAST HAMPTON	\$	177,359
BEACON FALLS	\$	95,481	EAST HARTFORD	\$	1,040,058
BERLIN	\$	918,053	EAST HAVEN	\$	453,498
BETHANY	\$	85,102	EAST LYME	\$	311,101
BETHEL	\$	204,589	EAST WINDSOR	\$	298,953
BETHLEHEM	\$	42,664	EASTFORD	\$	12,575
BLOOMFIELD	\$	900,251	EASTON	\$	292,760
BOLTON	\$	80,425	ELLINGTON	\$	275,723
BOZRAH	\$	73,006	ENFIELD	\$	1,794,830
BRANFORD	\$	986,317	ESSEX	\$	130,010
BRIDGEPORT	\$	3,710,382	FAIRFIELD	\$	3,184,254
BRIDGEWATER	\$	42,628	FARMINGTON	\$	1,009,782
BRISTOL	\$	1,011,141	FRANKLIN	\$	19,705
BROOKFIELD	\$	1,051,388	GLASTONBURY	\$	1,138,748
BROOKLYN	\$	65,552	GOSHEN	\$	62,677
BURLINGTON	\$	106,419	GRANBY	\$	132,368
CANAAN	\$	18,243	GREENWICH	\$	886,124
CANTERBURY	\$	63,704	GRISWOLD	\$	70,535
CANTON	\$	321,450	GROTON	\$	1,245,595
CHAPLIN	\$	20,396	GUILFORD	\$	369,896
CHESHIRE	\$	1,080,208	HADDAM	\$	169,826
CHESTER	\$	71,937	HAMDEN	\$	2,940,048
CLINTON	\$	380,159	HAMPTON	\$	14,695
COLCHESTER	\$	305,861	HARTFORD	\$	4,922,518
COLEBROOK	\$	14,763	HARTLAND	\$	8,683
COLUMBIA	\$	67,924	HARWINTON	\$	47,341
CORNWALL	\$	31,875	HEBRON	\$	101,384
COVENTRY	\$	195,672	KENT	\$	119,515
CROMWELL	\$	479,877	KILLINGLY	\$	559,230
DANBURY	\$	3,033,812	KILLINGWORTH	\$	112,297
DARIEN	\$	348,485	LEBANON	\$	50,059
DEEP RIVER	\$	192,005	LEDYARD	\$	111,441

LISBON	\$ 145,093
LITCHFIELD	\$ 203,706
LYME	\$ 17,119
MADISON	\$ 265,149
MANCHESTER	\$ 2,118,448
MANSFIELD	\$ 699,903
MARLBOROUGH	\$ 84,762
MERIDEN	\$ 1,239,537
MIDDLEBURY	\$ 250,763
MIDDLEFIELD	\$ 166,138
MIDDLETOWN	\$ 2,035,168
MILFORD	\$ 2,335,222
MONROE	\$ 334,986
MONTVILLE	\$ 616,596
MORRIS	\$ 52,293
NAUGATUCK	\$ 969,825
NEW BRITAIN	\$ 1,881,663
NEW CANAAN	\$ 390,477
NEW FAIRFIELD	\$ 143,207
NEW HARTFORD	\$ 202,629
NEW HAVEN	\$ 2,604,921
NEW LONDON	\$ 1,717,089
NEW MILFORD	\$ 632,152
NEWINGTON	\$ 707,300
NEWTOWN	\$ 373,986
NORFOLK	\$ 25,226
NORTH BRANFORD	\$ 118,412
NORTH CANAAN	\$ 31,833
NORTH HAVEN	\$ 739,822
NORTH STONINGTON	\$ 65,533
NORWALK	\$ 3,457,511
NORWICH	\$ 1,287,022
OLD LYME	\$ 139,173
OLD SAYBROOK	\$ 381,787
ORANGE	\$ 583,069
OXFORD	\$ 150,826
PLAINFIELD	\$ 261,583
PLAINVILLE	\$ 564,665
PLYMOUTH	\$ 187,730
POMFRET	\$ 30,371
PORTLAND	\$ 247,314
PRESTON	\$ 53,173
PROSPECT	\$ 213,624
PUTNAM	\$ 207,595
REDDING	\$ 153,237
RIDGEFIELD	\$ 451,022
ROCKY HILL	\$ 596,897
ROXBURY	\$ 31,450
SALEM	\$ 48,998
SALISBURY	\$ 350,140
SCOTLAND	\$ 5,355

SEYMOUR	\$ 461,084
SHARON	\$ 225,894
SHELTON	\$ 1,262,307
SHERMAN	\$ 71,291
SIMSBURY	\$ 541,849
SOMERS	\$ 186,519
SOUTH WINDSOR	\$ 1,225,007
SOUTHBURY	\$ 620,615
SOUTHINGTON	\$ 900,862
SPRAGUE	\$ 7,547
STAFFORD	\$ 155,502
STAMFORD	\$ 3,095,148
STERLING	\$ 73,596
STONINGTON	\$ 518,136
STRATFORD	\$ 1,201,592
SUFFIELD	\$ 307,948
THOMASTON	\$ 231,690
THOMPSON	\$ 104,574
TOLLAND	\$ 186,778
TORRINGTON	\$ 544,304
TRUMBULL	\$ 976,786
UNION	\$ 6,655
VERNON	\$ 804,832
VOLUNTOWN	\$ 16,007
WALLINGFORD	\$ 1,711,183
WARREN	\$ 18,182
WASHINGTON	\$ 63,443
WATERBURY	\$ 2,564,395
WATERFORD	\$ 712,645
WATERTOWN	\$ 681,598
WEST HARTFORD	\$ 1,759,097
WEST HAVEN	\$ 973,100
WESTBROOK	\$ 107,610
WESTON	\$ 171,697
WESTPORT	\$ 817,835
WETHERSFIELD	\$ 569,343
WILLINGTON	\$ 44,021
WILTON	\$ 534,538
WINCHESTER	\$ 186,134
WINDHAM	\$ 757,611
WINDSOR	\$ 1,208,398
WINDSOR LOCKS	\$ 609,139
WOLCOTT	\$ 233,090
WOODBIDGE	\$ 215,951
WOODBURY	\$ 199,769
WOODSTOCK	\$ 73,585

\* Based on 2010 data. All figures are approximate and may vary due to rounding. This does not include incentives for ISO-NE Load Response program participants.

#### Summary of Energy Savings by Customer Sector (in millions of dollars)

Customer Sector	Annual Savings 2010			Lifetime Savings 2010		
	Electric	Natural Gas	Oil	Electric	Natural Gas	Oil
Limited-Income	3.08	0.76	2.24	27.00	11.19	32.20
Residential (Non Limited-Income)	43.52	1.29	3.02	261.53	25.56	59.84
Commercial & Industrial	24.55	0.81	0.00	315.52	10.69	0.00
<b>Totals</b>	<b>71.15</b>	<b>2.86</b>	<b>5.26</b>	<b>604.04</b>	<b>47.44</b>	<b>92.04</b>

## 2010-2011 Budget Summaries

Conservation and Load Management Fund Programs	2010 Actuals Electric	2011 Plan Electric	2010 Actuals Natural Gas	2011 Plan Natural Gas
<b>RESIDENTIAL</b>				
Residential Retail Products	\$ 11,194,953	\$ 7,701,913	\$ —	\$ —
Appliance Rebate	4,490,920	—	\$ —	\$ —
<b>Total - Consumer Products</b>	<b>\$ 15,685,873</b>	<b>\$ 7,701,913</b>	<b>\$ —</b>	<b>\$ —</b>
Residential New Construction	1,210,637	1,675,464	956,278	1,150,000
Home Energy Solutions (HES)	27,756,100	14,350,683	3,975,196	4,600,000
Home Energy Solutions - Income Eligible (HES-IE)	12,338,151	12,926,043	2,807,784	2,681,575
Water Heating	—	—	193,537	363,000
<b>Subtotal Residential</b>	<b>\$ 56,990,761</b>	<b>\$ 36,654,103</b>	<b>\$ 7,932,796</b>	<b>\$ 8,794,575</b>
<b>COMMERCIAL &amp; INDUSTRIAL</b>				
<b>C&amp;I LOST OPPORTUNITY</b>				
Energy Conscious Blueprint	\$ 13,303,304	\$ 11,934,133	\$ 2,352,356	\$ 3,670,000
<b>Total - Lost Opportunity</b>	<b>\$ 13,303,304</b>	<b>\$ 11,934,133</b>	<b>\$ 2,352,356</b>	<b>\$ 3,670,000</b>
<b>C&amp;I LARGE RETROFIT</b>				
Energy Opportunities	23,224,314	15,810,100	901,215	2,480,000
O&M (Service, RetroCx & BSC )	1,478,851	4,719,407	145,969	400,000
Prime	532,931	574,095	—	—
<b>Total - C&amp;I Large Retrofit</b>	<b>\$ 25,236,096</b>	<b>\$ 21,103,602</b>	<b>\$ 1,047,184</b>	<b>\$ 2,880,000</b>
Small Business	15,073,749	13,048,527	—	—
<b>Subtotal C&amp;I</b>	<b>\$ 53,613,149</b>	<b>\$ 46,086,262</b>	<b>\$ 3,399,540</b>	<b>\$ 6,550,000</b>
<b>OTHER - EDUCATION</b>				
Smart Living Center/Museums	\$ 621,725	\$ 859,246	\$ —	\$ —
EE Communities	1,132,547	1,026,822	—	—
EE Smarts/K-8 Education	677,610	626,825	—	—
<b>Subtotal Education</b>	<b>\$ 2,431,882</b>	<b>\$ 2,512,893</b>	<b>\$ —</b>	<b>\$ —</b>
<b>OTHER - PROGRAMS/REQUIREMENTS</b>				
Institute for Sustainable Energy (ECSU)	\$ 500,000	\$ 500,000	\$ —	\$ —
Other Funding Requests	372,325	—	—	—
Residential Loan Program (Including CHIF)	18,997,722	3,739,087	172,653	420,000
C&I Loan Program	204,898	525,000	—	150,000
C&LM Loan Defaults	186,197	185,000	—	—
<b>Subtotal Programs/Requirements</b>	<b>\$ 20,261,142</b>	<b>\$ 4,949,087</b>	<b>\$ 172,653</b>	<b>\$ 570,000</b>
<b>OTHER - LOAD MANAGEMENT</b>				
ISO Load Response Program	2,864,833	3,000,000	\$ —	\$ —
<b>Subtotal Load Management</b>	<b>\$ 2,864,833</b>	<b>\$ 3,000,000</b>	<b>\$ —</b>	<b>\$ —</b>
<b>OTHER - RD&amp;D</b>				
Research, Development & Demonstration	\$ 296,311	\$ 325,000	\$ —	\$ —
<b>Subtotal RD&amp;D</b>	<b>\$ 296,311</b>	<b>\$ 325,000</b>	<b>\$ —</b>	<b>\$ —</b>

Conservation and Load Management Fund Programs	2010 Actuals Electric	2011 Plan Electric	2010 Actuals Natural Gas	2011 Plan Natural Gas
<b>OTHER - ADMINISTRATIVE &amp; PLANNING</b>				
Administration	\$ 1,577,412	\$ 1,546,635	\$ —	\$ —
Planning and Evaluation	2,587,346	3,188,819	191,140	811,000
Information Technology	2,091,360	1,943,000	80,557	95,000
EEB	673,247	610,000	30,240	49,500
Performance Management Fee	6,972,510	5,015,290	—	—
General Awareness	74,992	100,000	—	—
<b>Admin/Planning Expenditures</b>	<b>\$ 13,976,867</b>	<b>\$ 12,403,744</b>	<b>\$ 301,937</b>	<b>\$ 955,500</b>
<b>PROGRAM SUB-TOTALS</b>				
<b>Residential</b>	<b>\$ 78,129,504</b>	<b>\$ 42,608,869</b>	<b>\$ 8,105,449</b>	<b>\$ 9,214,575</b>
<b>C&amp;I</b>	<b>\$ 57,234,930</b>	<b>\$ 50,193,476</b>	<b>\$ 3,399,540</b>	<b>\$ 6,700,000</b>
<b>Other</b>	<b>\$ 15,070,511</b>	<b>\$ 13,128,744</b>	<b>\$ 301,937</b>	<b>\$ 955,500</b>
<b>TOTAL C&amp;LM BUDGET</b>	<b>\$ 150,434,945</b>	<b>\$ 105,931,089</b>	<b>\$ 11,806,927</b>	<b>\$ 16,870,075</b>

**Docket 05-07-14 PH01 EIA programs**

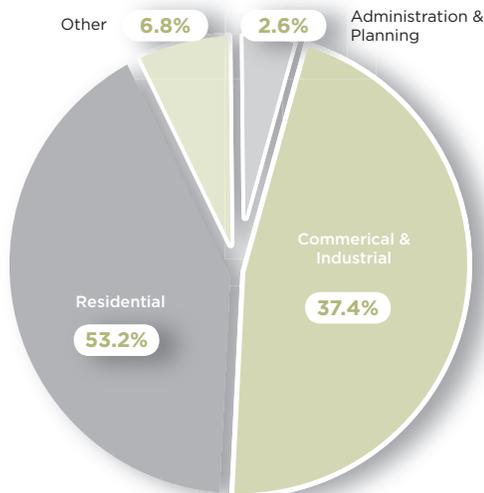
ISO Load Response Programs (Load Curtailment & Emer. Gen)	\$ (604,983)	\$ —	\$ —	\$ —
<b>Subtotal Docket 05-07-14PH01 EIA Programs</b>	<b>\$ (604,983)</b>	<b>\$ —</b>	<b>\$ —</b>	<b>\$ —</b>
<b>Total C&amp;LM and EIA Programs</b>	<b>\$ 149,829,962</b>	<b>\$ 105,931,089</b>	<b>\$ 11,806,927</b>	<b>\$ 16,870,075</b>

Budget summaries reflect actual 2010 expenditures.

Totals vary due to rounding.

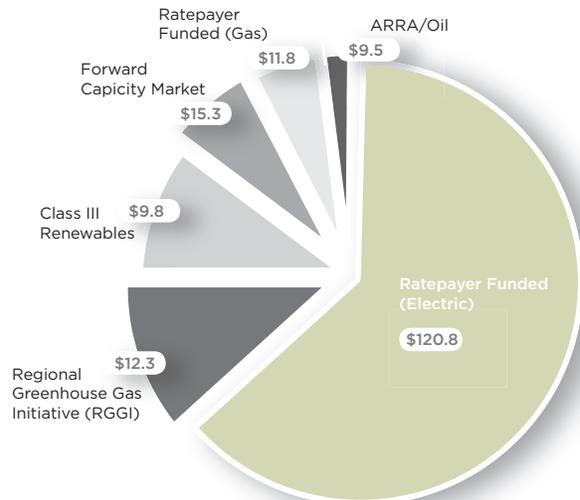
**2010 Actuals: Budget Allocations**

Energy Efficiency Fund programs are administered to maximize the cost-effectiveness and impacts of energy-efficiency and load management activities. Only 2.6 percent of the total Fund budget was allocated to administrative expenses in 2010.



**2010 Efficiency Program Funding**

Funding for energy efficiency programs comes from many sources. Funding reflects 2010 revenues received. (In Millions)



# Connecticut Municipal Electric Energy Cooperative

## Background

The Connecticut Municipal Electric Energy Cooperative (CMEEC), a joint action supply and transmission agency established by the state's municipal electric utilities, is owned by the Cities of Groton and Norwich, the Borough of Jewett City, and South and East Norwalk. In addition, CMEEC provides all power requirements to these participating utilities: Town of Wallingford Department of Public Utilities, Bozrah Light and Power Company, and the Mohegan Tribal Utility Authority.

Energy use and its cost continue to be of critical importance to all Connecticut residents and businesses. In 2010, CMEEC utilities continued their proactive work and active partnerships with their municipalities, commercial and industrial businesses, residents and limited-income customers. By supporting the energy supply, transmission and distribution needs of all customer sectors, CMEEC utilities serve as integrated energy managers helping to reduce and reshape energy use and helping the entire spectrum of customers to lower monthly bills.

In 2010, CMEEC's utilities realized annual savings of 18,730,000 million kilowatt-hours and peak demand savings of 6.3 megawatts. These savings were achieved through the delivery of a full array of efficiency programs.

## Smart Grid Project

CMEEC's Smart Grid project, initiated in 2009 with a significant American Recovery and Reinvestment Act (ARRA) grant, continued to be a major focus for the CMEEC utilities in 2010. The project involves deploying advanced two-way meters for the majority of commercial customers as well as many residential accounts. The utilities will utilize data from these meters to enable time-differentiated rates over discrete time intervals. Thus, customers will have the opportunity to reduce their electric bills by reducing electricity usage and shifting usage away from peak-demand times. As the project proceeds over the next year, energy efficiency program efforts will be integrated with Smart Grid capabilities. Taken together, these two programs offer exciting opportunities to serve customers better and help them use energy even more efficiently.

## Renewable Projects

In 2010 CMEEC completed a master program management agreement with the Connecticut Clean Energy Fund to coordinate solar photovoltaic installations on member systems. Several systems were installed with the largest being a 75 kilowatt system in Wallingford.



Photo credit: Jonathan Gorham

### Serving Residential Customers

The CMEEC systems delivered a full array of energy efficiency programs in 2010. Residential program efforts were centered on CMEEC's Home Energy Savings program. The Home Energy Savings program provides comprehensive whole-house retrofit services with a number of consumer incentives to residential and limited income customers. Program measures include blower door testing and air leak sealing, duct testing and sealing, installation of compact fluorescent light bulbs (CFLs), as well as water and hot water efficiency devices and pipe insulation. CMEEC's authorized contractors and local utility personnel assist customers with the procurement of attic insulation and provide quality control and program governance. Efforts are coordinated locally with incentive offers from the natural gas and oil supply companies. In 2010, CMEEC provided Home Energy Savings services to 4,382 homes or residential housing units.

A pilot loan program was also initiated in 2010 at one of the CMEEC systems. Residential customers may access low or no-interest loans for major energy saving measures. Plans are to expand the program to additional systems in 2011, as well as seeking additional capital sources.

In 2010 CMEEC systems continued the distribution of CFLs using a variety of avenues. The systems employed direct distribution through local service centers and other available community activities and organizations as well as direct mail offers. The Home Energy Savings program provides and installs CFLs at customer locations as a major component. CMEEC also continued the Negotiated Cooperative Purchase program, utilizing major chain stores and local retailers. CMEEC utilities distributed 131,630 CFLs in 2010, bringing the total distribution to 709,380 since the program's inception in 2006.

### Commercial & Industrial Advances

CMEEC's commercial and industrial initiatives include both prescriptive and custom elements and offer customers incentives for retrofit and new construction projects. Rebates for commercial and industrial customers included lighting, motor replacements, heating, ventilation and air conditioning (HVAC) units and special efforts to engage small businesses. CMEEC also works closely with its largest customers on load response efforts. In 2010 commercial and industrial programs resulted in energy savings of 5,020,000 million kilowatt-hours and peak demand reduction of one megawatt.



### Community Education

In 2010 CMEEC provided a grant to the Institute for Sustainable Energy (ISE) to provide extensive outreach in the CMEEC communities. The purpose of the grant was to encourage the participation of town and city agencies and officials in energy efficiency-related activities and educational programs provided by the ISE. The arrangement will provide comparable programs and parity with what is currently offered throughout the state. Specific programs include Energy Star Portfolio Manager Benchmarking, Keep Connecticut Cool: the Climate Challenge, building code updates and training, Green Schools, and K-12 school/municipal building operators training.

## Connecticut Municipal Electric Energy Cooperative ...continued from previous page.

## 2010 CMEEC Program Highlights

**Customers Served**

19,400

**CO<sub>2</sub> Emissions Reduced**

10,153 Tons (Annual)

**Energy Savings**kWh Annual  
19 MillionkWh Lifetime  
238 Million**Annual Savings**

\$2.4 Million

**Lifetime Savings**

\$31 Million

## CMEEC Assistance to Customers

(Rounded to \$ thousands)

This table details the incentives and rebates provided to CMEEC residential and commercial and industrial customers in 2010.

Bozrah Light and Power	\$ 73,000
Groton Utilities	\$ 1,213,000
Jewett City Department of Public Utilities	\$ 26,000
South Norwalk Electric and Water	\$ 167,000
Norwalk Third Taxing District	\$ 160,000
Norwich Public Utilities	\$ 1,280,000
Wallingford Electric Division	\$ 1,570,000

## 2010 CMEEC Budget Summary

Program	Program Budget 2010	Actual Utility Costs 2010	% of Budget Spent	Proj Annual Savings (kWh)	Annual Energy Savings (kWh)	% of Annual kWh Saved	Lifetime Savings (kWh)	2010 Proj. kW Impact	kW Impact	% of kW Impact Achieved
<b>Residential</b>										
Home Energy Savings Program	\$ 1,127,000	\$ 2,542,678	226%	1,540,000	9,878,727	641%	150,581,694	296	2,532	855%
<b>Efficient Products</b>										
Lighting	\$ 350,000	\$ 387,434	111%	3,102,000	3,783,458	122%	18,306,521	246	2,396	974%
Appliances	\$ 129,000	\$ 341,021	264%	188,000	48,368	26%	589,882	27	377	1396%
<b>Subtotal - Residential</b>	<b>\$ 1,606,000</b>	<b>\$ 3,271,133</b>	<b>204%</b>	<b>4,830,000</b>	<b>13,710,552</b>	<b>284%</b>	<b>169,478,097</b>	<b>569</b>	<b>5,304</b>	<b>932%</b>
<b>Commercial</b>										
Commercial New Construction	\$ 80,000	\$ 2,416	3%	85,000	0	0%	0	29	0	0%
Prescriptive Equipment Replacement	\$ 260,000	\$ 12,842	5%	660,000	6,190	1%	95,326	209	3	2%
Existing Facility Retrofit /Custom Equip. Repl.	\$ 1,659,000	\$ 1,202,312	72%	9,874,000	5,013,173	51%	69,285,366	1,522	962	63%
<b>Subtotal - Commercial</b>	<b>\$ 1,999,000</b>	<b>\$ 1,217,571</b>	<b>61%</b>	<b>10,619,000</b>	<b>5,019,364</b>	<b>47%</b>	<b>69,380,692</b>	<b>1,760</b>	<b>965</b>	<b>55%</b>
<b>Total - All Programs</b>	<b>\$ 3,605,000</b>	<b>\$ 4,488,704</b>	<b>125%</b>	<b>15,449,000</b>	<b>18,729,916</b>	<b>121%</b>	<b>238,858,789</b>	<b>2,329</b>	<b>6,269</b>	<b>269%</b>

- Notes:
1. Data for the Limited Income Customers is included under the Home Energy Savings Program.
  2. ARRA and RGGI funds are included under Actual Utility Costs.
  3. HES Savings include the kWh conversion of BTU reductions from weatherization measures.

# Energy Efficiency Board Members



**Richard Steeves**  
Board Chairperson  
Designee  
Office of Consumer  
Counsel  
Ten Franklin Square  
New Britain, CT 06051



**Jeffrey Gaudiosi**  
Board Vice-Chairperson  
Manufacturing  
Alliance of CT  
173 Industry Lane  
Waterbury, CT 06705



**Dale J. Williams**  
Director of Sales and  
Marketing  
Yankee Gas Services  
Corporation



**Ronald J. Araujo**  
The Connecticut Light and  
Power Company  
P.O. Box 270  
Hartford, CT 06141



**Neil W. Beup**  
Designee  
Carrier Corporation  
One Carrier Place  
Farmington, CT 06032



**Mary Healey**  
Consumer Counsel  
Ten Franklin Square  
New Britain, CT 06051



**George Jepsen**  
Attorney General



**Richard E. DesRoches**  
Connecticut Municipal  
Electric Energy  
Cooperative  
30 Stott Avenue  
Norwich, CT 06360



**Shirley Bergert**  
Connecticut Legal  
Services, Inc.  
P.O. Box 258  
Willimantic, CT 06226



**John Dobos**  
Connecticut Natural Gas/  
Southern Connecticut Gas  
P.O. Box 1500  
350 Church Street  
Hartford, CT 06144-1500



**Patrick McDonnell**  
The United Illuminating  
Company  
157 Church Street  
MS 1-6B  
New Haven, CT 06510



**Jamie Howland**  
Designee  
Environment Northeast  
21 Oak Street  
Suite 202  
Hartford, CT 06106



**Richard Rodrigue**  
Designee  
Department of  
Environmental Protection  
79 Elm Street  
Hartford, CT 06106-5127



**Kevin Hennessy**  
Connecticut Business &  
Industry Association  
350 Church Street  
Hartford, CT 06103



**Alex N. Sommers, Ph.D.**  
Professor of Industrial  
Engineering  
New Haven Chamber of  
Commerce

**NOT PICTURED**

Michael Wertheimer  
Designee  
Office of the Attorney  
General  
Ten Franklin Square  
New Britain, CT 06051

Greater New Haven  
Chamber of Commerce  
900 Chapel Street  
10th Floor  
New Haven, CT 06510

# Connecticut Energy Efficiency Fund

Activities in 2010 Produced Substantial Economic and Environmental Benefits for Residents, Businesses and Municipalities



## Customers Served

**Number of Households Served**  
848,058

**Number of Businesses Served**  
4,599



## Energy Savings

	kWh Annual	CCF Annual	Gallons Annual
	423 Million	2.6 Million	1.7 Million
	kWh Lifetime	CCF Lifetime	Gallons Lifetime
	3.7 Billion	41.1 Million	29.9 Million



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

**CO<sub>2</sub>** 2.4 Million Tons (Lifetime)

**SO<sub>x</sub>** 3,031 Tons (Lifetime)

**NO<sub>x</sub>** 1,044 Tons (Lifetime)



## Dollars Saved

	Annual	Lifetime
	\$79 Million	\$744 Million



**Connecticut  
Light & Power**  
A Northeast Utilities Company



[www.CTEnergyInfo.com](http://www.CTEnergyInfo.com)



*The United Illuminating Company*



A Northeast Utilities Company



Connecticut's Municipal Utilities

Connecticut's Energy Efficiency Programs are funded by a charge on customer energy bills. The Programs are designed to help customers manage their energy usage and cost.

## Energy Efficiency Board

c/o Connecticut Department of Public Utility Control  
10 Franklin Square New Britain, CT 06051  
[www.CTEnergyInfo.com](http://www.CTEnergyInfo.com)

## Connecticut Department of Public Utility Control

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