



*2006 Annual Report*

**efficiency  
MAINE**

**Saving energy for Maine**

Program of the Maine Public Utilities Commission

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# Introduction and Summary

The Maine Public Utilities Commission (MPUC) is pleased to present the 2006 Efficiency Maine Annual Report for the fiscal year July 1, 2005 – June 30, 2006.

Efficiency Maine was established in 2002 by the Maine Legislature with the passing of “An Act to Strengthen Energy Conservation.” Efficiency Maine is a statewide effort to promote the more efficient use of electricity, help Maine residents and businesses reduce energy costs, and improve Maine’s environment. Efficiency Maine is funded by electricity consumers and administered by the Maine Public Utilities Commission. As detailed in 35-A M.R.S.A. §3211-A, Efficiency Maine’s four primary objectives are to:

- 1 Increase consumer awareness of cost-effective options for conserving energy;
- 2 Create more favorable market conditions for the increased use of efficient products and services;
- 3 Promote sustainable economic development and reduced environmental damage; and
- 4 Reduce the price of electricity over time for all consumers by achieving reductions in demand for electricity during peak use periods.

This annual report presents the 2006 highlights for the overall implementation of Efficiency Maine’s programs.

## 2006 Accomplishments:

In 2006, the groundwork and partnerships established over the previous three years paid off with tremendous results:

- 74,759 MWh annual savings
- \$53.9 million lifetime economic benefits for installed equipment
- 2.7 to 1 program wide benefit-cost ratio
- \$0.029 cents per kilowatt hour (kWh) for efficiency savings
- 700,000 compact fluorescent lightbulbs (CFLs) rebated
- 445 business projects completed
- 320,849 metric tons of lifetime carbon dioxide (CO<sub>2</sub>) emission reductions

After four full years of operation, Efficiency Maine is now a key partner for residential and business customers, fostering cost-effective electricity savings, reducing greenhouse gas emissions, and helping Maine businesses stay economically competitive. In essence, Efficiency Maine is now the statewide “efficiency utility,” in which electricity generation, and the associated financial and environmental impacts of consumption, are averted by thousands of individual energy efficient actions.<sup>1</sup>

## Program Savings

In 2006, Efficiency Maine offered six distinct programs encompassing a blend of education and incentives to influence residential and commercial customers to adopt efficient technologies. The programs include: Business, Residential, Low Income, Building Operator Certification, High Performance Schools, and Education and Training. Our program portfolio is designed to meet Efficiency Maine’s dual goals of market transformation (educating the public and marketplace about efficient options and where to buy and stock them) and resource acquisition (reducing electricity consumption immediately). In terms of accomplishments, the Business and Residential programs achieved the greatest savings for Efficiency Maine, 47% and 43% of lifetime MWh savings, respectively. Low Income and Building Operator Certification (BOC) programs each account for 5% of 2006 savings. No savings are claimed for the Education and Training programs due to the difficulty of estimating savings. None of the High Performance Schools projects in the pipeline were completed in 2006; as such, no savings are claimed this year.

Overall in 2006, Efficiency Maine saved 74,759 MWh, worth an estimated \$53.9 million in lifetime economic benefits representing a 162% increase in savings from last year.<sup>2</sup> Cumulatively since 2004, Efficiency Maine has saved 1,231,241 MWh of lifetime savings, which is equivalent to the annual electrical consumption of 180,000 Maine homes.<sup>3</sup> This growth in savings can be attributed to a number of factors; the foremost, we believe, is the combination of high energy prices in 2006 and our aggressive winter advertising campaign in radio, print, and television for efficient compact fluorescent light bulbs (CFLs).

<sup>1</sup> The term “efficiency utility” was first coined by our namesake organization and regional partner, Efficiency Vermont, based in Burlington, Vermont.

<sup>2</sup> Lifetime economic benefits and the benefit-cost ratios are calculated by estimating the total lifetime electricity reductions of the efficient products multiplied by future avoided energy costs and adjusted for total program and participant costs all discounted to the present year.

1 <sup>3</sup> The average Maine residential customer consumes 6,817 kWh per year. Energy Information Administration, 2004. <http://www.eia.doe.gov/cneaf/electricity/esr/table12.xl>

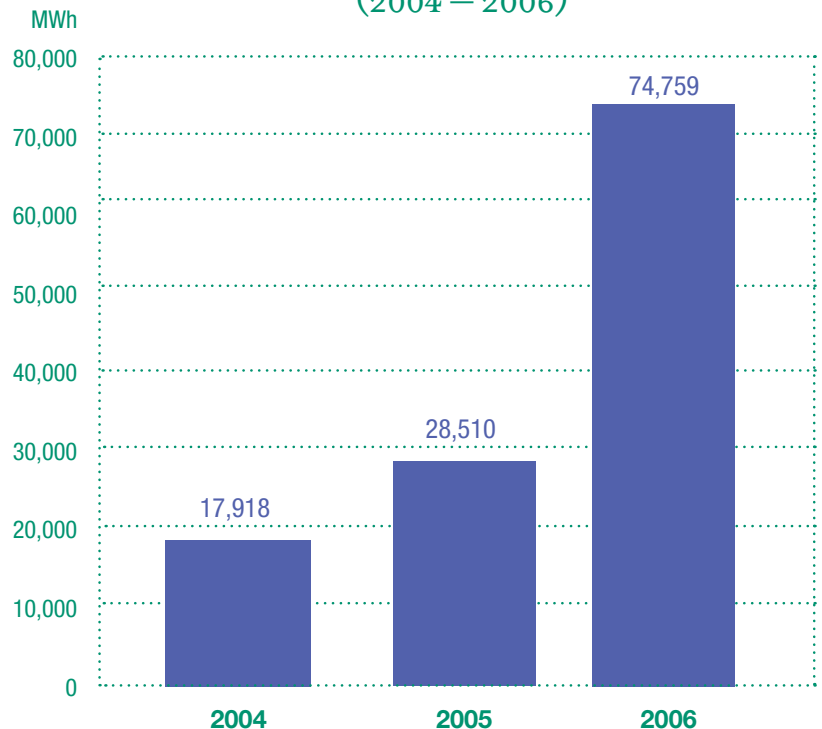
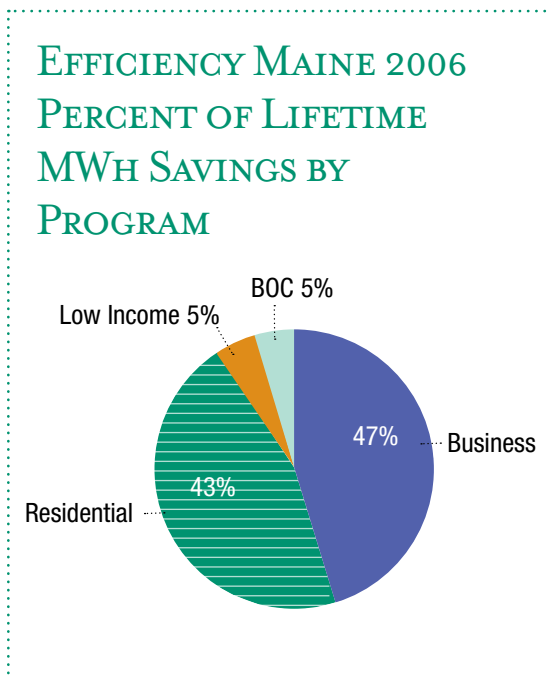
## IMPACTS OF 2006 EFFICIENCY MAINE PROGRAMS

Program	Annual MWH Savings	Lifetime MWH Savings	Efficiency Maine Costs	Participant Costs	Lifetime Economic Benefits	Cost/kWh	Benefit/Cost Ratio
Business	23,094	321,434	\$4,197,219	\$4,970,357	\$23,148,193	\$0.029	2.5
Residential Lighting	39,047	296,760	\$2,312,852	\$2,653,124	\$23,118,134	\$0.017	4.7
Low Income	5,934	37,141	\$1,953,685	\$0	\$2,733,299	\$0.053	1.4
Building Operator Certification	6,684	33,418	\$128,487	\$3,078,900	\$4,911,419	\$0.096	1.5
High Performance Schools*	n/a	n/a	\$115,724	n/a	n/a	n/a	n/a
Education and Training	n/a	n/a	\$166,381	n/a	n/a	n/a	n/a
Other Accounts**	n/a	n/a	\$347,753	n/a	n/a	n/a	n/a
<b>2006 TOTAL</b>	<b>74,759</b>	<b>688,753</b>	<b>\$9,222,101</b>	<b>\$10,702,381</b>	<b>\$53,911,045</b>	<b>\$0.029</b>	<b>2.7</b>
<b>Cumulative (2004-2006)</b>	<b>121,187</b>	<b>1,231,241</b>	<b>\$23,075,668</b>	<b>\$20,898,027</b>	<b>\$86,609,036</b>	<b>\$0.036</b>	<b>2.0</b>

\* No schools were officially completed in 2006; as such, savings are not claimed.

\*\* "Other Accounts" include state accounts and control charges, memberships and sponsorships.

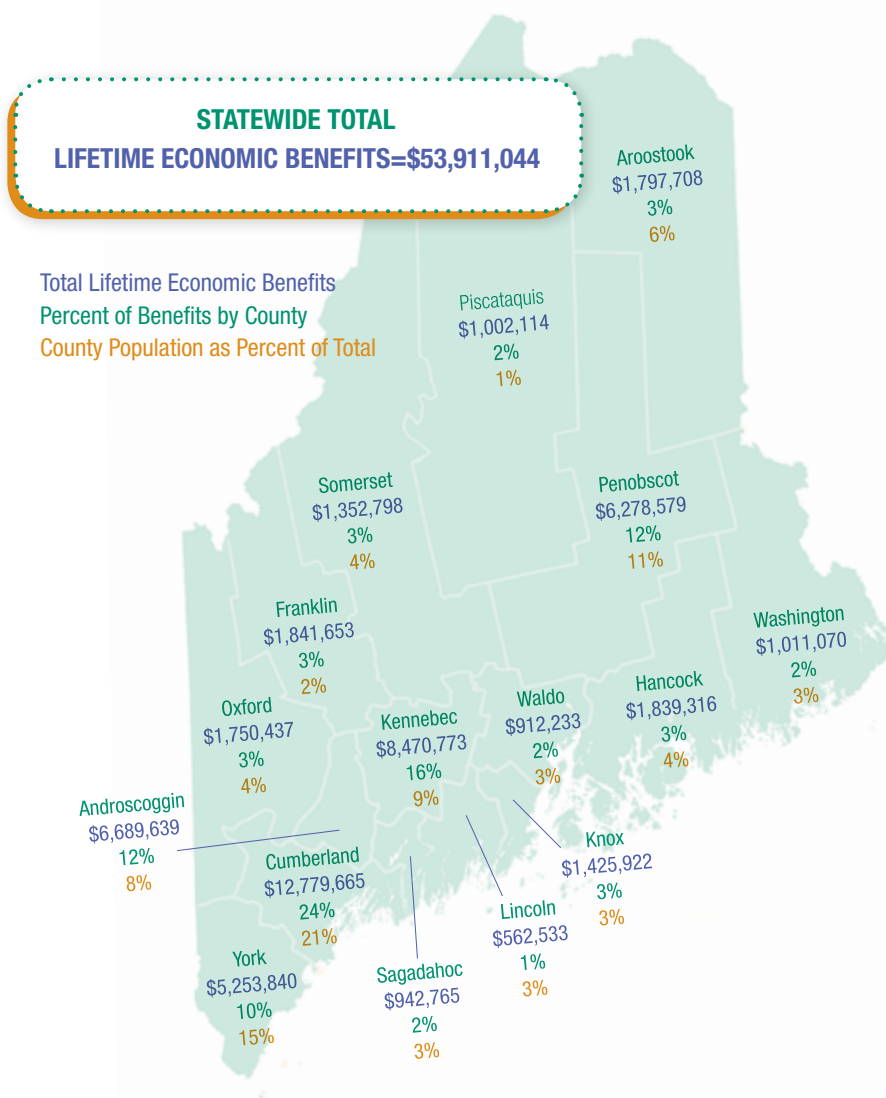
## EFFICIENCY MAINE ANNUAL MWH SAVINGS (2004 – 2006)



## Introduction and Summary continued

For 2006, total program wide benefits minus total program and participant costs resulted in an overall benefit-cost ratio of 2.7 to 1, which means every dollar invested in efficiency returned \$2.70 in societal net economic benefits. In terms of yield (kWh saved per dollar invested), in 2006 Efficiency Maine generated savings at a levelized cost of \$0.029 cents per kWh. This represents a 31% improvement in yield from our 2005 average cost of \$0.042 cents per kWh saved.<sup>4</sup> By comparison, a typical Maine residential standard offer electricity supply rate in 2006 was \$0.084 cents per kWh for residential and small commercial customers and \$0.101 for large customers.<sup>5</sup> Compared to the residential standard offer rate, investing in efficiency is 65% less expensive than purchasing new supply. These savings allow Maine residents and businesses to reallocate funds to meet other pressing needs.

### 2006 LIFETIME ECONOMIC BENEFITS BY COUNTY AS PERCENT OF TOTAL STATEWIDE POPULATION



Since the inception of Efficiency Maine, cumulative savings have grown to 121,187 MWh, worth an estimated \$86.6 million. During its tenure, the Efficiency Maine program has achieved a benefit-cost ratio of 2 to 1 and delivered electrical savings at an average levelized cost of \$0.036 cents per kWh.

## Geographic Equity

Efficiency Maine strives to balance market transformation goals for an energy efficient economy with resource acquisition of electricity savings today. We accomplish these different goals through a portfolio of programs developed to achieve different levels of savings objectives over time. One constant across all of our programs is a focus on geographic equity; in other words, we attempt to ensure that Efficiency Maine program opportunities and participation is proportionate by population statewide.

As a result of our strategic investment in advertising and program delivery outreach, we were highly successful overall in ensuring that program lifetime economic benefits by county were proportionately distributed by population. For example, 12% of total 2006 lifetime economic benefits from Efficiency Maine were generated in Penobscot County, which represents 11% of statewide population. It will always be difficult to ensure that our efficiency impacts are exactly proportional to population, however, as noted in the map we are mindful of this challenge.

## Improving Maine's Environment

Efficiency Maine's third primary objective as outlined in statute is to reduce environmental damage, which we achieve through reduced electricity consumption and associated CO<sub>2</sub> emissions. The cleanest, most cost-effective, and environmentally sound kWh is the one that is never used. The year 2006 may well be remembered as the year global warming crossed over in the main-

<sup>4</sup> Program reported costs and savings from 2004 to 2006 were re-analyzed for this year's report and improvements were made in the tracking of participant incremental or full costs. As such, differences in estimated savings and costs as reported in previous years may be present.

<sup>5</sup> Maine Public Utilities Commission, Residential /Small Commercial class and Large class electricity supply rates for the time period March, 2006 – February, 2007

stream media from theory to accepted fact. Headlines from Maine and around the world presented scientific evidence of current impacts and future projections of climate change. Prior to the Industrial Revolution, atmospheric concentrations of CO<sub>2</sub> were at 280 parts per million (ppm). Today, CO<sub>2</sub> concentrations are at 380 ppm. Over the past 400,000 years, temperature change has trended with changes in CO<sub>2</sub> levels. Sadly, the scientific consensus is that climate change is underway.

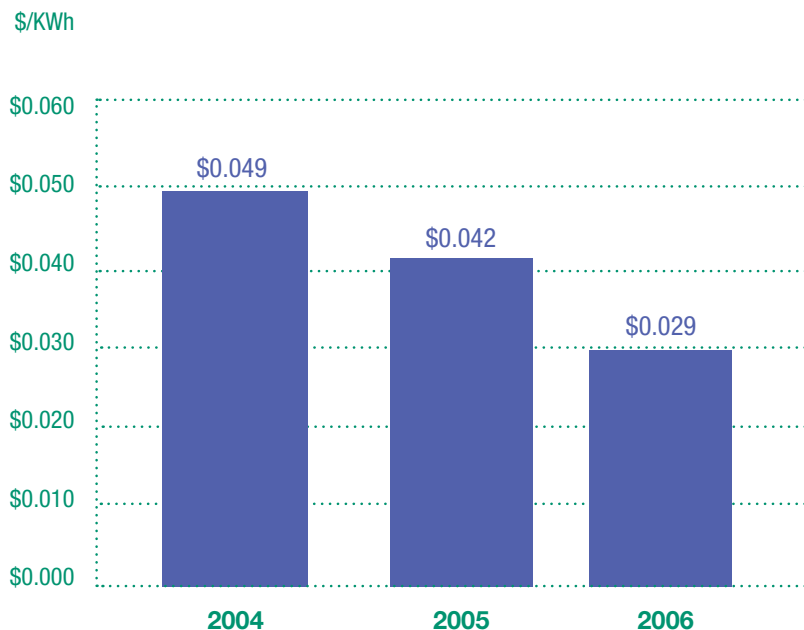
Fortunately, Maine can be proud of its investment in Efficiency Maine which is already generating cost-effective electric savings while at the same time avoiding the release of thousands of tons of carbon dioxide and other pollutants. Efficiency Maine, and all of our partners, are collectively making a big difference. In 2006, the lifetime impacts of Efficiency Maine's electrical savings of 74,759 MWh averted the release of 320,849 metric tons of CO<sub>2</sub>.<sup>6</sup>

Maine can be proud of these results, and cognizant that there is additional potential in the marketplace for further electric savings and emission reductions. Cumulatively, from 2004 to 2006, Efficiency Maine saved 573,561 metric tons of CO<sub>2</sub>, 357 tons of sulfur dioxide (SO<sub>2</sub>), and 134 tons of nitrogen oxide (NOx).<sup>7</sup> This savings is the emission equivalent of 65 million gallons of gasoline, or 2,915 rail car loads of coal.

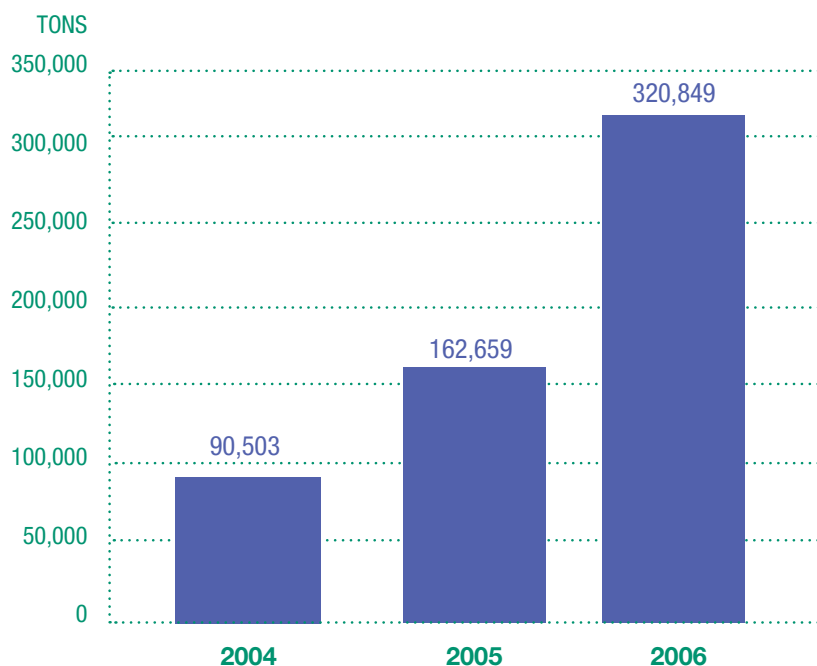
## Conclusion

Building partnerships, generating savings today, and preparing the marketplace for the efficient choices of tomorrow are the cornerstones of our approach. We are grateful for the support of the Maine Legislature and all of our partners, program participants, and Program Allies who together, are helping Maine accomplish great things. The remainder of this report presents a more detailed review of the individual programs, key accomplishments, and our projections for 2007 and beyond.

## EFFICIENCY MAINE PROGRAM WIDE COST/KWH FOR ENERGY SAVINGS



## METRIC TONS OF CARBON DIOXIDE SAVINGS



<sup>6</sup> Emission estimates per MWh are based on Maine specific marginal emission rates reported in the "2004 New England Marginal Emission Rate Analysis." ISO New England, Inc. May, 2006. Page 16.

<sup>7</sup> Carbon dioxide (CO<sub>2</sub>) is the major contributor to global warming, SO<sub>2</sub> concentrations exacerbate or may cause asthma and respiratory illness, and NOx is a major contributor to acid rain and ground level ozone (smog).



# Efficiency Maine Business Program

In its third year of operation, the Efficiency Maine Business Program helped Maine businesses become more economically competitive and improved the working environment for Maine workers. In 2006, the program achieved savings of more than 23,000 MWh, an increase of 92% from 2005. At the same time, overall program costs, including the costs paid for energy efficiency investments above and beyond the incentive, increased only 18% from last year. Not only do energy efficiency projects make sense in strict dollar terms, our past participants are reporting that the non-energy benefits of energy efficient equipment, such as better lighting, ventilation, and reduced noise, are increasing worker productivity and comfort.

## 2006 Accomplishments:

- 23,094 MWh annual savings
- \$23 million in lifetime economic value
- Benefit-cost ratio of 2.5 to 1

Businesses are learning that efficiency pays in many ways. When past participants consider another purchase, they call Efficiency Maine to understand their options and make sure their project qualifies. Nearly 15% of this year's participants completed a project with Efficiency Maine last year. While repeat participants illustrate how well the program works with businesses, we have also been extremely successful at recruiting new businesses. In 2006, approximately 85% of our projects were with first-time participants. This trend indicates that the market potential for making new inroads into the business community and with first-time participants remains large.

*"Efficiency Maine is a fantastic program. It is like having a partner to help us look at the big picture. With advice from Efficiency Maine, we can be confident that the decisions we are making will save money on our operating costs, and the incentives allow us to invest in the latest technologies for the benefit of our customers and co-workers."*

*— Shawn Moody, Moody's Collision Centers*

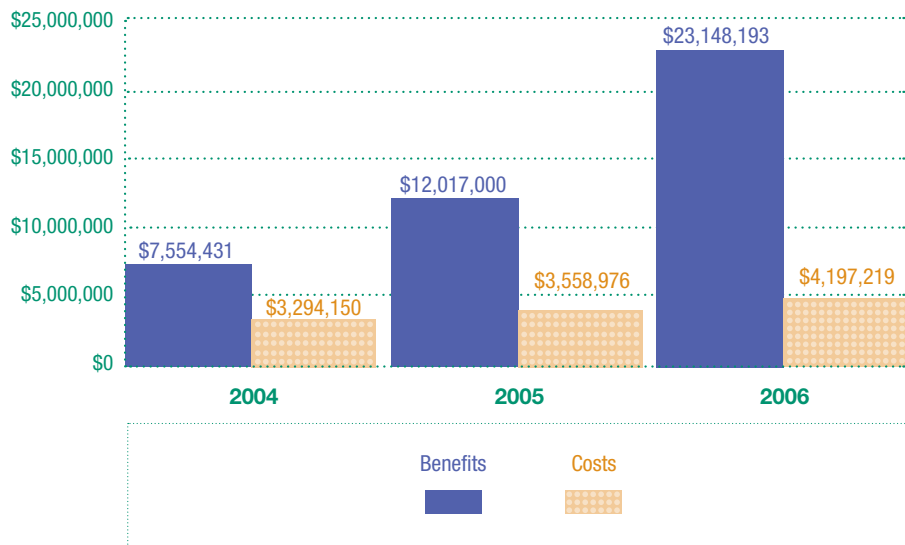
Compared to 2005 the number of projects we completed increased substantially:

- Farm projects increased 200%.
- Lodging facilities increased 70%.
- Schools and colleges increased 65%.
- Manufacturing facilities increased 62%.

In 2006, total economic benefits attributed to the Business Program exceeded \$23 million, while costs increased only slightly to \$4.1 million. This represents a 200% increase in benefits from 2004 to 2006.

## BUSINESS PROGRAM BENEFITS VS. COSTS

(2004-2006)

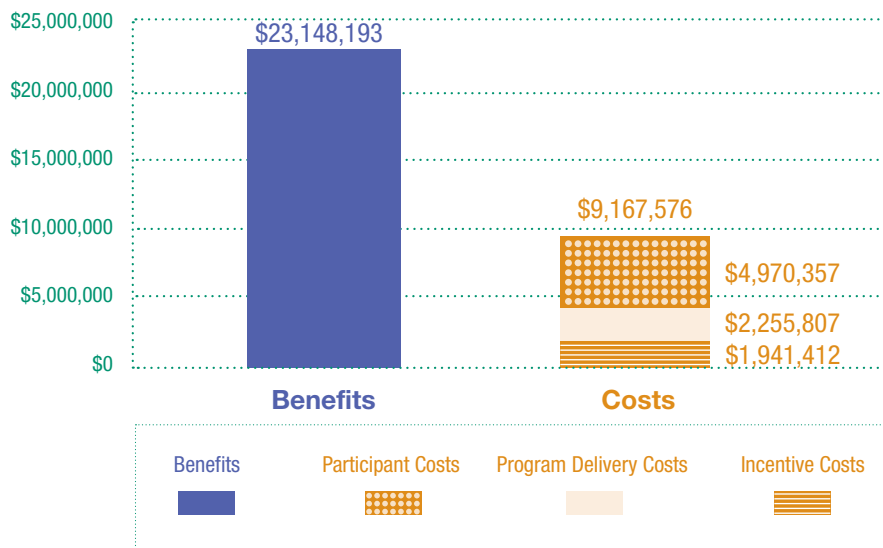


A closer look at 2006 costs reveals that 54% of program costs, \$4.9 million, were paid directly by the customers participating in the program. Program implementation, design, and delivery accounted for 25% of program costs, \$2.3 million. Direct incentive payments to customers represented 21% of program costs, \$1.9 million. Overall, the benefit-cost ratio of the program is 2.5 to 1, representing a return of \$2.50 for every \$1.00 of program costs.

By statute, Efficiency Maine must dedicate a minimum of 20% of overall program funds to small businesses, defined as those with 50 or fewer employees. Reaching out to the small business market is a more challenging and administratively expensive endeavor than serving the large business sector where one efficiency

opportunity can generate large savings or a greater “yield” per efficiency dollar invested. Making inroads with the small business community often requires more targeted marketing, advertising, and field visits. Nevertheless, we feel serving this sector of the economy is vital as small businesses are typically the most cash constrained and least likely to adopt efficient technologies without the support of an incentive program. Of the \$1.9 million paid out in 2006 to Business Program participants, 26% went to the small business market. Overall, across all Efficiency Maine programs, we estimate the expense associated with incentive payments, program delivery, marketing, and administrative costs represents 20% of total costs.

## 2006 BUSINESS PROGRAM BENEFITS VS. COSTS



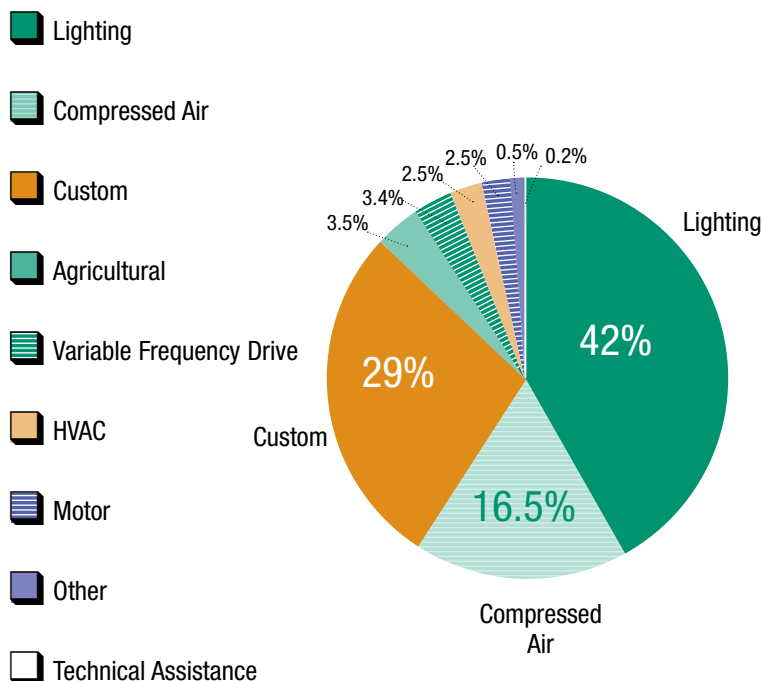
*“It was valuable to have Efficiency Maine as a resource so we had the facts and figures and specifications outlined for us, and we were able to make informed decisions that supported the way we want to conduct business at Evergreen Subaru.”*

*— Doug Weisz, Evergreen Subaru*

## Technology Promotion

As seen in the pie chart, lighting continues to represent the greatest efficiency opportunity in the business market, representing 42% of overall program savings in 2006. Custom projects at 29% include a blend of various technology types, of which most include lighting. Compressed air, at 16% of overall savings, is the third largest savings opportunity for business participants. The average estimated life for equipment rebated by the program is 14 years, which represents more than a decade of energy efficiency savings that would likely have been lost were it not for Efficiency Maine.

## 2006 BUSINESS PROGRAM MWh SAVINGS BY TECHNOLOGY TYPE





## Program Allies

The Efficiency Maine Business Program relies extensively on the support and reference of Maine's contractor and wholesale supply community to promote energy efficiency opportunities. These contractors and businesses, from wholesale distributors to individual electrical contractors, are referred to as "Program Allies" and are the cornerstones of the Business Program. Without the participation of these Program Allies, the Business Program would be unable to achieve the results it has to date. In 2006, the program expanded its relationships with participants, Program Allies, associations and the media. More than 400 vendors, suppliers, contractors and other efficiency professionals have signed on with Efficiency Maine as Program Allies since the start of the program. An increasing number of Program Allies are building Efficiency Maine incentives into their proposals to customers and making reference to the program on their Web sites and in their advertising. In fact, in response to the work of Efficiency Maine, one Program Ally started a company that sells high efficiency industrial process fans because he saw a market opportunity not met by other suppliers. Another example, Sysco, a major wholesale supplier to the restaurant and food sector industry, proactively approached Efficiency Maine to identify ways to help cross-market the program directly with Sysco customers. All of this is evidence of the important role Efficiency Maine plays in creating jobs and improving the economic conditions in Maine through the promotion of cost-effective energy efficiency projects.

Increasingly, Program Allies are:

- Inviting Efficiency Maine staff to meet with their customers;
- Asking Efficiency Maine to provide training for their employees; and
- Including us in counter days and other opportunities to meet their customers.

In 2006, Efficiency Maine participated in:

- 38 trade shows • 31 training sessions • 42 speaking engagements



## Associations

In 2006 the Efficiency Maine Business Program made a particular effort to work closely with trade, industry and business associations. Associations welcome the opportunity to inform their members about ways to both save money and improve worker productivity. Efficiency Maine's inclusion in association newsletters and mailings is often received as a tacit endorsement from the association, an organization trusted by its members. Businesses and schools are influenced by what their peers and competition are doing, which makes these types of articles particularly valuable in influencing decision makers.

In 2006, Efficiency Maine:

- Placed 17 articles in association newsletters;
- Made 4 targeted mailings to association mailing lists; and
- Coordinated 5 presentations through associations.

*Efficiency Maine Field Staff Tim Clark (left) with Greg and John Ingraham of Gold Top Farm in Knox, Maine.*

## Media

In addition to our targeted marketing through associations and Program Allies, the Business Program includes a strong public relations component through story placements in statewide media. News releases profile various businesses that work in partnership with Efficiency Maine to lower electricity usage and costs. Media outlets are targeted based on ten different geographical zones to assure broad coverage across the state. The news releases bring positive recognition to participating businesses for their efforts, and make other businesses aware of Efficiency Maine through real-life success stories. A variety of scenarios are portrayed so that business audiences of all types can see the potential benefits. Contact information is always included in the news releases — and usually published — to make it easy for interested businesses to learn more. This focused effort ensures that the Efficiency Maine program opportunities are well known throughout the state.



In 2006, our media efforts resulted in:

- Approximately 34 stories appeared in print and broadcast media throughout the state.
- Placements in special newspaper inserts published by the Maine Department of Agriculture and the Small Business Administration.
- A Smith's Farm article was featured in the Bangor media and in the Potato News industry journal in July 2005.
- In September 2005, the Maine State Ballet project was featured in Falmouth area weeklies.
- A story about Jackson Lab in Bar Harbor was publicized in September 2005, and in November of that year a series of energy saving tips for businesses appeared in various weeklies throughout the state.
- In June 2006, Graves Shop N' Save was featured in Aroostook County's Star Herald.

## Case Study Examples

### Bangor Savings Bank, Bangor



*The downtown branch of Bangor Savings Bank was a prime candidate for Efficiency Maine upgrades. The building's inefficient 26-year-old ventilation system had essentially failed, leaving the bank with little ability to control the heating or cooling.*

*Bill Pelkey, Assistant Vice President and Facilities Manager for the bank, learned about Efficiency Maine through Program Ally Mechanical Services, Inc. of Portland, a full service HVAC contracting firm.*

*In the first month following installation of energy efficient HVAC equipment the bank saved \$1,200 on its electric bill. Pelkey noted that the Efficiency Maine process was easy and fast. "It was a very quick process; even the paperwork was simple. Now the temperatures in the building are more comfortable, and the employees are much more content."*

#### Estimated Energy Benefits

Project Cost:	\$70,619
Efficiency Maine Incentive	\$21,703
Estimated Annual Savings	\$20,658
Estimated Lifetime Savings	\$206,580

*"We plan to work with Efficiency Maine on future projects not only to lower our electricity costs, but to create better working conditions and help conserve this beautiful state we live in."*

*—Lenny Bourgoins,  
Senior Electrical Supervisor, L.L. Bean*

*"Our variable frequency drive project has been a huge energy saver for us and has prompted us to continue to look for more ways to save electricity in the future by taking advantage of the new technology in motors, drives and lighting."*

*— Bob Stanley, Jasper Wyman & Sons*

### B&M Baked Beans, Portland

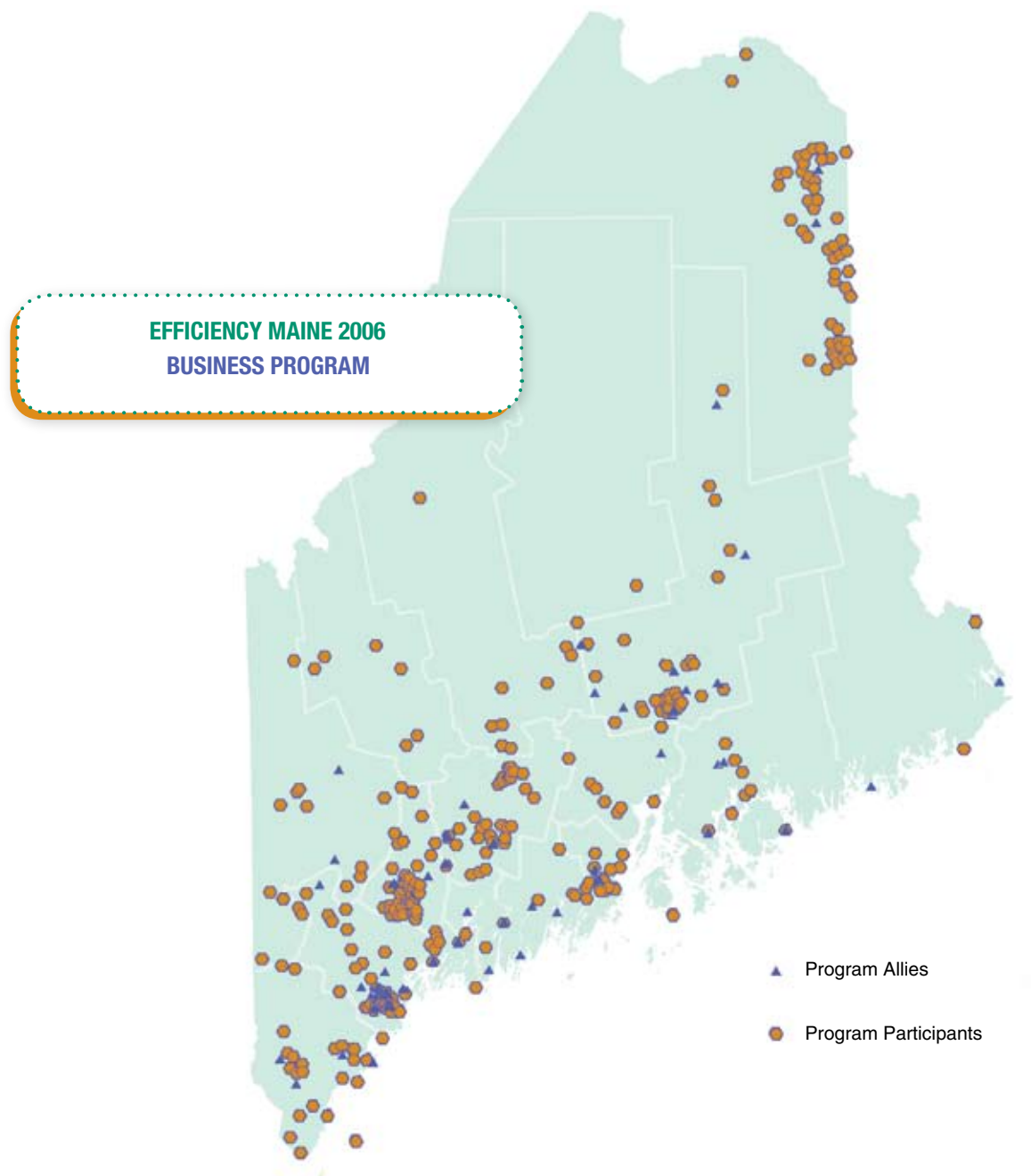


*The Burnham and Morrill (B&M) plant has been a Portland landmark since it was built in 1913. With the help of Efficiency Maine Program Ally First Energy Group, B&M's 145 employees are now working under energy efficient lights. B&M plant Project Engineer Glenn Jameson observed, "The difference in lighting in the warehouse, the production area, the labeling area and the office is tremendous — a big improvement. We have more light, better color rendition and reduced glare." Plant Manager Don Gower observed, "More light, less money — that works for us!"*

#### Estimated Energy Benefits

Project Cost:	\$80,865
Efficiency Maine Incentive	\$14,516
Estimated Annual Savings	\$9,039
Estimated Lifetime Savings	\$135,590





## Looking Ahead

Like any good business, the Efficiency Maine Business Program is constantly reviewing operating procedures and looking for ways to improve program design and delivery. In 2007, the program will implement structural changes to improve the customer experience and, we believe, increase the yield of MWh savings per rebate dollar invested. In 2007, we will merge the small and large business program offerings into a single set of services and incentives available to large and small businesses, non-profits, and municipal sectors. A single list of qualified equipment and guidelines will be offered. The change is driven by our market observations, comments from various Commission level proceedings, and feedback from equipment suppliers and customers who want to see an application process that is uniform and easy to navigate. By merging our program offerings into a single set, we feel this change will further assist our Program Allies as they work in the marketplace and promote Efficiency Maine incentive opportunities to their clients, from major corporations to small grocers. In addition, we plan to introduce incentives for new technologies and eliminate incentives for equipment that is now well-established in the market and has become the new baseline technology.

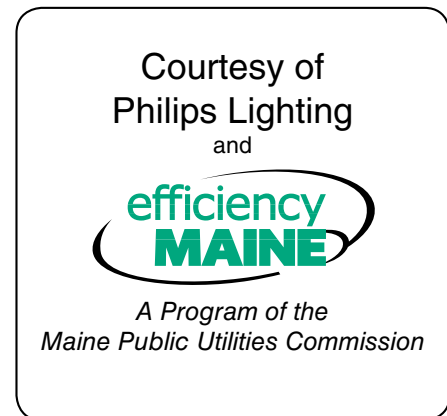
Finally in November of 2006, we received the results of an independent third party evaluation of the Efficiency Maine Business Program. The evaluation addressed program design, delivery, and accuracy of claimed savings. We will use the results of the evaluation to help inform further program design changes that we need to address during 2007 and beyond.

# ENERGY STAR® Residential Lighting Program

The Efficiency Maine ENERGY STAR® Residential Lighting Program issued rebates for more than 700,000 efficient lighting products in 2006, a 500% increase from last year. While this growth is impressive, the market potential for further sales of efficient lighting products remains large.

## 2006 Accomplishments:

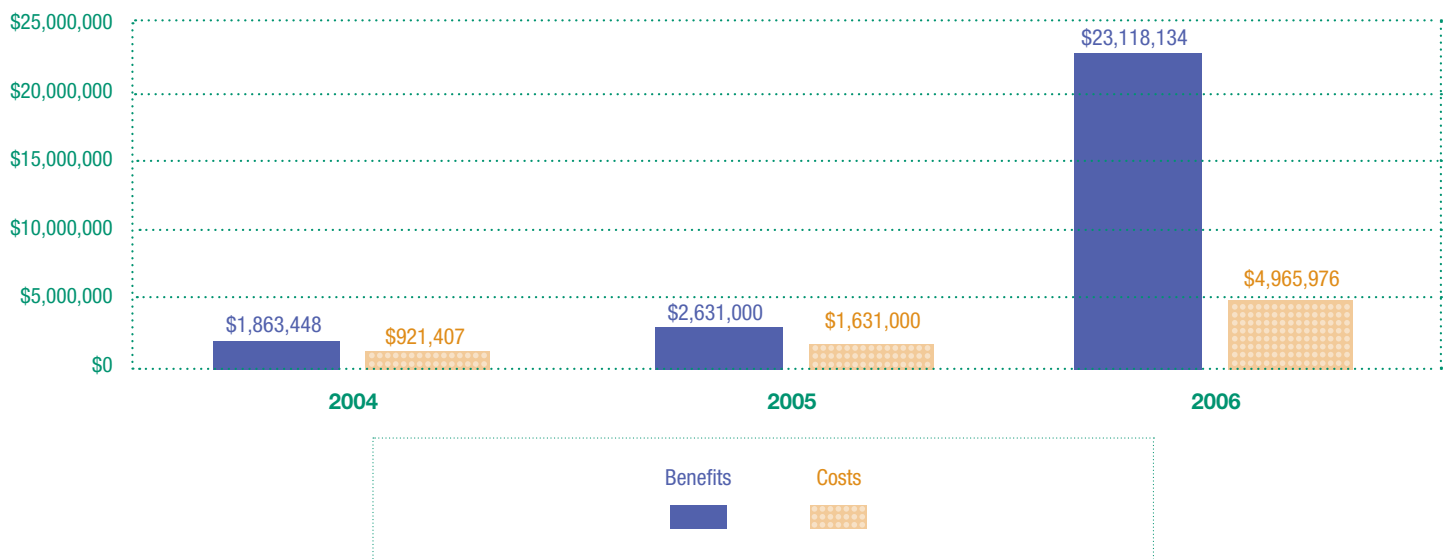
- More than 700,000 efficient lighting products rebated, an increase of over 500% since 2005
- 39,047 MWh annual savings
- \$23 million in lifetime economic value
- Benefit-cost ratio of 4.7 to 1
- Creative marketing campaign leveraged an additional \$400,000 from a major electricity provider for program advertising
- 72% increase in retail partners over 2005



Since its inception in 2003, the Residential Lighting Program has educated consumers about the economic and environmental benefits of using efficient lighting products. During 2006, the program offered instant cash rebates of \$2.00 per compact fluorescent light bulb (CFL) package and \$12 per qualified light fixture at participating stores. CFL bulbs last up to seven years and represent approximately \$50 in lifetime savings compared to traditional incandescent bulbs. The program supports retail partners by providing a number of marketing materials including coupons, stickers, banners, and posters, and staff training on the use and benefits of efficient lighting.

*Label applied to CFLs sold in Hannaford Bros. stores*

## RESIDENTIAL LIGHTING BENEFITS VS. COSTS (2004-2006)



*"We have a good partnership with Efficiency Maine. The field representatives are very knowledgeable, responsive and open to new ideas. We hear from the reps on a regular basis, and they've been a great help to my store managers and staff. The training provided by Efficiency Maine has been excellent as well, and that's really helped us to be successful with the program in our stores."*

*- Jeff Aubuchon, Owner Aubuchon Hardware*

**AUBUCHON**  
HARDWARE

Program MWh savings have increased more than 800%, from approximately 4,000 MWh in 2004 to 39,000 MWh in 2006. This change represents an increase in life-time economic benefits from approximately \$1.8 million in 2004 to \$23 million in 2006. Comparably, program costs, which include the estimated incremental cost for the efficient product paid directly by the consumer above and beyond the rebate, have increased at a much lower rate, from approximately \$1 million in 2004 to \$5 million in 2006.

The significant increase in the benefits of the Lighting Program are attributed to several factors. First, manufacturers are selling more CFLs in multi-packs. As such, while in the past the Efficiency Maine incentive per CFL package may have been applied to a single bulb package, today, in many places multi-packs of 2 to 10 bulbs per package are common. Therefore, the Efficiency Maine rebate dollars are stretched further as we offer our incentives on a per package rather than a per bulb basis. Second, Efficiency Maine made great inroads into the supermarket channel and was able to promote CFLs without requiring the customer to fill out a rebate form. This retailer "markdown" incentive strategy lowers program administrative and per unit rebate costs and greatly increases sales due to the high volume marketplace. Finally, it appears that higher energy prices and more frequent media reports about global warming have created a constituency interested in saving money and reducing greenhouse gas emissions. As such, we believe Maine residents were more receptive to Efficiency Maine's promotions and large advertising campaign.



*Shaw's Supermarket, 2006 CFL Promotion*

In 2006, we experienced a 72% increase in our retail partners from 162 to 296. Today, Efficiency Maine is working with the full range of retailers from local hardware stores to large national chain retailers, and we believe a majority of these retailers would not stock the quantity and selection of efficient lighting products were it not for the support of Efficiency Maine.

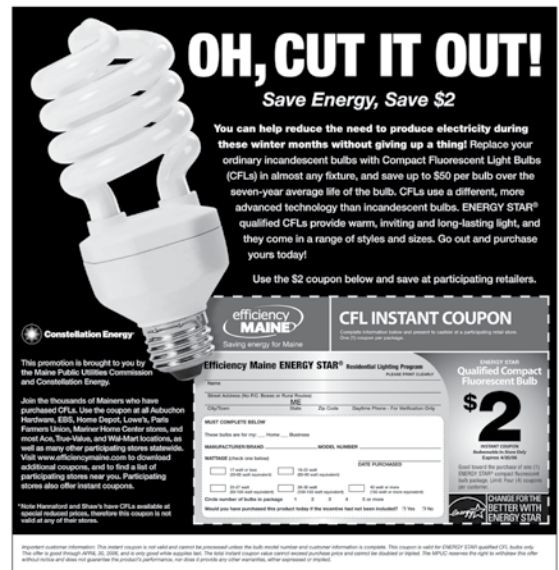
As mentioned earlier, this year we added supermarket retailers, Hannaford Bros. and Shaw's, to our list of partners allowing Efficiency Maine to introduce efficient lighting to a different market and attract many first-time buyers. These two supermarket chains were responsible for the sale of nearly 185,000 CFL bulbs by using "markdown" incentives, which offer CFLs at a special price without using rebate coupons. This approach creates a lower per-unit rebate cost than paper coupons and contributes significantly to the higher benefit to cost ratios for this year.



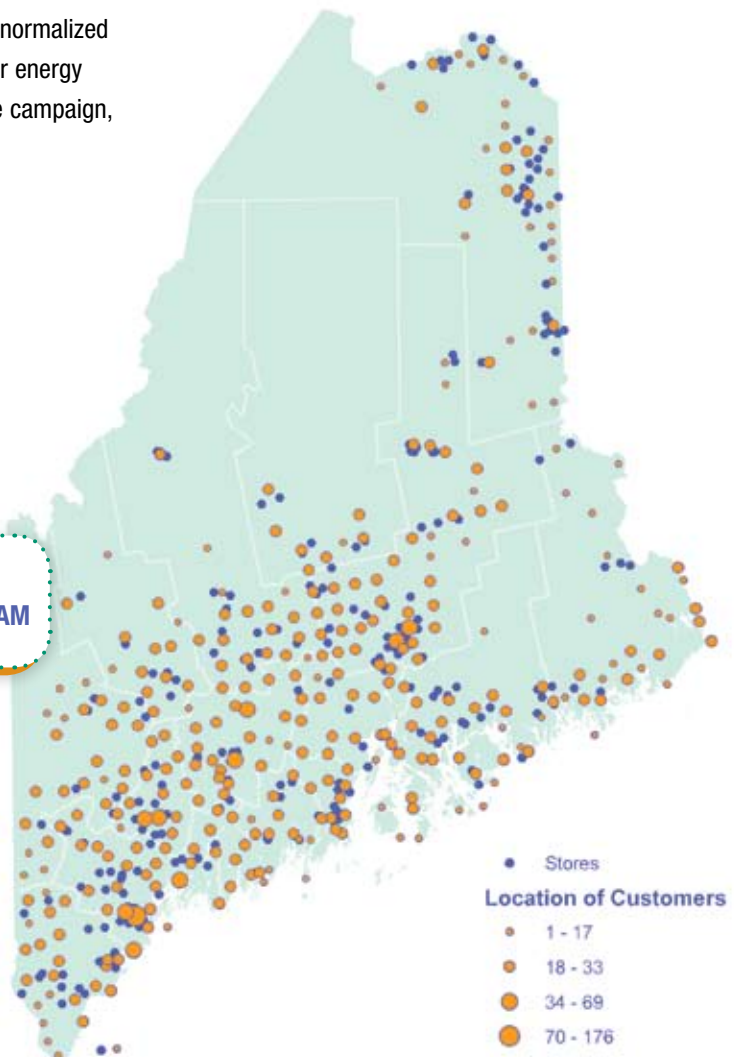
## Save a Watt 10% Challenge Campaign

Capitalizing on the threat of looming winter electricity shortages and record high energy prices, the program teamed with the Governor's Office of Energy Independence and Security and Constellation Energy Commodities Group (Constellation) to secure additional free advertising funds. At the time, Constellation was the electricity supplier for most of Maine's residential and small business consumers. High electricity prices and concerns about supply shortages following Hurricanes Katrina and Rita made reducing electricity a common interest for all parties. The publicity campaign launched in November was called "The Save A Watt 10% Challenge" and was the first of its kind in the nation in which a for-profit competitive electricity provider voluntarily donated funds to an efficiency program to reduce electricity use during the critical winter months.

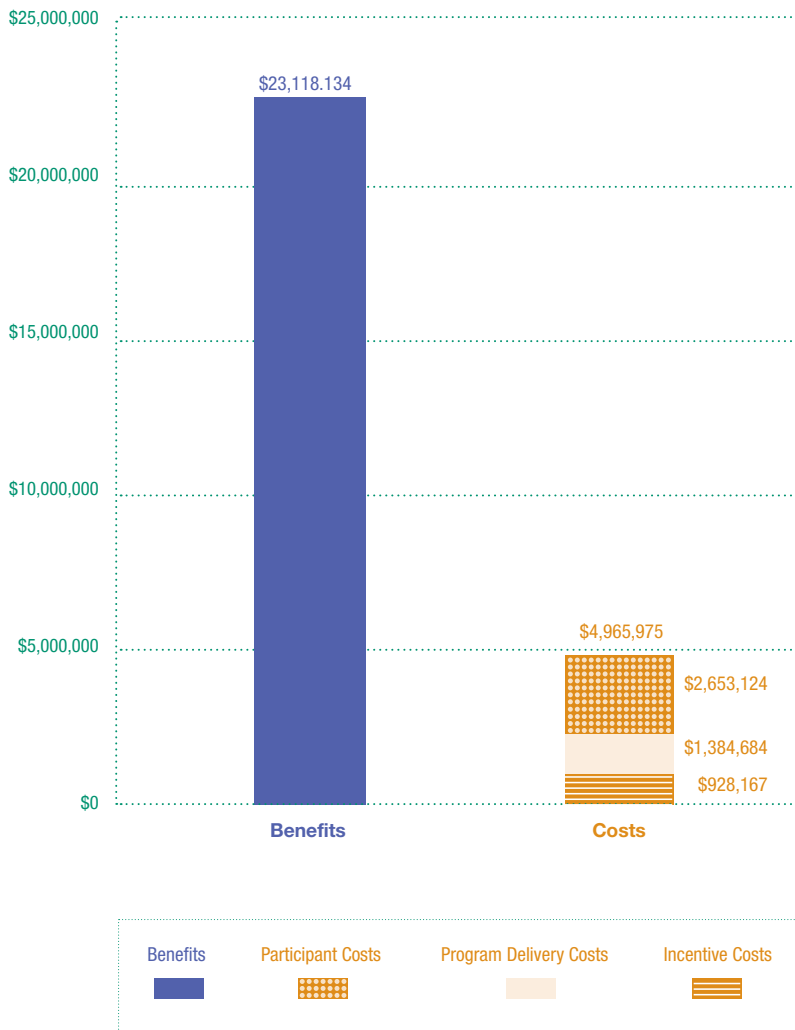
Constellation contributed more than \$400,000 of which \$50,000 was used for prize money to consumers who saved 10% or more on their 2006 January, February, or March electricity bills compared to 2005. The prizes along with ways to save energy through the use of CFL bulbs were promoted by Efficiency Maine on TV, radio and in print. For the first time, Maine consumers were bombarded with a multimedia campaign to make them more conscious of their energy use. As a result, normalized for weather differences, over 150,000 customers per month trimmed their energy use by more than 10% compared to the same period last year. During the campaign, Mainers bought more than 300,000 energy efficient lightbulbs.



### EFFICIENCY MAINE 2006 ENERGY STAR RESIDENTIAL LIGHTING PROGRAM



## 2006 RESIDENTIAL LIGHTING PROGRAM BENEFITS VS. COSTS



*This support to the program is evidenced by the words of our retail partners:*

*"...Soon we were adding a wider variety of bulbs for consumers to use in recessed lighting, flood-light fixtures and 3-way varieties. We added selections in larger quantities because the consumers were requesting it.... We are proud to be participating in a program that benefits us all."*

*— Andrea Drillen, Drillen True Value*

**True Value**



*Steve Granholm, Efficiency Maine field representative, helping a customer. Home Depot, Auburn, Maine.*

## Looking Ahead

While 700,000 CFLs sounds impressive, there is definitely room to grow. We estimate that there are over 15 million light sockets in Maine homes, so for 2007 we will continue to promote CFLs with some changes. Effective January 1st, 2007, we will reduce rebates from \$2.00 to \$1.50 per package. Rebates for fixtures will remain the same, at \$12 per fixture, as sales of this product are still modest. A special limited offer promotion of super-efficient light emitting diode (LED) Holiday Lights will be ongoing from October – December 2006 and will be capped off with donations of LED Holiday Lights for ten towns throughout the state as a way to generate publicity and awareness of efficient products in general and Efficiency Maine. A formal evaluation of the program is currently underway, from which we expect results that will help us further refine the program design. As part of the ongoing Docket 2006-446, we are investigating other potential program opportunities to help advance energy efficiency in the residential market.

# Low Income Appliance Replacement Program

Efficiency Maine's Low Income Appliance Replacement Program was implemented in collaboration with the Maine State Housing Authority (MSHA) and the state's Community Action Programs (CAPS) to reduce low income electric bills through energy efficiency.

## 2006 Accomplishments:

- 5,934 MWh annual savings
- \$2.7 million in lifetime economic value
- Benefit-cost ratio of 1.4 to 1

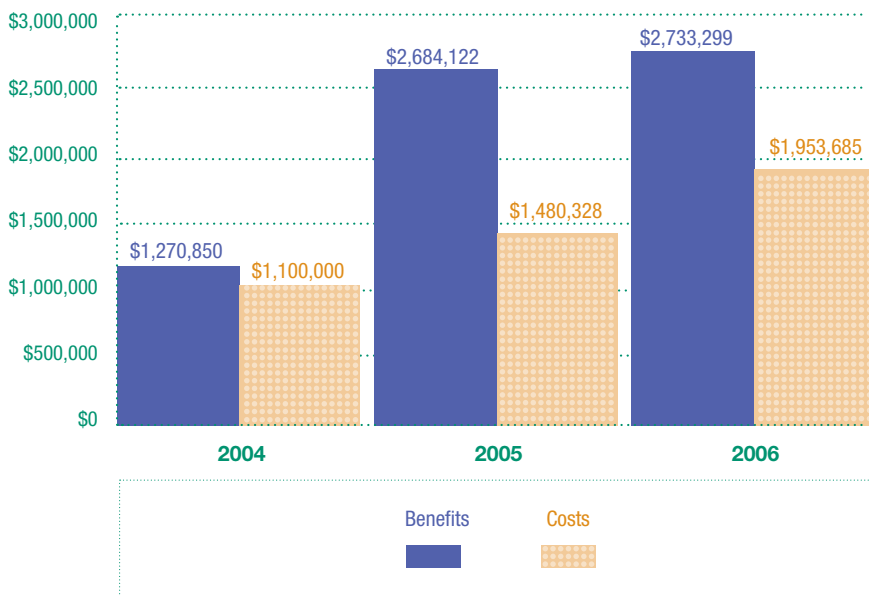
The program goals are to reduce the financial burden of electric utility bills through the installation of energy efficient refrigerators and compact fluorescent light bulbs (CFLs) for qualified households. Low income customers pay a disproportionately larger share of their income on utilities when compared to other customers. As such, energy efficiency represents an important and achievable household economic opportunity for low-income families. Refrigeration and lighting combined can account for up to the 20% of total electricity use in a home. By targeting these two end-uses, we have the potential to generate significant savings and alleviate some financial stress for low-income families. Under a federally funded program, MSHA and CAPs were already providing weatherization and fuel assistance services to qualified low income customers. Eligible households are those with income levels at or below 150% of the poverty line, equivalent to \$30,000 in household annual

income for a family of four. By working within the pre-existing program, Efficiency Maine was able to reduce the administrative and program delivery costs by providing additional funding for the refrigerator and CFL exchange service. Efficiency Maine supplements the program through a memorandum of understanding (MOU) with MSHA under which CAP trained and certified energy auditors address electrical saving opportunities. When auditors replace refrigerators, they also install energy efficient CFLs in locations where they will provide the greatest energy savings.



*Mike Butler, Energy Auditor,  
Community Concepts Inc., installing a CFL bulb  
for a low-income customer.*

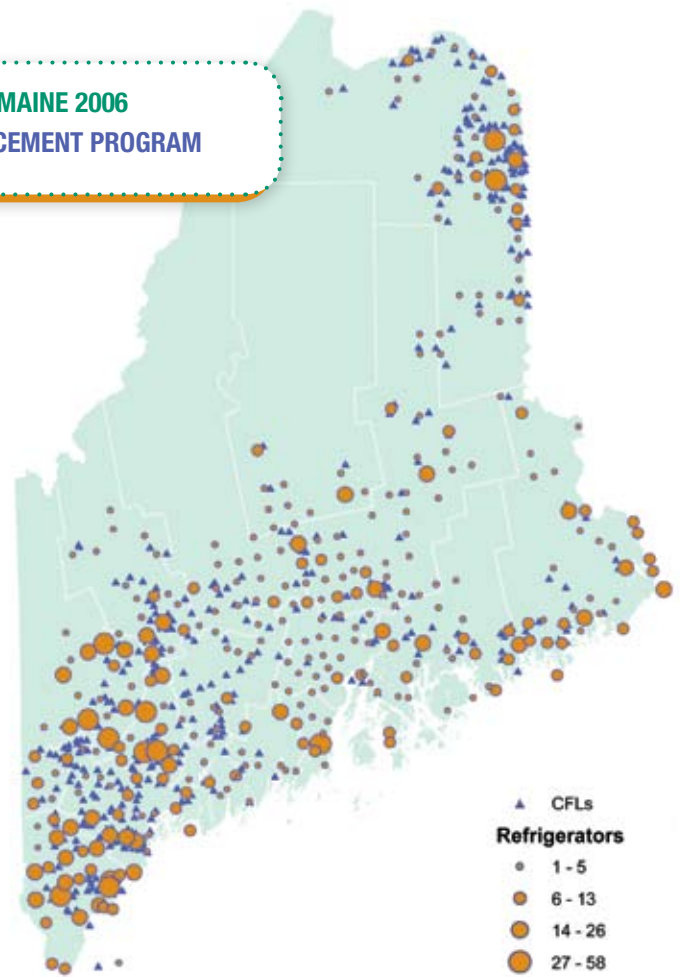
## LOW INCOME APPLIANCE REPLACEMENT PROGRAM BENEFITS VS. COSTS (2004-2006)



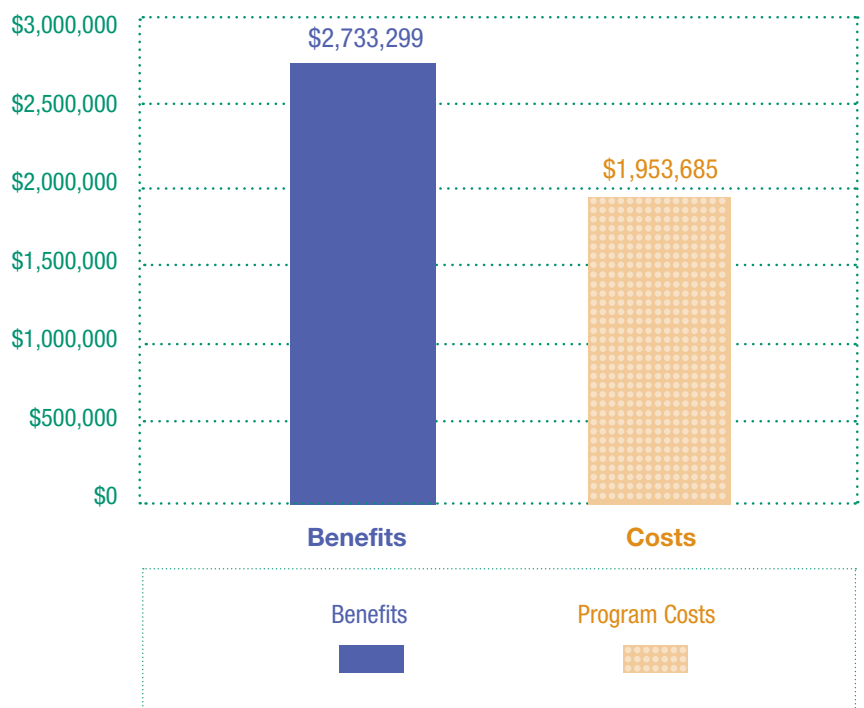
## EFFICIENCY MAINE 2006 APPLIANCE REPLACEMENT PROGRAM

This year, Maine's CAPs delivered more than 2,500 refrigerators and 30,000 CFLs (a 67% increase over last year) to low income customers. Altogether, the refrigerators and efficient lights are estimated to save each customer more than 2,000 kWh per year. The lifetime economic benefits of the program increased 115% from \$1.3 million in 2004 to \$2.7 million in 2006. For the same time period, overall program costs increased 77% from \$1.1 million to \$1.9 million. The program is cost effective with a benefit to cost ratio of 1.4 to 1. By statute, Efficiency Maine is charged to spend 20% of total efficiency funds on low-income programs. In 2006, we spent 21%.

Efficiency Maine also partnered with the State Planning Office, the Maine Office of Energy Independence and Security, and MSHA to implement Operation Keep ME Warm. For its part, Efficiency Maine provided more than 11,000 CFLs to the homes that participated in the volunteer weatherization program.



## 2006 LOW INCOME APPLIANCE REPLACEMENT BENEFITS VS. COSTS



## Looking Ahead

For 2007, we plan to continue our partnerships with MSHA and the CAP agencies. We also intend to further diversify our program delivery by expanding our partnerships with local, state or federal agencies, allowing the program to reach other low income residents in the most cost-effective way.



# Building Operator Certification

As any homeowner knows, shutting off lights and turning down the thermostat saves money with little to no inconvenience. This common sense understanding is at the core of Efficiency Maine's Building Operator Certification (BOC) program, which trains facility managers to identify energy efficiency opportunities through the use of advanced building equipment controls and the installation of energy efficient equipment. Oftentimes, huge energy savings are identified simply through the low-cost application of better management and control of existing equipment.

## 2006 Accomplishments:

- 6,684 MWh annual savings
- \$4.9 million in lifetime economic value
- Benefit-cost ratio 1.5 to 1

The program, provided in cooperation with the Northeast Energy Efficiency Partnerships (NEEP), is an eight-day course offered over a four-month period. The program provides facility managers training to improve energy efficiency, reduce maintenance costs in their facilities and enhance building occupant comfort.

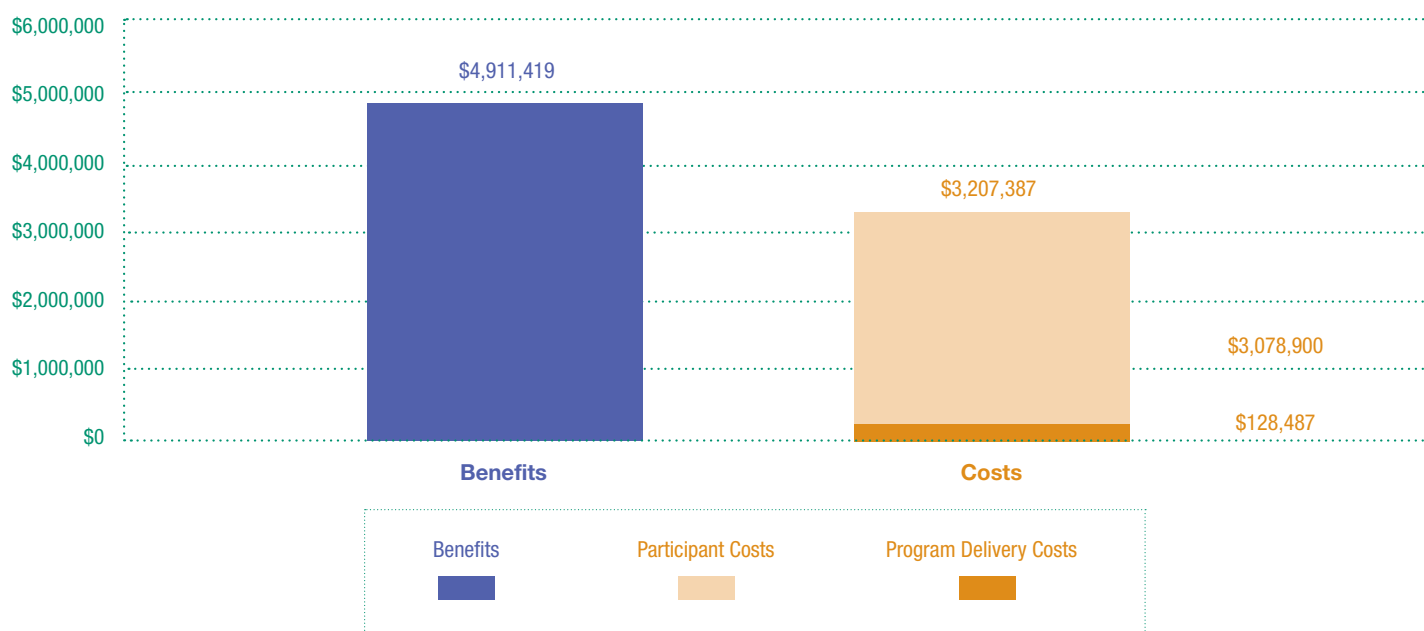
Certified building operators demonstrate competence in evaluating building energy consumption, HVAC energy inspection, lighting surveys, indoor air pollutant sources and pathway locations, and facility electrical distribution. An evaluation of the program documented average energy savings in municipal buildings of close to 100 MWh per year as a result of changes implemented by program graduates. The

course also provides information on non-energy issues such as indoor air quality and occupant comfort. The BOC program also supports other Efficiency Maine programs by educating students on the variety of other resources and incentives available at Efficiency Maine.

Since the start of the program in 2002, Efficiency Maine has provided 15 BOC courses across the state. Course locations include Portland, Bangor, Presque Isle/Houlton, Calais, York, Augusta, Auburn, Orono, and Old Town. Approximately 318 students have graduated from the program. A majority of the past participants were employed as facility managers at state and local buildings and received the training free of charge. Sixty people participated in the BOC program in 2006 of which 38% are responsible for facility management of K-12 schools.

Facilities operated by this year's course graduates are expected to save 6,684 MWh per year, for an estimated \$4.9 million in lifetime economic savings. This program is cost effective with a benefit to cost ratio of 1.5 to 1.

## 2006 BUILDING OPERATOR BENEFITS VS. COSTS





*Alan Mulak, P.E., 2nd from right, with 100 BOC class participants,  
Sanford, Maine*

**EFFICIENCY MAINE 2006  
BUILDING OPERATOR CERTIFICATION**



## Looking Ahead

For 2007, Efficiency Maine will provide two BOC Level I and two more advanced BOC Level II courses. BOC Level II classes teach advanced topics that allow facility managers to master the skills needed to run their facilities in the most efficient way. Additionally, Efficiency Maine will advertise the classes to the private sector and increase tuition charges to help offset program costs.



# Maine High Performance Schools Program

New construction presents a perfect opportunity to maximize lifetime benefits from energy efficiency investments. When efficiency is not considered in the design and construction stage, these “lost opportunities” become more expensive if not impossible to address at a later date. To address this common problem, Efficiency Maine’s High Performance Schools Program seizes upon opportunities for efficiency gains that occur in the construction of new schools. The Program’s goals are to reduce energy consumption, lower operation and maintenance costs, and improve occupant comfort. The Program provides financial and technical assistance to new schools to pursue better designs and install more efficient equipment. The Program is a partnership of the Maine Department of Education (MDOE), Bureau of General Services (BGS), the Maine School Management Association (MSMA), and the United States Department of Energy. By addressing efficiency at the inception of the construction project, schools will save hundreds of thousands of dollars in avoided energy expenditures over the building’s lifetime.

For 2006, the Program is not reporting any energy savings as none of the pipeline school projects were completed. For 2007, we anticipate reporting energy savings for at least ten schools.

## 2006 Accomplishments:

- Statewide awareness and participation increased
- Adopted a higher efficiency standard known as the “Maine Benchmark”

## New Schools

Five to ten new public schools are built in Maine each year. Since these buildings are in use an average of fifty years, building them with energy efficiency in mind will avoid many years of higher than necessary operating costs. However, given that new school construction budgets are limited, oftentimes slightly more expensive efficiency measures are omitted due to either a lack of resources or limited awareness. The Program fills this gap by providing technical support and financial incentives, up to a maximum of \$100,000 per school, to capture available savings through a multi-year partnership.

## Higher Standards

During the past year, the Program adopted a new higher efficiency standard known as the “Maine Benchmark” that exceeds the minimum BGS requirements for energy efficiency by 20%. By repeatedly raising the efficiency bar, the Program searches out new technologies that marry energy efficiency with occupant comfort to improve the learning environment for Maine children.

Additionally, working with Maine’s architectural and engineering community yields program benefits that are undoubtedly carried over into other building sectors as knowledge and skills gained from school projects are applied to other projects. Since its inception, the Program has sub-contracted with a design firm to serve as Program Technical Advisors (PTAs) to help facility managers and architectural and engineering firms adopt the higher standards. This relationship has strengthened the Program by fostering a team approach whereby program participants look to the PTAs as partners, not as barriers. Through their effort and hard work, the majority of firms designing Maine schools have agreed to include additional energy savings items in their designs that will save taxpayers hundreds of thousands of dollars in energy costs. Of course, the real winners will be the students attending efficient schools and their parents.

## Looking Ahead

For 2007, we estimate a total of ten schools currently under construction will be completed, resulting in an estimated annual savings of 1,632 MWh and more than 100,000 gallons of heating oil. Towns where schools will be completed in 2007 include: Lincolnville, Portland, Scarborough, Auburn, Augusta, Hallowell, Paris, Lewiston, Hiram, and Waterboro. The Program has also enrolled 14 other schools to be constructed across Maine. As a preview, the investment in the Scarborough High School, which opened in August of 2006, is projected to save more than \$52,000 per year in energy costs.

Patricia Conant, Scarborough High School principal reports that, "The school's lighting upgrades alone will save us as much as \$22,123 in electric costs a year. The High Performance Schools Program really helped us construct an environment that is ideal for our students to learn and great for our budget."



*Sharon Reishus, Maine Public Utilities Commissioner, Kurt Adams, Maine Public Utilities Chairman, and Scarborough Board of Education President, Robert Mitchell, celebrate the opening of the new Scarborough High School. Photo Credit: The Forecaster.*



*High Performance Schools participant. Cony High School, Augusta, Maine*



*Variable frequency drive on high performance motors. Cony High School, Augusta, Maine*



*Energy efficient lighting. Cony High School, Augusta, Maine*

# Education & Training Program

Efficiency Maine's Education and Training Programs introduce grade school students and professionals to the issues related to electricity production, consumption, and efficiency. In an exciting way, the classroom education programs introduce electricity and energy efficiency directly to 4th through 8th grade classes throughout Maine. The professional training programs target contractors and facility managers through specialized workshops about energy efficient options and relevant Efficiency Maine incentive programs. In 2006, the program taught 270 professionals and 7,782 students in classes from Fort Kent to Kennebunk. Currently, we do not quantify energy savings that may result from these training programs. Rather, Efficiency Maine views these investments as helping to meet long term market transformation goals for an energy efficient economy.

## 2006 Accomplishments:

- 7,782 4th through 8th grade students participated in energy education classes
- 270 professionals attended introductory to advanced energy efficiency classes
- Statewide delivery of education and training opportunities

## School Energy Education Program

Efficiency Maine provides financial support for two education programs serving 4th through 8th grade teachers and students throughout Maine. With the support of Efficiency Maine, the Maine Energy Education Program (MEEP) serves students in central and southern Maine, while Maine Public Service's BE Energy Wise Program (BEEP) serves students in northern Maine. The programs provide students with information on electricity production, its use and conservation at home and at school, and the effects of energy use on the environment and the economy. We believe the lessons learned in school spill over into the home, improving energy awareness and thus contributing to increased participation in other Efficiency Maine incentive programs.

The MEEP program combines general awareness classroom training activities with practical skills that allow students to monitor their school building's energy use. It also offers a component called "Energy Patrols." The patrol participants are older students who increase teacher and student awareness of energy issues through classroom skits, distribution of informational materials, and reminders to turn off computers and lights that are not in use. MEEP has found that schools with active Energy Patrols reduce their energy consumption. MEEP also provides more specialized Energy Education Leadership workshops for teachers and small groups of students. During 2006, MEEP visited a total of 193 schools and gave presentations to approximately 6,000 students, a 40% increase from last year.

Maine Public Service's BE Energy Wise Program (BEEP) includes two components. One educates students about energy issues in the schools, and the other provides a broader overview of societal energy issues. Maine Public's "Energy Eagle Patrol" is similar to the MEEP "Energy Patrol" in that a team of students raises awareness of energy issues in schools by distributing energy efficiency information and reminding fellow students and teachers to turn off lights. The patrol program includes presentations on how to read electric meters, the advantages of fluorescent lighting, and understanding the energy use of computers. During 2006, the Maine Public Service Company program conducted 81 educational presentations and reached over 1,782 students.

*Maine Energy Education Program students learning to use light meters while training for their "Energy Patrols."*



## Professional Training Programs

Professional Training Programs provide workshops for a diverse group of key efficiency stakeholders, which includes engineers, architects, water and wastewater operators, facility managers, trades people, and other technical professionals. These training opportunities educate students about energy efficiency alternatives specific to their industry and most importantly, provide a venue for participants to talk among themselves and share efficiency success stories. Many times, the most valuable components of the training programs occur during peer-to-peer discussions when efficiency options and lessons learned are transferred directly from one participant to the other. More than 270 students participated in our training programs during 2006.

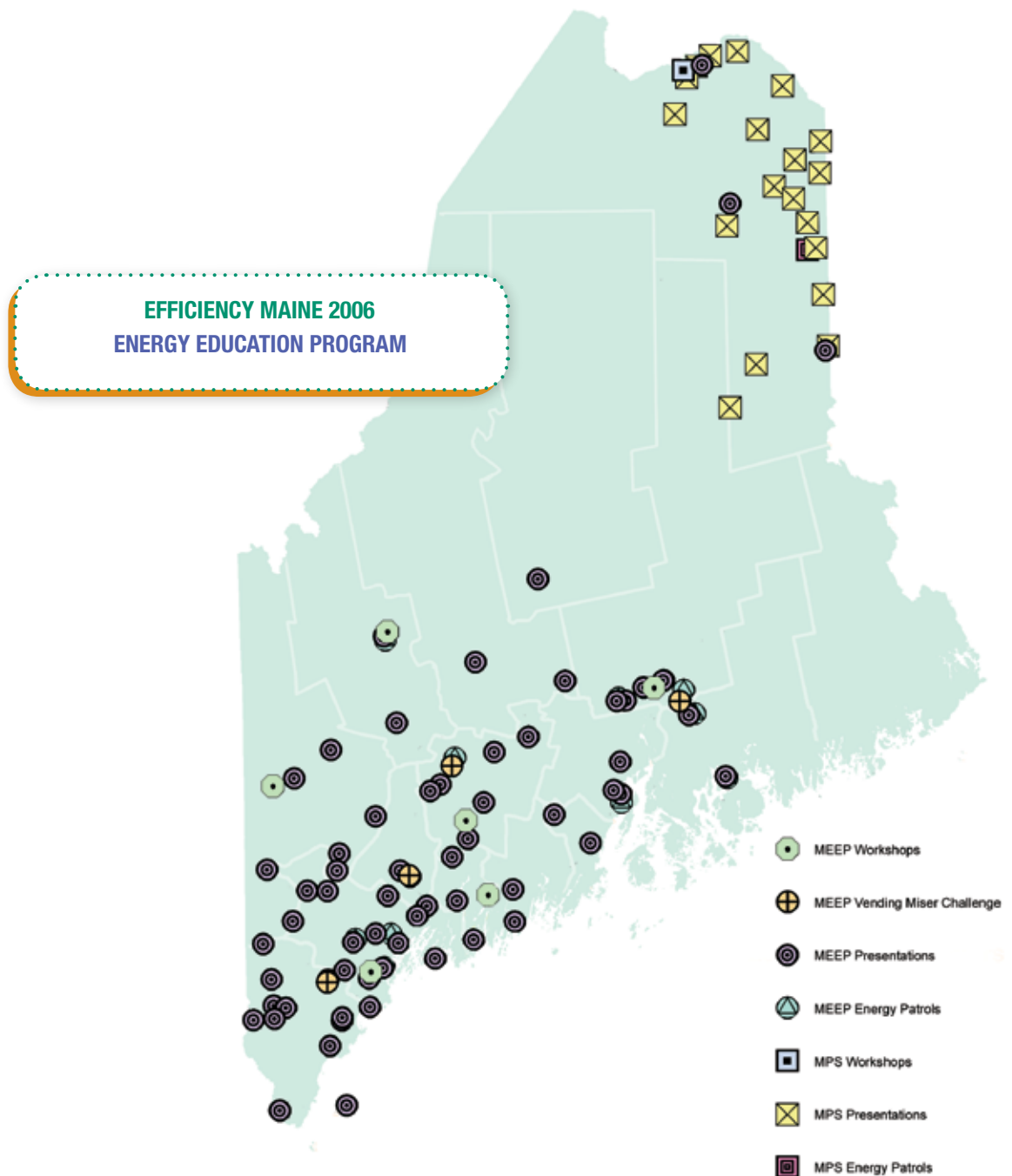


*Ron Wroblewski, P.E., a Department of Energy qualified instructor with Productive Energy Solutions, LLC, teaching the Fan System Assessment class on behalf of Efficiency Maine. May 2006, Augusta, Maine.*



## 2006 Workshops

- *Energy Efficiency for Financial Managers (36 participants, Augusta, ME)*  
Provided financial and business managers the information needed to make appropriate decisions regarding instituting energy efficiency and management plans at their facility.
- *Advances in Lighting and Design (75 participants, Portland, ME)*  
Outlined the recent technological advances in lighting design, fixtures, and controls.
- *Pump System Qualification (34 participants, Augusta, ME)*  
Instructed facility managers on ways to assess energy saving opportunities in pumping systems.
- *Maine Advanced Buildings Benchmark (26 participants, Augusta, ME)*  
Presented the new higher efficiency statewide building code for new construction and substantial renovation of state and school projects.
- *Fan System Assessment (8 participants, Augusta, ME)*  
Highlighted the benefits of fan system optimization and examined fan system performance characteristics and practical issues concerning measurement of data.
- *Fundamentals of Compressed Air (33 participants, Freeport and Auburn, ME)*  
Demonstrated how to compute the current cost of a plant's compressed air systems, how to measure and create a baseline of system performance, and how to determine the impact of different compressor control types.
- *Energy Auditing 101 (25 participants, Augusta, ME)*  
Provided participants with the knowledge to self-identify where energy consumption can be reduced, and utilized the latest methods and technologies to accomplish real savings.
- *Motor Systems Management (28 participants, Portland, ME)*  
Presented motor systems management including application, inventory tracking, maintenance, replacement decisions, repair, and the impact and maintenance of power quality.



## Looking Ahead

Educating the electricity consumers and decision makers of today and tomorrow is crucial to achieving the market transformation goal where the efficient choice is the default choice. Efficiency Maine's professional training and education programs are key tools to achieving these objectives. Comments gathered in our Docket 2005-446, which examined the entire Conservation Program, encouraged the continuation of these education programs. For 2007, we plan to continue our educational programs and expand professional training opportunities.



# Conclusion

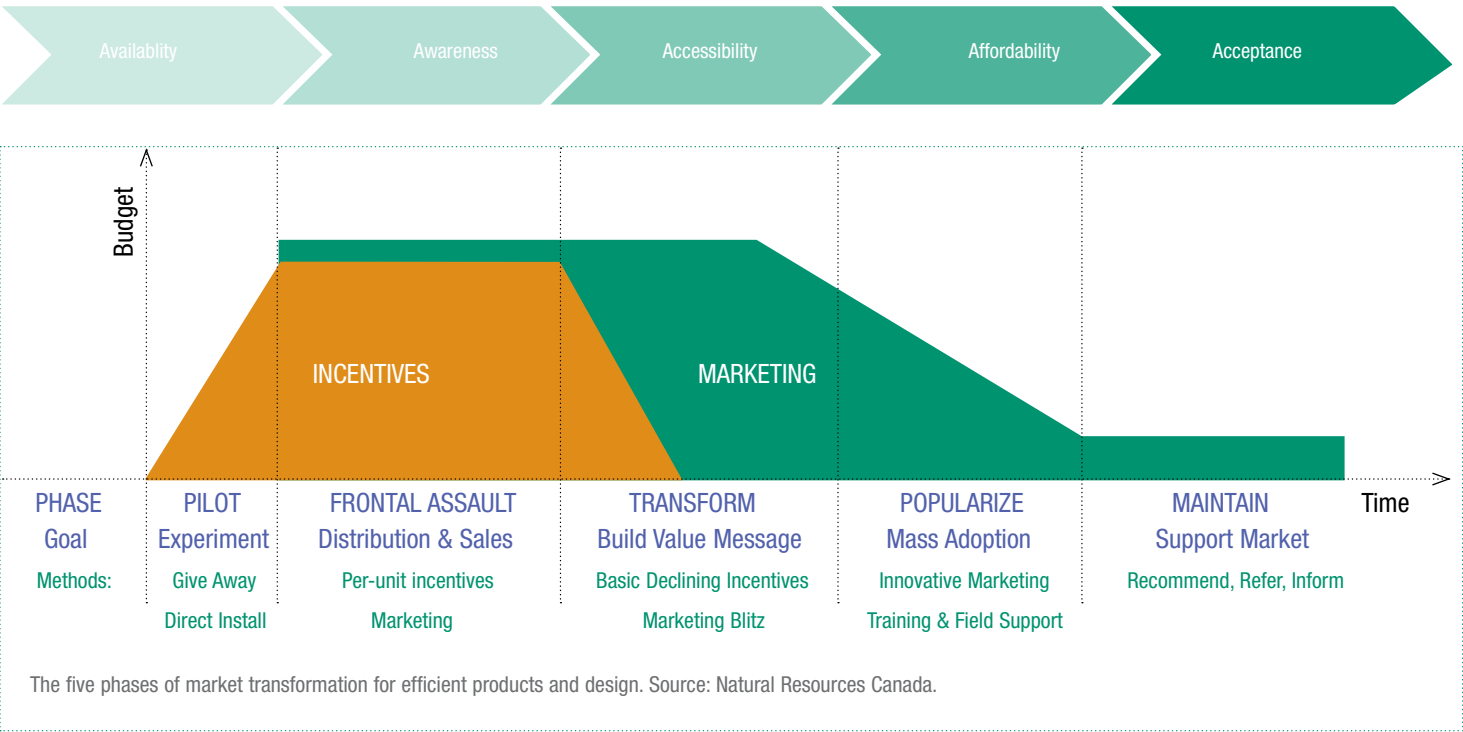
Efficiency Maine, as an agent of change, promotes the more efficient use of electricity, saves money, and improves Maine’s environment. This report presents our 2006 year in review with overall details on program performance. In 2006, Efficiency Maine saved 74,759 MWh, worth an estimated lifetime economic value of \$53.9 million. These savings were achieved at a cost of \$0.029 cents per kWh with a program benefit-cost ratio of 2.7 to 1. In terms of our commitment to the environment, the program’s 2006 lifetime electricity savings prevented the release of 320,849 metric tons of carbon dioxide. Compared to previous Commission proceeding estimates and independent research reports on forecasted savings potential, Efficiency Maine’s accomplishments to date have exceeded expectations while spending less than projected forecasted budget levels.<sup>1</sup>

Efficiency Maine strives to balance market transformation over time with the acquisition of immediate electricity savings. Program areas that focus heavily on market transformation include our Education and Training and High Performance Schools Programs. By comparison, our Residential Lighting Program is aimed more at immediate resource acquisition through direct rebates for efficient products. All in all, we consider the measure of success to be excellence in program delivery, accuracy in savings estimates, and satisfaction from our program participants. Additionally, our

measure of success must result in overall Efficiency Maine investments yielding a positive benefit-cost ratio, ensuring that ratepayer funding is generating cost-effective electricity savings today, while transforming the marketplace for tomorrow.

As shown in the graph below, the market transformation approach begins with incentives to increase product availability and awareness. As these new technologies become commonplace, incentive levels are reduced and marketing is increased. When new products mature, marketing expenditures are reduced and funds are reallocated to the next new efficient product. Efficiency Maine regularly reviews these stages of market transformation for programs and rebated products and makes adjustments when appropriate.

## PHASES OF MARKET TRANSFORMATION



## Looking Ahead

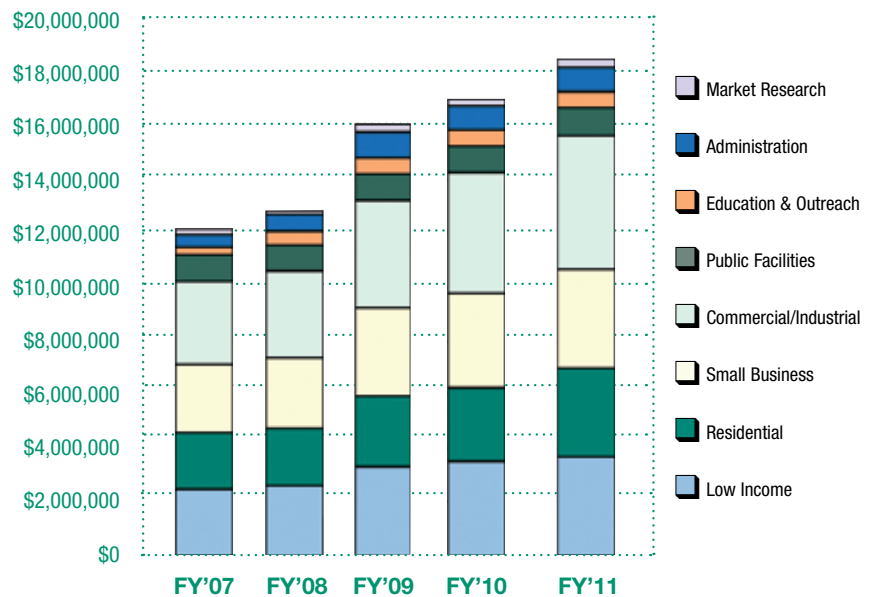
In 2007, Efficiency Maine will review the results of independent evaluations of the Residential Lighting and Business Programs and incorporate modifications as needed to improve program delivery. Additionally in March, 2007, we will submit our report to the Maine Legislature in response to Docket 2006-446 “Inquiry into New Conservation Programs and Developing a Plan for Using Increases in the Conservation Fund.” We are also preparing to roll out a new commercial construction program in 2008.

In 2006 Efficiency Maine program spending totaled \$9.2 million while we collected \$9.6 million. The additional unspent funds are partially encumbered for various projects and the remainder will be invested in 2007 activities. As we review our program portfolio and new opportunities, we anticipate that our expenditures will exceed our assessments if we are to capture an increasing share of cost-effective savings opportunities.

The projection to the right represents our best estimate at this time for future expenditures based on current portfolio design. We anticipate that these projections and identified program areas are likely to be modified through the course of 2007 activities.

Finally, additional detailed information on Efficiency Maine’s participation and savings impacts by program and assessments collected by utility are included in a separate Technical Appendix document.

### EFFICIENCY MAINE PROJECTED FIVE YEAR BUDGET (2007 – 2011)



### EFFICIENCY MAINE PROJECTED FIVE YEAR BUDGET (2007–2011)

Program	FY'07	FY'08	FY'09	FY'10	FY'11
Low Income	\$2,509,931	\$2,667,686	\$3,313,590	\$3,498,467	\$3,703,318
Residential	\$2,100,000	\$2,050,000	\$2,610,000	\$2,765,400	\$3,265,400
Small Business	\$2,509,931	\$2,667,686	\$3,313,590	\$3,498,467	\$3,703,318
Commercial/Industrial	\$3,100,000	\$3,200,000	\$4,000,000	\$4,500,000	\$5,000,000
Public Facilities	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
Education & Outreach	\$300,000	\$500,000	\$600,000	\$600,000	\$600,000
Administration	\$450,000	\$600,000	\$930,000	\$930,000	\$930,000
Market Research	\$220,000	\$200,000	\$300,000	\$200,000	\$300,000
<b>TOTAL</b>	<b>\$12,189,862</b>	<b>\$12,885,372</b>	<b>\$16,067,180</b>	<b>\$16,992,334</b>	<b>\$18,502,036</b>



Efficiency Maine is a statewide effort to promote the more efficient use of electricity, help Maine residents and businesses reduce energy costs, and improve Maine's environment. Efficiency Maine is funded by electricity consumers and administered by the Maine Public Utilities Commission.

For more information, contact:  
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