

## Maine

# **Electric Energy Conservation Program Plan**

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.U53		Maine State Planning Office
M25		November 2001
2001		



ANGUS S. KING, JR. GOVERNOR

November 5, 2001

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Dennis Keschl, Administrative Director Maine Public Utilities Commission 18 State House Station Augusta, Maine 04333-0018

Re: Electric Energy Conservation Program Plan

Dear Mr. Keschl:

Pursuant to Title 5, section 3305-B, MRSA the State Planning Office hereby transmits to the Public Utilities Commission the Electric Energy Conservation Program Plan required to guide the implementation of statewide conservation programs by the state's electric transmission and distribution utilities in accordance with the Electric Industry Restructuring Act. (Title 35-A, Section3211, MRSA)

In according with statute and the Commission's rules the SPO hereby makes recommendations to the Commission on several items.

### 1. We ask the Commission to accept this plan for immediate and full implementation by the state's T&D utilities.

This plan sets forth the program objectives and strategies for the implementation of a portfolio of market oriented conservation programs, to be delivered on a consistent statewide basis that will provide opportunities for all ratepayers to participate in programs and benefit from conservation measures. The plan fulfills the legislative charge to the SPO to guide the development of statewide conservation program by establishing program objectives and strategies to guide the implementation of the programs. Most of the programs in the Plan will need a final round of implementation level planning before they can be submitted to the Commission in the form of program "Terms and Conditions". The SPO is committed to continuing to assist in the planning process, and plans to play a major role in assisting with the development of the major new non-residential construction program, as specified in the program design.



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# 2. We recommend that the Commission maintain current funding levels for conservation programs, which are consistent with Legislative intent to maintain an existing level of program effort.

The Commission's rules require the SPO to make recommendations for funding above the floor rate established in the restructuring legislation. The selection and design of programs included in the Conservation Program Plan are based on the SPO's estimate of funds available under current rate designs approved by the Commission. At this time, Central Maine Power Company is the only utility collecting conservation funds at a rate above the floor rate.

It was legislative intent to continue conservation programs at the level of effort existing at the time of restructuring. For CMP this is a level currently established as the cap rate, and for the others the Legislature deemed that level to be the floor rate. Thus the SPO feels that the current funding level does represent "current" levels of program effort.

Although the plan indicates a level of conservation opportunity much greater than current funding can achieve, we feel that currently authorized funding will support the delivery of significant new programs for initial startup after which experience and economic circumstances will allow a re-evaluation of changes in funding levels.

## 3. Accept the use of several non-competitive "contractual" arrangements that make effective use of existing programs.

The statute and Commission Rules require the SPO to report on and justify the use of non-competitive contractual arrangements to be used in the delivery of conservation programs. This requirement applies to several programs:

- 1. Low-income program: The Plan specifies that this program be delivered through the existing organizations providing fuel assistance and weatherization services to low-income households. The program design calls for the development of a working agreement between the utilities and the CAP or similar agency operating in the service territory. This agreement would be a non-competitive "contractual" arrangement that would set out the various criteria and standards, and operating procedures need to implement the program as designed. Utilizing the existing infrastructure for delivering energy programs to low-income households will provide a cost effective and efficient means to deliver electricity energy benefit, and will build-on established working relationships.
- 2. Participation in several regional initiatives managed by the Northeast Energy Efficiency Partnership (NEEP). Several programs rely on Maine utility participation in energy efficiency programs hosted and managed by NEEP. These include the residential energy star programs for efficient lighting and appliances, and C&I programs for efficient motors and HVAC systems. In these cases, Maine utilities participate in the program initiative as a NEEP sponsor and program partner with other program participants. Competitive contractual arrangements for

regional program delivery and related services are entered into as part of a group effort. Any additional contracts for services that may be needed to deliver the Maine specific components of these programs are to be done by competitive bidding. These arrangements are fundamentally based on competitive selection of service providers, but are accomplished through a group process.

3. Facilities manager training. These programs are run for the first year on a pilot basis, utilizing the availability of established programs. The programs are run through a host utility, but are available to all facilities managers regardless of the utility service territory they might be in. These pilot programs rely on the delivery of established training programs, one available from the American Association of Energy Engineers, and the other from NEEP and could be consider "other" contractual arrangements since commitments are made to deliver a given product.

#### 4. Consideration of effective program administration.

Current statutory language simply directs the T&D utilities to implement conservation programs consistent with the Conservation Program Plan developed by the SPO. The administrative structure for program delivery and management required to achieve coordinated statewide delivery of conservation programs is an issue that emerged late in the planning process. The structure of program administration is not addressed in the statute, but it is clear that an appropriate and effective program management structure will have a significant influence over the ultimate success of these programs.

A number of options for program administration were presented for stakeholder comment, ranging from the status quo under the existing statutory language to the creation of an independent program administrator. Comments ranged from assurances that programs can be conducted in a coordinated fashion under existing statutory direction, to concerns that circumstances have changed, with an emphasis on the delivery of statewide market oriented programs that will require new arrangements in program administration to assure the delivery of effective and successful programs. The primary concern of the SPO is that programs are delivered in a coordinated and consistent way on a statewide basis, while taking advantage of opportunities to gain administrative efficiencies, and to assure effective program promotion and ultimately program success.

A workable resolution to the issue of program administration requires further discussion at higher administration and legislative levels. The SPO is recommending that this question be given further consideration in a legislative process in order to resolve the issue of the best way to assure effective program management.

Upon submission of this plan to the Commission the work to implement programs shifts to the electric utilities. Since the delivery of these new "market oriented" programs will require a high degree of coordination and cooperation between the utilities, the SPO remains committed to assisting with the continued planning needed to roll out these new

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• • • • • • • conservation programs. We look forward to working with the Commission on the continued development of energy conservation programs for Maine's electric utility customers.

Sincerely

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James F. Connors Conservation Program Manager

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#### **EXECUTIVE SUMMARY**

In legislation entitled "An Act to Secure Environmental and Economic Benefits from Electric Utility Restructuring" (codified as 5 MRSA, Section 3305-B.2) the State Planning Office is directed to guide the development of statewide conservation programs to be implemented by transmission and distribution utilities.<sup>1</sup> This act shifts the focus for conservation program planning to the State Planning Office, thereby creating an opportunity to re-examine the potential for electric energy savings and to establish a new set of programs designed to realize the energy, environmental, and economic benefits of energy conservation.

This Conservation Program Plan fulfills that task. It provides guidance for the development and implementation of a portfolio of conservation and efficiency programs that will achieve electric energy savings, flowing from the market oriented programs that take advantage of existing regional initiatives, as well as, the creation of new Maine programs. Program implementation planning now shifts to the utilities, under existing statutory direction.

#### Overview of the Conservation Program

The goal of the electric energy conservation program is to achieve the energy, economic, and environmental benefits that result from investments in cost effective electric energy conservation programs.

The primary strategy in achieving the goal is the delivery of market-oriented programs that work to take advantage of the opportunities for improvements in energy efficiency and management that occur when key project and purchase decisions are made.

A portfolio of programs has been selected to provide energy savings opportunities for all customer classes, on a consistent statewide basis, taking advantage of regional programs, and providing flexibility in program design and implementation in response to utility and market conditions.

#### Summary of Conservation Programs

*Conservation Program Promotion and Public Education* – this program element encourages the development of appropriate public educational materials to promote conservation programs, consistent with the delivery of specific programs and measures. Further in supports the development of school based energy conservation educational programs that encourage electric energy conservation, consistent with program objectives, leading to energy savings.

<sup>&</sup>lt;sup>1</sup> pursuant to Title 35-Å, section 3211 (the electric industry restructuring law)

Low-income Household Appliance Replacement Fund – this is a program designed to provide a source of funds for agencies providing energy assistance (weatherization) services to low-income households to pay for the replacement of old, inefficient, malfunctioning appliances (especially refrigerators). The program is delivered by the CAP agencies, under a working agreement with the utilities. The budget allocation is 3300,000.

#### Residential Programs:

ENERGY STAR® Lighting and Fixtures Program – this program is designed to promote the use of efficient lighting products, using a market oriented program that works to coordinate marketing, merchandizing, promotion, and consumer education and incentives. Maine specific activities are leveraged by participation in existing regional initiatives. The program is delivered on a statewide basis with a shared program manager hired by competitive bid, who coordinates Maine utility activities and assures consistency with the regional initiative. Budget allocation is \$540,000.

ENERGY STAR® Appliances Program – this program is designed to promote the use of Energy Star labeled appliances, which is accomplished through the delivery (in conjunction with the ENERGY STAR® Lighting Program) of a market oriented program that coordinates marketing, merchandizing, promotion, and consumer awareness. Maine specific activities are leveraged by participation in existing regional initiatives. Similar to the lighting program, the program is delivered on a statewide basis, managed by a shared contractor (selected by competitive bid), and coordinated with the regional lighting and appliances initiatives. Budget allocation is \$364,000.

*Domestic Water Heater Program* – this is a transitional program designed to move existing utility water heater wrap programs to a more market oriented program that promotes the selection and installation of more efficient water heating units, as they become available in the marketplace, coupled with the installation of resource efficient accessory measures. Utilities will continue to provide wrap packages as requested by customers, for older less efficient units. Budget allocation is \$180,000.

#### Commercial, Industrial, Institutional Programs:

*New Construction, Renovation, Remodeling, and Improvement Program* – this program is designed to improve energy performance in commercial, institutional, and industrial structures and processes. It is designed to handle a variety of energy conserving projects associated with new construction, renovation, remodeling, and improvement projects. The program is delivered on a statewide basis by competitively hired contractors. Budget allocation is \$2.4 million.

The program will be implemented in stages, as a competitively selected contractor develops program details, through 2002. Full program activity, depending on fund availability and project demand will be delivered late in 2002.

*Maine MotorUp Program* – this program is designed to encourage and support the selection and use of efficient electric motors. This market-oriented program is delivered on a statewide basis through utility participation in the regional MotorUp initiative. State level activities are coordinated by utility staff or by a shared contractor. Budget allocation is \$145,000.

Maine Cool Choice Program – this program is designed to encourage and support the selection and proper installation of unitary HVAC systems. This market-oriented program is delivered on a statewide basis through utility participation in the regional Cool Choice initiative. State level activities are coordinated by utility staff or by a shared contractor. Budget allocation is \$156,000.

Facility Operations and Management Training – this is an education and training program for facilities managers to improve energy management and encourage participation in other conservation programs. Established O&M training programs are delivered by a host utility, working with the program provider and other supporting entities. Tuition is subsidized from the conservation fund, and the courses are open to all utility C&I customers in the state.

Two program offerings are underway, one sponsored by Bangor Hydro Electric and the other by Central Maine Power. The BHE sponsored Certified Energy Manager (CEM) course is scheduled for November 2001, and the CMP hosted Building Operator Certification (BOC) program will be held during the spring of 2002 in a central Maine location. Budget allocation is \$50,000.

#### SUMMARY OF CONSERVATION PROGRAMS and IMPLEMENTATION PLANS

PROGRAM	Budget	IMPLEMENTATION PLANS	
	Allocation		
Promotion and	TBD	Suitable public educational materials prepared in	
Public Education		association with program delivery.	
Low-income	\$300,000	Final program details worked out in Nov-Dec,	
Appl.		program operation begin Jan 2002.	
Replacement			
Fund			
Res. ENERGY	\$540,000	Implemented in conjunction with Res. Appliance	
<i>STAR</i> ®		program, need to establish Maine program elements,	
Lighting		co-ord. with region program. Start Jan 2002.	
Res. ENERGY	\$364,000	Implemented in conjunction with Res. Lighting	
<i>STAR</i> ®		program, need to establish Maine program elements,	
Appliances		co-ord. with region program. Start Jan 2002.	
Domestic Water	\$180,000	Additional program design needed to refine existing	
Heater Program		wrap programs, and heat exchange tech. experience in	
		CT programs. Work task in 2002.	
Com/Ind New	\$2,400,000	Contract professional services to help finish program	
Constr.		design, forms and procedures, and run pilot projects.	
etc. program		Phase-in program elements through 2002.	
MotorUp	\$145,000	Refine Maine program elements and formalize	
(electric motors)		participation in regional MotorUP program by	
		December 31, 2001.	
Cool Choice	\$156,000	Refine Maine elements and formalize participation in	
(HVAC systems)		regional Cool Choice program by December 31, 2001	
Facilities Mger.	\$50,000	CEM course held Nov. 26 30, 2001. The BOC	
Training		program begins in Jan. 2002.	

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#### **INTRODUCTION**

In legislation entitled "An Act to Secure Environmental and Economic Benefits from Electric Utility Restructuring" (codified as 5 MRSA, Section 3305-B.2) the State Planning Office is directed to guide the development of statewide conservation programs to be implemented by transmission and distribution utilities.<sup>2</sup> This act shifts the focus for conservation program planning from the utilities to the State Planning Office, creating an opportunity to re-examine the potential for electric energy savings and to establish a new set of programs designed to realize the energy, environmental, and economic benefits of energy conservation.

In fulfilling this task, the State Planning Office has prepared this conservation program plan, which lays the ground work for a new portfolio of conservation programs that are market oriented and take advantage of existing regional and national programs.

The portfolio of programs is balanced, providing opportunities for all rate payers around the state, and seeks to create statewide consistency in program delivery, while providing flexibility for differences in utility service areas.

This program plan contains program objectives and implementation strategies, as required by statute, to guide the implementation of new programs. The plan was developed through an open "consultative" stakeholders process, and includes guidance for program delivery along with estimated budgets.

#### The Planning Process

The development of a statewide conservation program is a significant new policy direction, one that required the active participation of utility representatives and broad input from a wide range of stakeholders. The planning process was informed and guided by discussion papers on topics and issues critical to establishing program designs and implementation strategies. And, a series of stakeholder and program working sessions helped to define and refine program details and delivery mechanisms for the selected portfolio of new programs.

A consultative model was used to encourage and gather stakeholder input from any party interested in the proceedings and the eventual outcomes. This model is familiar to the utility community, where parties to the process are invited to provide comments and information in response to inquiries and proposals put forth, in this case by the SPO. This model allows any interested party to participate in the process to whatever degree they desire. Ultimately, the SPO compiled a substantial list of participants (about 250) representing state and quasi-state agencies, investor and consumer owned utilities, energy

<sup>&</sup>lt;sup>2</sup> pursuant to Title 35-A, section 3211 (the electric industry restructuring law)

services and products vendors, engineering firms, consultants, and a variety of energy, environmental, and business advocates.

The discussion of issues and program considerations was guided by a series of discussion papers prepared by a team of consultants. The papers covered the topics of program goals and objectives, conservation needs and opportunities, cost effective and performance tests, and program selection and budgeting. These papers are incorporated into this plan to provide background on these important considerations.

An initial stakeholders session was held in August 2000, in Augusta, during which a wide range of participants discussed the issues and components that needed to be considered in crafting a statewide conservation program. This discussion was framed and guided by a scoping paper prepared by the SPO.

Subsequent stakeholder sessions were held in December 2000, and in April 2001. These sessions provided an opportunity for stakeholders to share their comments on discussion papers previously distributed, and to explore with the SPO and its consultants various issues raised in the papers. Written (hardcopy and electronic) comments were encouraged and accepted at any time during the process.

Following the three general stakeholders sessions a series of program working group sessions were held to develop more detailed designs for the selected portfolio of programs. Sessions were held on April 23<sup>rd</sup> to consider low-income programs, and on May 23<sup>rd</sup>, May 30<sup>th</sup>, June 20<sup>th</sup>, and July 25<sup>th</sup> to work out the details on residential and C&I programs.

These program working group sessions involved appropriate utility representatives and other knowledgeable people who would not have a potential conflict with the subsequent delivery of the programs. These sessions were detailed and intensive discussions of selected programs, organized to develop an understanding and agreement of what the programs would do, how they would be organized, what they might cost, and how they would be implemented and administered. These program designs provide the program objectives and strategies needed to guide implementation of each program.

Finally, a general stakeholder public hearing and discussion session was held on September 21, 2001. This session provided on opportunity for interested parties to review and comment on the proposed conservation program plan.

#### **Budgets and Funding Levels**

The SPO developed estimates of the amount of funds that would be available to support conservation programs. This information was used in guiding program priorities and establishing anticipated program budgets. There is some uncertainty in these estimates, influenced by future changes in electricity sales and variations in transmission revenues. The initial year of program funding is fairly firm, but the unknown magnitude of financial obligations for prior programs and the timing of the phasing out of these programs makes it more difficult to estimate funding levels in years two and three of the new program.

The program plan is based on the expected level of conservation program funding as established by the Commission in existing rates. Final program budgets will need to be established as the finishing touches are put on the program plans.

#### Program Implementation

This Conservation Program Plan establishes the basis for the final stage of program development and delivery by Maine's utilities. It is not a detailed implementation plan for each program since most of the programs will require some additional implementation level planning before they can be filed in the form of "Terms and Conditions" with the Public Utilities Commission.

The administrative structure for program delivery and management required to achieve coordinated statewide delivery of conservation programs is an issue that emerged late in the planning process, causing the SPO to spend some time seeking additional stakeholder comments in formulating appropriate program guidance. An appropriate and effective program management structure will have a significant influence over how programs are developed, and their ultimate success.

The statute simply directs the utilities to implement conservation programs consistent with the plan developed by the SPO. Although the statute anticipates the creation and delivery of statewide programs, it does not offer any direction as to how this principle is to be achieved in the actual implementation of the programs. Without further guidance the utilities are left to workout among themselves the best way to achieve program coordination and statewide delivery.

A number of options for program administration were presented for stakeholder comment, ranging from the status quo under the existing statutory language to the creation of an independent program administrator. Comments ranged from assurances that the utilities could carry out the programs in a coordinated fashion, to concerns that the utilities have an inherent conflict of interest in promoting and delivering conservation programs. The primary concern of the SPO is that programs are delivered consistently on a statewide basis, with a strong emphasis on a conservation message and a priority on the performance of successful programs.

The development and delivery of new market oriented statewide programs is a significant change in program emphasis and delivery from the way programs were run before restructuring took place. The task the utilities face to effectively coordinate program delivery and assure program success is a new challenge for them. It will require working closely to achieve program coordination and administrative efficiency. This challenge raises questions about the best way to achieve effective program administration and management.

Since the statutes are essentially silent on the issue of program administration, the SPO finds that this issue needs further Legislative consideration to resolve the questions that have arisen and to provide some additional direction in program administration.

#### I. State-wide Program Goals and Objectives

#### A. Background

This chapter describes the key public goals and related objectives for the Statewide Electric Energy Conservation Program Plan (hereinafter the "Statewide Conservation Plan") that is funded by a Public Benefits Charge included in customer rates, as provided by the Electric Industry Restructuring Act (MRSA 35-A § 3201-3217). This conservation program plan is developed by the State Planning Office pursuant to "An Act to Secure the Environmental and Economic Benefits from Electric Utility Restructuring" (5 MRSA § 3305-B). The principal program goals are expressed in this statute along with a number of related objectives. Other potential program goals derive from the experience of similar programs in other jurisdictions around the region and the country. The following goals and objectives were developed through the stakeholder process, based on discussion papers designed to frame-up the pertinent issues. They provide the foundation for the assessment and selection of programs, and also guide the development of recommendations for program implementation.

The development of this new statewide conservation plan is founded on long standing state energy policy that supports energy conservation as a viable alternative to new generation capacity and transmission line expansion. Further, as an overarching energy goal, it has been Maine's consistent public policy to "meet the State's energy needs with a diversity of reliable energy supplies at the lowest possible cost, while at the same time ensuring that energy production and use is consistent with Maine's environmental and economic objectives."("State of Maine Energy Action Plan", Maine State Planning Office, August 1999) In passing the Electric Restructuring Act and related legislation the Legislature reaffirmed a strong public policy preference for effective energy conservation programs.

Also, it should be noted that legislative directives proceed from a shared perception, in this state and around the region, that cost effective energy conservation has salutary societal benefits beyond, and in addition to, the expected reductions in the need for expansion of electric generation, transmission, and distribution facilities.

#### **B.** State-wide Goals

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#### 1. Achieve Electric Savings

The Legislature clearly indicated its desire that the utilities, electric customers, and society as a whole continue to receive the benefits that flow from energy conservation programs. The Legislature makes it clear that the new portfolio of programs must be designed to address *electric* energy savings, in keeping with the fact that public benefits collections derive from electric ratepayers. Savings from these programs must (1) derive primarily from energy efficiency measures and design practices or operational procedures

that reduce electricity use; and (2) be quantifiable and measurable. Furthermore, all things being equal, program activities and/or measures and practices that save additional resources (such as oil, gas or water), reduce waste, or contribute to peak load management will be viewed more favorably, but *only* once they screen for cost-effectiveness on electric savings.

Electric energy savings will be realized through improvements in the efficiency of electrical equipment, improvements to end use applications, and energy management strategies. Public benefits funds collected pursuant to the Electric Restructuring Act should not be used to fund activities that advocate or suggest the appropriate or inappropriate use of electricity as an energy choice.

In the end the principal benefit of energy conservation programs accrues to the customer because decreased kWh use (for the same level end use satisfaction) leads to lower bills. Furthermore the system as a whole benefits because a lower cost "resource" like conservation is included in the mix, which serves to reduce the need for large new investments in infrastructure and subsequent rate increases.

#### 2. Realize Environmental and Economic Benefits

Secondly, programs must be targeted to the goal of "securing the environmental and economic benefits of electric industry restructuring...". This means that programs should promote the most environmentally favorable conservation alternatives (where these can be distinguished) and also give particular attention to the end uses that have the highest economic impact, commensurate with additional requirements for geographic balance of services and equity to all citizens.

This goal also requires that programs be sensitive to markets and sub-markets that may not yet be receiving the full cost savings or energy service benefits of electric industry competition. While there was a hope that restructuring would result in a flourishing energy services market, anecdotal evidence, supported by the opinions of most industry experts, is that this has been true only for the most sophisticated, largest, or most organized customer groups. Thus, it will be the ongoing task of the SPO to determine: (a) which markets may not yet be experiencing the full economic benefits of energy services, and (b) how to deploy programs to both address these market inequities and encourage the private market to supplement the public investments (and, eventually, supplant them.) This task is further developed in Chapter III: "Portfolio Selection and Budget."

As noted at the end of Section A above, Maine and many other states believe that efficiency programs can lead to a broader set of benefits than just reduction in electric demand and avoidance of future investment in generation and distribution facilities. To the extent feasible, and when consistent with primary statutory obligations, the programs will attempt to provide these broader public benefits.

#### 3. Additional Objectives

In addition to the two primary goals, the statute includes language that suggests a number of secondary goals or objectives to encourage certain program delivery attributes or outcomes. For example, programs should "pursue …market-based approaches" (§3.D.), be coordinated "with similar efforts in and among states in the northeast region that are designed to achieve the same goals" (§3.A.), and provide services "in all regions of the State on an equitable basis and to citizens at all income levels" (§3.E.). In order to achieve these outcomes, certain program objectives are implied that complement the primary goals and assure that the delivery attributes directed by the statute are achieved as well.

#### a. Pursue Market-Based Approaches

Market based programs should pursue two complementary goals. First, they should work within existing markets to secure "lost opportunity" or "market-based" savings opportunities and, second, they should strive to "transform markets" from a less efficient level of performance to a higher standard of efficiency.

Market driven opportunities to achieve energy efficiency and transform design and equipment specification practices at minimal cost occur when new buildings are designed and constructed, when existing ones are renovated or expanded, or when old equipment fails and is replaced. Market based programs contrast with traditional retrofit programs in that they work with market forces to influence "first time" equipment selections or building design decisions. (Retrofit programs, in contrast, attempt to undo past market decisions, often by paying a share of the full measure and installation costs to replace functioning, but inefficient, equipment with more efficient counterparts, although in Maine utility programs have rarely relied on paying for the full cost of a measure.) Market based programs often use product information, technical assistance and demonstrations to influence market decisions. Incentives, when applied, need only cover the incremental cost between conventional equipment and the efficient alternative. For these reasons, market driven programs are not only far less expensive to deliver than retrofit-style programs, but they tend to produce more sustained and replicated results as well, because they focus on changing behavior and restructuring a market, rather than just focusing on the change out of equipment.

Market transformation initiatives are "strategic efforts by utilities and other organizations to induce lasting changes in the structure, function, or behavior of the market that result in increases in the adoption of energy efficient products, services, and/or practices."<sup>3</sup> "Often these initiatives are intended to overcome or eliminate market barriers ... to energy efficiency in a lasting manner, to the point where public intervention in the market

<sup>&</sup>lt;sup>3</sup> Definition adopted from Stipulation of the Parties, In Re: Narragansett Electric Company 1996 Conservation and Load Management Adjustment Provisions, State of Rhode Island and Providence Plantations Public Utilities Commission, Docket No. 1939, Attachment 11, pp. 3-4; and from definitions developed by Jeff Schlegel and Ken Keating.

is no longer justified, or the nature or level of intervention can be changed."<sup>4</sup> Market transformation programs attempt to build both demand for energy efficient products (by education, technical assistance and, when necessary, through incentives) as well as supply (by working with manufacturers and distributors to place more efficient products in the market at competitive prices.) Market transformation programs are evaluated less on the immediate savings impact of efficient products purchased and more on the long term "market effects" of the stimulus of the program. Programs should be judged based on the "… market effects that are outside the program, effects beyond the individual act of participation by the customer. These effects could include changes in dealer stocking practices of the measure promoted and changes in manufacturing practices in response to increased demand for the measures; they could also include additional energy-efficiency measures or practices adopted by the participating customer. These effects … indicate there have been lasting changes in the market."<sup>5</sup> Thus, market-based programs will be somewhat different in both design and execution than the programs Maine utilities have offered or customers have experienced in recent years.

#### b. Coordinate with the Efforts of Other States

There is a very good reason why Maine should coordinate its programmatic efforts with those of other states in the region and other regional and national organizations and programs. Maine is but a small part of a larger regional market – and a still larger national market. The active participants in our local market – manufacturers, equipment vendors and installers, developers, design engineers, architects, and the like – do business in these larger markets as well as here. (For many, that market is at least New England and often includes the entire Northeast.) To the extent that our efforts mirror and support those already underway in all the other New England and Mid-Atlantic, as well as national efforts, Maine's smaller investment in SBC-funded programs is leveraged by the much larger commitments in other jurisdictions – and the critical market actors will see similar programs and program rules from Maine to New Jersey.

There are a variety of regional and national programs that could provide either technical or funding support to Maine's Electric Energy Conservation programs. In recent years Federal funding for efficiency programs has grown geometrically (largely in response to concerns about climate change). Often DOE's funding can effectively match or supplement ratepayer funding to advance programmatic activity. Also, the DOE-supported Federal laboratory system can sometimes provide technical or research support for state-based activities.

Historically, Maine has applied for and received a disproportionately small share of the US Department of Energy funds available to all states on a competitive basis to support energy efficiency activities. Similarly, the US EPA has developed a portfolio of highly

<sup>&</sup>lt;sup>4</sup> Using Performance Incentives to Encourage Distribution Utility Support of Market Transformation Initiatives, Jeff Schlegel and Fred Gordon, Proceedings of the ACEEE 1996 Summer Study on Energy Efficiency in Buildings, 1996, p. 7.167

<sup>&</sup>lt;sup>5</sup> From "Market Barriers, Market Effects, and Market Transformation", unpublished draft paper by Jeff Schlegel

successful efficiency programs under the "ENERGY STAR" banner that have been underused in Maine. These programs are supported by national, regional, and local media public awareness campaigns that would available in Maine if the state provided a local linkage to the national efforts. Maine will be more aggressive in the pursuit of Federal and other funding that supports its program goals. This not only makes good financial sense, but it also addresses the law's requirement that Maine entities apply for grants when receipt of such funding is consistent with the purposes of the law.

#### c. Implement Programs Statewide

The statute directs that statewide conservation efforts strive to deliver programs "...in all regions of the State on an equitable basis". This statement requires a preference for statewide consistency in delivery and application of programs. If programs are to work successfully *within* existing and ongoing markets for building design, equipment replacement, and construction and renovation, they must send clear and consistent signals (and apply consistent participation criteria and rules) across the entire market in question. A market-based program must take the market as it exists, not force the market into the artificial construct of distribution utility company service territories. A program that assists with efficient residential design must be the same for builders and architects whether their project is in Kittery or Caribou, or points in between. (However, this is not meant to preclude unique programs for niche markets in certain regions of the state, or different marketing approaches or emphases for the same program depending on regional variations in construction activity or development patterns.)

The goal of the State Planning Office was to develop a portfolio of statewide programs that are consistent in design, in participation criteria, in services and in incentives (if any are present). This would apply to any programs developed uniquely in and for Maine, as well as any regional or other state programs that Maine chooses to join. Marketing approaches might well vary by region or by the preferences of individual utilities, so long as the marketing strategy is developed on a constant statewide basis and the unique subparts are integrated in a thoughtful and supportive manner.

In addition, there may be cases, within the overall statewide suite of offerings, where individual utilities should have the option to offer local and unique services to their customers, or to pilot new program or technology ideas in a smaller scale, localized way. Such enterprises may be justified (as not inconsistent with the objective of statewide consistency) if such local efforts might offer "test beds" for ideas that might have statewide potential, or if local utilities could make a compelling case for the uniqueness of their circumstances.

#### d. Provide Program Offerings for All Customers

The statute directs that programs seek to deliver services "...to citizens at all income levels," meaning that programs should be available to all *customers* of electric utilities

subject to the collection of the SBC in their rates. Thus, in the program development phase of this process options for commercial, industrial and institutional customers, as well as individual homeowners and tenants, were considered. As a program objective, all customer classes should have the opportunity to participate in one or more program offerings in return for their contribution to the fund. However, the overarching test of program ideas was what actions will best direct the forces of the private market towards investment in technologies and design practices that are efficient in terms of their consumption of electricity. Programs should not support measures or services that customers in the various categories would invest in on their own, but should seek out submarkets where under-investment in efficiency is chronic or systemic and where the private energy services industry has not yet met market needs. Potential candidate markets for extra attention include: low-income homeowners and tenants, small businesses, and institutional, nonprofit and governmental entities.

#### e. Build in Capacity for Flexibility in Program Design and Implementation

As the State Planning Office has stated in past testimony on the subject of publiclyfunded conservation programs, "What is clear from the early experiences of other jurisdictions is that it will be absolutely critical for public benefits programs to retain the ability to be flexible and adaptable for some time to come, as more is learned about what markets need and what demands can be served by private energy service providers. Public programs should not be found in markets where the private sector can provide, nor should markets that the private sector cannot serve be left without options. The configuration of these markets around these two issues will undoubtedly change in ways that we cannot now predict, and programs need the flexibility to adjust accordingly."<sup>6</sup>

Thus, choices about program delivery and administration are inseparable from those of program design. The statute gives preference to using competitively selected providers to deliver the end energy services to consumers. In fact, this is the model that Maine utilities and most others in the region have long used, and continue to use for delivery of market-based programs. That is, utilities provide the program management function, market the program, solicit customer participation, and coordinate and oversee the delivery of efficiency services and/or the installation of measures by private contractors who have been selected competitively by the utility.

The statute creates a new model for program design, administration, and delivery of programs, that still involves the ultimate delivery of services and measures through contractual arrangements, but allows some additional flexibility to determine the best use of competitive bidding or alternative contractual arrangements. The statute inserts the State Planning Office into the program planning and delivery process in "creating program objectives and overall energy strategy for such conservation programs, including

<sup>&</sup>lt;sup>6</sup> Testimony of Laurie Lachance, submitted to the Maine Public Utilities Commission for its consideration in Docket 97-591 "Rulemaking: Continued Implementation and Operation of Energy Conservation Programs in a Restructured Electricity Industry", August 25, 1998

implementation guidance when program requirements make such arrangements preferable for the achievement of program objectives."

#### f. Contribute to System Reliability

In a competitive market for the production and sale of electricity, the transmission and distribution entity remains as a regulated utility, responsible for selecting the lowest cost options to maintain its system reliability. Because conservation programs tend to level off and reduce demand they clearly provide some margin of capacity that is needed to maintain system reliability, especially during periods of peak loads. In a new study (Report of the US Department of Energy's Power Outage Study Team, Findings and Recommendations to Enhance Reliability from the Summer of 1999. March 2000), the US Department of Energy efficiency as one means to enhance electricity reliability. Where possible system benefits programs and expenditures will be encouraged that complement utility investments in measures that improve system reliability through peak load management programs. That said, the primary responsibility for this investment lies with the utility, commensurate with its obligation to its ratepayers to select the lowest-cost options for any expenditure.

#### g. Build in Exit Strategies

Exit strategies should be developed for those areas where public intervention may be required only through the transition period to a fully restructured market for efficiency services or where the goal is to transition a public initiative to the private market. In the past utility or public program intervention often has changed common building practice or equipment specifications to favor the more efficient product. Public programs can demonstrate (and sometimes guarantee) new technologies and create demand for new products (thereby stimulating increased production and lowering retail costs). Often building energy codes can be modified to ratify these gains brought about by program activity, which allows incentives to end and spreads the benefit of program-induced changes to all consumers of new building energy codes are the purview of the Legislature, and thus are beyond the reach of this plan. Programs should have their own "end games" built into their design so that when they succeed in their objectives, public dollars can be moved to new objectives.

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#### **II.** Cost-Effectiveness Test

#### **A. Introduction**

Cost-effectiveness analysis is a valuable tool for the planning, design, implementation, and evaluation of energy conservation programs. It can help determine how to design and run a program and provide feedback on the performance of the program. Cost effectiveness can also be one of several considerations in balancing programs and market segments in a portfolio of programs.

#### **B.** Purposes of Cost-Effectiveness Analysis

Cost-effectiveness analysis is a means to assess and evaluate the relative value of ratepayer-funded energy conservation programs in the context of the state's energy policy goals. Cost-effectiveness estimates should be developed and reviewed prior to implementing a program to help inform decisions such as setting program priorities and assessing alternative design strategies. Cost-effectiveness results should also be reviewed during and after program implementation to evaluate and report on program performance, and to refine programs.

Cost effectiveness is an important, but not the only, consideration in prioritizing plans and evaluating energy conservation programs. For example, it would be a mistake to believe that it is possible to rely on benefit/cost ratios as a sole source of guidance for program selection. Generally, benefit/cost ratios are higher in the medium-large C&I sector than in the residential and low-income sectors due to their higher loads and significant energy conservation opportunities. Virtually all jurisdictions have concluded that it is important to offer programs to all customer classes to satisfy the need for equity in a publicly funded portfolio. Moreover, because market transformation programs have as their goal changing markets, a task that can take several years as manufacturers, distributors and customers respond to programs, benefit/cost ratios may be lower than in traditional retrofit programs tailored specifically to capturing immediate energy savings.

Prior to restructuring, cost-effectiveness testing was utilized to help design programs and also to determine budget sizes within the framework of integrated resource planning. Post-restructuring, energy conservation funding levels are set by the legislature. As a result, cost-effectiveness results are not used to set the overall funding level of the energy conservation portfolio. Cost-effectiveness testing has evolved into a tool used primarily to assist in program design and evaluation, and also to help to prioritize programs within an overall legislatively-determined budget level.

#### C. Cost Effectiveness Tests for Maine Statewide Program

Two cost-effectiveness tests are appropriate for use with a statewide program:

**The Societal Test** – evaluates the overall societal benefits and costs of an energy conservation program consistent with the societal, environmental, and economic goals of Maine's energy policies.

**The Energy System Test** – compares the energy system benefits of an energy conservation program to the energy system cost paid by ratepayers. The Electric System Test is the electric-only version of the Energy System Test.

In conducting cost effectiveness analyses, a societal test should be the primary measure of cost-effectiveness because it is consistent with Maine's energy policies and it more fully reflects the broad public purposes served by energy conservation programs in a restructured electric industry. Prior to restructuring, Maine used an All-Ratepayers test that measured the benefits achieved by a DSM program considering the costs and benefits to the utility, to the ratepayer, and taken together. With the onset of public purpose programs and the multiple goals of energy conservation programs, a societal test is appropriate because it is more inclusive of the wider range of benefits and costs that energy conservation programs address.

An energy system test is valuable in informing decisions such as setting program priorities, evaluating alternative design strategies, and assessing the appropriate level of ratepayer funding to achieve public goals. For example, it can be used to ensure that electric ratepayers receive a fair distribution of benefits from the energy conservation programs they fund. The energy system test can be viewed as a subset of the societal test, where the universe of benefits and costs is limited to a narrower field of impacts related to energy policies.

Any proposed program that passes either one of the two tests, where passing is defined as a benefit/cost ratio greater than 1.0, should be implemented as long as the rationale for doing so is consistent with Maine's energy policy goals. The minimum standard for program implementation is simple cost effectiveness, i.e. the value of the energy saved is greater than the cost to achieve the savings.

The following table shows the various components and elements of benefits and costs that will be included in these tests. The two tests are not mutually exclusive, with the energy system and electric energy system tests nested within the broader more encompassing societal test.

	Societal Test (Public Benefits Test)	Energy System Test (Electric System Test if electric-only)
Benefits		
Avoided electric generation,		
transmission, and distribution costs due		
to electric energy savings for:		
Program participants	Yes	Yes
Other customers due to market effects	Yes	Yes
(spillover & post-program adoptions)		
Non-electric resource avoided costs (e.g.,	Yes	No
fuel oil, propane, water)		
Customer non-energy benefits (e.g.,	Yes	No
O&M, productivity, affordability)		
System non-energy benefits (e.g., low	Yes	Yes
income payment benefits)		
Environmental benefits	Yes	No
Other societal non-energy benefits (e.g.,	Yes	No
economic and employment)		
Costs		
Program costs (e.g., admin, management, customer incentives, evaluation)	Yes – for all sponsors	Yes – energy or electric sponsor(s) only
Customer incremental measure costs		
(incremental costs net of incentives) for:		
Program participants	Yes	No
Other customers due to market effects	Yes	No
(spillover & post-program adoptions)		
Customer non-energy costs (e.g., O&M)	Yes	No
Other societal costs of the energy	Yes	No
conservation measures		
		1

#### D. Two Methods for Comparing Benefits and Costs

Cost-effectiveness analysis compares benefits and costs in two ways. The first comparison calculates the magnitude of *net benefits* —total benefits minus total costs, reported in dollars. This is the best indicator of how much better off a program or portfolio leaves society or the utility ratepayers who fund it. The second comparison computes the *benefit/cost ratio* (B/C ratio), with values greater than one indicating cost-effectiveness.

Both comparisons are valuable and will be used in Maine. While the use of benefit/cost ratios is the most common practice, the use of net benefits is an important comparison of

benefits and costs for programs because net benefits describes the total magnitude of benefits (in dollars) net of program costs. Benefit/cost ratios can be useful for comparing the ratio of benefits to costs across programs with different budgets or across states with different levels of funding.

#### E. Timeframe and Scope of Analysis

Multi-year analyses should be conducted to judge the relative value of ratepayer-funded energy conservation programs in the context of energy policy goals. This is particularly important and appropriate for market transformation programs that are designed to influence changes in markets over time. An analysis of cost-effectiveness based on one year of energy conservation measure adoptions will not provide an accurate measure of program cost-effectiveness. Analyses may be conducted assuming program activity and measure adoptions over one, three, and five or more years, consistent with the program objectives and timeframe.

Projected costs and benefits should be stated in present value terms using an appropriate discount rate, which will be determined on a program specific basis. Program benefits should be calculated over the useful life of the program's energy conservation measures. The costs and benefits of market effects should be treated consistently. Estimates of such effects should be appropriate to the program design and time horizon over which it is reasonable to predict such effects, and the level of precision of estimates should reflect a reasonable assessment of the importance of long term market effects to a program's cost effectiveness and design.

Coordinated evaluation and cost-effectiveness analysis is preferred but not required for programs that are implemented on a coordinated or joint basis or use the same program designs, procedures and implementation strategies, so as to reduce evaluation costs and increase consistency. Cost effectiveness analyses for a joint or coordinated program effort may be joint, individual, or some combination of these options based on the structure and operation of the initiative. Analyses of regional or national programs may need to transcend service territories and state boundaries to reflect the actual geographic scale of the market being targeted.

#### F. Avoided Costs

Standardized regional assumptions for **avoided electric generation costs** (short and long term) should be used in the calculation of both cost effectiveness tests, unless clearing prices in a maturing competitive retail power market offer more appropriate or representative values. Though no longer subject to price regulation by the State of Maine, avoided energy supply or generation costs continue to represent a benefit to society, the economy, the state, and utility ratepayers. These avoided costs belong in the Societal Test because avoiding these costs provides economic value, helps the environment, and stabilizes market prices for all consumers. Avoided energy supply costs belong in the

Energy System Test because energy conservation programs avoid the cost of energy delivered through the distribution system.

Other States in New England, notably New Hampshire, are currently considering the use of a regional avoided generation cost component for use in calculating cost effectiveness of conservation programs. A 1998 calculation of a levelized avoided generation cost, prepared by the Massachusetts Division of Energy Resources, is currently under review for application in the region, which should also be considered for applicability in Maine.

Avoided electricity cost estimates should be based on regional wholesale electricity estimates, plus weighted average marginal transmission and distribution costs. The latter can best be developed by the electric utilities. There is a complication in Maine regarding wholesale electricity prices, since part of the state is in the ISO - New England control area and part in the Maritimes control area. For analysis purposes Maine could develop a weighted average estimate that should include capacity and energy and be seasonally and time differentiated.

For a statewide or regional program, **avoided electric T&D costs** should be based on a weighted average of such costs of electric utilities in Maine, if possible. For a separate, stand-alone program implemented in a given utility service territory, avoided T&D costs should be utility-specific.

Non-electric resource avoided costs should be included to the extent that they are attributable to a program and can be reasonably quantified based on expected customer savings associated with such resources. Standardized values should be used wherever possible.

#### **G. Non-Energy Benefits**

Ratepayer-funded energy conservation programs provide value in the form of **non-energy benefits**. Such benefits can include, but are not limited to: reduced environmental impacts, customer O&M and productivity benefits, enhanced economic development and employment benefits, and lower energy bills and other benefits for low-income customers. While the value of such benefits may be difficult to quantify, the value is not zero. Some jurisdictions have used an "adder" value to capture some of this value, but the lack of real data and the somewhat subjective nature of setting a dollar value limits its usefulness. The existence and value of environmental and economic benefits (and costs) are recognized, and in some cases may be explicitly included in a net benefits analysis. In most cases the existence of non-energy benefits associated with a specific program should be acknowledged, even though they are not directly quantifiable. In a situation where cost-effectiveness is an issue, non-energy benefits and costs specific to a technology, product, service, or customer may be estimated either on a general basis for all applications of that technology or on a site-specific basis.

In summary, all of the programs included in the portfolio are expected to be cost effective under either the energy test or the societal test. In the case of programs implemented as part of an existing regional initiative, or programs modeled on experiences in other jurisdictions, all available evidence shows a positive B/C ratio. In the case of new Maine programs, an appropriate and timely program evaluation will reveal its cost effectiveness.

#### **III.** Portfolio Selection and Budget

#### A. Chapter Overview

This chapter summarizes the opportunities that were examined and the process that was used to determine the portfolio of programs currently proposed for Maine. More detail on the process is available in two Discussion Papers prepared by the State Planning Office.

#### **B.** Overview of Potential Markets and Program Opportunities

Energy efficiency opportunities exist for all customer classes and in all types of equipment used in homes and businesses. Provided below are data from selected relevant markets to help illustrate the kind of market potential that exists in selected sectors. The purpose of these examples is to illustrate the kinds of market penetration and savings potential that are being pursued elsewhere, and are likely to be similar in their characteristics and potential for application in Maine.

1. National Programs

EPA, in conjunction with US DOE, have initiated a national ENERGY STAR® labeling and awareness program. The purpose of this program is to increase efficiency standards in selected appliances and buildings, under a general brand that is identifiable to customers. Currently ENERGY STAR® branded products include washing machines, computers, lighting and residential home building standards. (See Discussion Paper #1 for an explanation of the ENERGY STAR® program.)

- 2. Regional Programs
- a. Residential Sector
  - ENERGY STAR® Homes

In Massachusetts, where an estimated 15,000 new homes will be built in 2000, utility programs are seeking to capture 15% of the market in 2000, up from 1% in 1998 and 6% 1999. The program goal rises to 30% by the end of 2002. (National Grid Plan at 17.) Energy use in qualifying homes is required to be at least 30% better than the Model Energy Code 93 (MEC93) standards and 15% better than MEC95.

In Connecticut, 9700 housing starts are estimated in 2000 for new single and multifamily homes. Connecticut is seeking to capture 5% of the new housing market in 2000 and 15% in 2001. Savings are comparable to those in

Massachusetts (buildings are required to use 30% less energy than the Model Energy Code).

The SPO reports 5700 housing starts in Maine in 2000, a level last seen in the 1980s. There is every reason to believe that a well designed residential new construction program could capture substantial savings in this market, and could, depending on budget support, seek to attain market penetrations similar to Connecticut and Massachusetts.

• ENERGY STAR® Appliances

A relatively small number of end uses in homes account for significant portions of residential load (in non-electrically heated homes). These are primarily lighting and appliances. Programs in other states and in the region are seeking to increase the penetration of efficient products for these major end uses. For example, Connecticut and Massachusetts offer catalogs of efficient lighting to their residential customers. Massachusetts is also seeking to increase the selection of efficient lighting available to consumers in stores, including grocery stores where light bulbs are often purchased. Massachusetts is seeking to increase market penetration to 20% for ENERGY STAR® clothes washers.

- b. Commercial & Industrial Sector
  - New Construction and Design

New commercial and industrial building construction (including major renovation) is an important market that offers significant opportunities for cost effective savings. Most states with comprehensive programs address this often lost opportunity. Massachusetts Electric Company's Design 2000 Plus, the major new construction program in Massachusetts (used by Mass Electric and, under license, by NSTAR) is demonstrating savings of 30% in new commercial construction through the Comprehensive Design Approach.

• Building Operation and Maintenance (O&M)

O&M is a potentially large untapped energy efficiency resource among businesses. O&M is only recently appearing as a market that programs should address. A review of prior pilot programs in the Northwest has shown potential savings of about 14% in government and commercial buildings, and (conservatively) 6% in industrial buildings, across all fuels, at modest cost. Better operation will also improve worker health and satisfaction and extend equipment life. (*Pacific Energy Associates, O&M Literature Survey on Savings, 1996.*)

c. Regional Market Transformation Program Examples

Efficiency programs designed to help induce market changes can aggregate the buying power of utility customers and influence manufacturers. In many markets in the Northeast, manufacturers, vendors, distributors, contractors and other market players work across state lines. As a result, some markets can best be addressed on a regional basis. Influencing the powerful regional market can greatly improve product choice and availability, inducing reductions in product prices and raising efficiency standards. Contractor capabilities are enhanced, delivering improved performance to nonparticipants. For example, the following programs can achieve significant efficiency improvements in selected markets:

#### • Motors

Motors constitute a large share of load in many manufacturing applications. Utility programs have improved availability for premium, high efficiency motors. ("Northeast Premium Motor Initiative Market Baseline and Transformation Assessment," Xenergy, August 17, 1999). The proportion of premium motors meeting the efficiency levels proposed by the Consortium for Energy Efficiency (and promoted nationally through utility programs) has reached 80%, a substantial increase over the pre-program baseline. Manufacturers have retooled their lines to meet the program efficiency levels, and cite utility programs as an influence in doing so. (See Easton study)

• Unitary HVAC equipment (roof-top heating and cooling systems)

As a result of utility programs, higher efficiency Unitary HVAC systems are now widely available in the market. The regional Cool Choice program for commercial and industrial unitary heating and cooling equipment has produced a significant increase in units meeting the Consortium for Energy Efficiency (CEE) efficiency levels. Manufacturers have retooled their lines in the last year to conform to the standard. While data are not available, utilities report an increase in the number of rebates for more-efficient equipment through this program in early 2000. This comes on the heels of a decision to incorporate the lesser Tier I standards into influential building standards (for example, into the Massachusetts building code in 2001).

• Compressed Air

A study for New England utilities indicates a higher level of awareness and sophistication on the part of vendors regarding compressed air system optimization opportunities in Southern New England (where utilities have offered technical assistance and incentives) than is typical in the country as a whole. (New England data from *Final Report- Compressed Air Systems Market Assessment and Baseline Study for New England*, Nov. 19, 1999, Aspen Systems Corporation.)

• Contractors and Developers

One of the key goals of a regional or state market transformation program is to improve product choice and availability so that benefits "spillover" to consumers who are not directly participating in programs (called "non-participants"). This effect often happens when contractors and project developers gain some program experience with a new energy efficient product that they carry over into new projects. Non-participant "spillover" effect is documented in various regional programs through increasing the education of market players, which improves their ability to offer a higher level of service through efficiency expertise. The New England motors study (Easton, *op cit*) showed that, over a number of years, motor rebates had a large impact on program non-participants. Manufacturers, vendors, and customers attributed much of the effect to years of utility rebate programs in New England. While not all customers processed the rebates, many viewed them as an important "signifier" of quality and efficiency.

• Building energy codes and standards

Efficiency programs can be key to supporting improvements in building code and equipment standards, which can be an extremely important and cost-effective way to improve efficiency in new and renovated buildings. Massachusetts Electric's Design 2000 C&I new construction program has been critical to the acceptance of recent Massachusetts and Connecticut code upgrades.

#### C. Process for Selecting the Portfolio of Programs

Before focusing in on the difficult task of selecting a portfolio of new programs that could be supported by the available funds, two preliminary steps were required:

*First*, a broad list of candidate programs (based on successful programs in other jurisdictions, the knowledge gained through program experience in Maine, and proposals from stakeholders) was complied to capture the breadth of program opportunities. *Second*, estimates were derived of potential energy savings achievable in Maine if these program models were adopted. Table III-1 below shows the energy savings possible if a significant portion of the cost-effective conservation opportunities in Maine were captured. *Third*, budget estimates were calculated to determine what level of funding would be required to deliver these programs. Table III-2 is the budget that would be needed to support that effort. This estimate is best viewed as an "optimal" program budget. It reflects the resources that would be required to capture most of the cost effective energy savings available in the state.

The annualized savings shown are from measures and market interventions that would be installed/carried out during that year. The savings would continue at that level for the life of the measures, or, in the case of market transformation, indefinitely.

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TABLE III-1: ESTIMATED ANNUALIZED ENERGY SAVINGS	
FOR ENERGY-EFFICIENCY PROGRAMS	
<b>BY PROGRAM IN MAINE IN MWH's</b>	

<b>Energy</b> -Efficiency Programs	Year 1	Year 2	Year 3	Cumulative
Commercial & Industrial Programs				
C & I construction	7,048	12,063	19,652	38,764
-New commercial construction	1,207	1,795	2,960	5,962
-Remod/replace/renovation	4,478	8,089	12,635	25,201
-Industrial	1,690	2,602	4,441	8,733
Unitary HVAC (NEEP)	202	252	158	611
Premium Efficiency Motors (NEEP)	125	171	226	521
DesignLights Consortium (NEEP)	-	-	-	-
Compressed Air	593	1,483	2,966	5.042
Building O&M (NEEP)	369	938	1.254	2.560
Motor Systems Optimization		,	-,	
C & I Subtotal	8,337	14,907	24,255	47,499
Residential Programs				
ENERGY STAR® Appliances (NEEP)	71	83	95	248
ENERGY STAR® Lighting (NEEP)	1,256	2,513	5,025	8,794
ENERGY STAR® Windows (NEEP)				
Residential New Construction	312	613	906	1,831
Residential HVAC	1,261	1,891	2,521	5,673
Residential HVAC Tune-Up/Repair				
Low Income Programs	300	1,500	1,500	3,300
Residential Subtotal (w/o HVAC)	1,939	4,708	7,526	14,173
Residential (w/HVAC)	3.200	6,599	10.047	19.846
	2,200	0,000		,010
	10.084	10 (17	31 504	
i otai (w/o Kesidential HVAC)	10,276	19,015	31,781	61,672
Total (w/Residential HVAC)	11,537	21,506	34, 302	67,345
The following are the amounts that would be needed to capture the energy savings shown in the table above. The amounts initially calculated for individual programs were refined and updated later in the process.

<b>Energy-Efficiency Programs</b>	Year 1	Year 2	Year 3	Total
Commercial & Industrial Programs				
C & I Construction	\$3,118,059	\$4,551,304	\$7,187,433	\$14,856,797
Unitary HVAC (NEEP)	209,918	221,821	221,652	653,391
Premium Efficiency Motors (NEEP)	215,846	215,351	230,402	661,598
DesignLights Consortium, (NEEP)	247,975	223,280	226,802	698,057
Compressed Air	200,000	400,000	200,000	800,000
Building O&M (NEEP)	227,600	447,000	442,906	1,117,506
Motor Systems Optimization	288,982	581,823	1,314,938	2,185,743
				•
C & I Subtotal	\$4,508,379	\$6,640,580	\$9,824,133	\$20,973,091
Residential Programs				
ENERGY STAR® Appliances	\$753,414	\$668,250	\$615,042	\$2,036,706
(NEEP)				
ENERGY STAR® Lighting (NEEP)	696, 041	780,312	937,277	2,413,629
ENERGY STAR® Windows (NEEP)	275,000	217,100	224,263	716,363
Residential New Construction	834,077	1,460,136	2,026,110	4,320,323
Residential HVAC	521,468	694,114	699,928	1,915,510
Residential HVAC Tune-Up/Repair	349,896	548,190	427,437	1,325,523
Low Income Programs	424,000	1,003,095	982,313	2,409,408
Residential Subtotal (w/o HVAC)	\$2,982,533	\$4,128,893	\$4,785,004	\$11,896,430
Residential (w/HVAC)	\$3,853,897	\$5,371,197	\$5,912,369	\$15,137,463
Research	\$450,000	\$450,000	\$450,000	\$450,000
Total(w/o Residential HVAC)	\$7,940,912	\$11,219,473	\$15,059,137	\$34,219,521
Total (w/ Residential HVAC)	\$8,812,275	\$12,461,777	\$16,186,502	\$37,460,554

## TABLE III-2: ESTIMATED 3 YEAR BUDGETS FOR ENERGY-EFFICIENCY PROGRAMS BY PROGRAM IN MAINE

From developing these two tables it was obvious, immediately, that available funds are only a fraction of what would be needed to capture "significant portion" of the costeffective conservation opportunities in Maine. And, furthermore, the selection of a portfolio of programs would be constrained by the availability of funds. In the final step, candidate programs were tested against the overarching program objectives, to ensure that the portfolio of programs proposed would: (a) achieve demonstrable electric savings; (b) provide environmental and economic benefits; (c) use market-based approaches; (d) leverage other federal, regional and state programs when advantageous to Maine; (e) provide opportunities for customer participation statewide; and (f) encourage system reliability.

Highlights of this examination are summarized as follows; more detail is available in Discussion Paper #4.

Electric energy savings must be demonstrable and have a B/C ratio greater than 1.0. Cost-effectiveness is a critical factor in program development and implementation because it helps determine how to design and run a program, as described in the previous chapter of this Plan. Cost-effectiveness tests can also be a tool in balancing programs and market segments. While Maine will carry out its own cost-effectiveness testing, we can point to the work done in sister states to get an understanding of the nature of cost-effectiveness of various programs targeted at different markets. It would be a mistake, however, to believe that it is possible to rely on B/C ratios as a sole source of instruction for program selection. Generally, benefit to cost ratios are higher in the medium-large C&I sector than in the residential and low-income sectors due to their higher loads. Yet, virtually all jurisdictions have concluded that it is important to offer programs to all customers to satisfy the need for equity in a publicly funded portfolio. Moreover, because market transformation programs have as their goal changing markets, a task that can take several years as manufacturers, distributors and customers respond to programs, typically their B/C ratios are lower than in traditional retrofit programs tailored specifically to capturing immediate energy reductions.

Energy efficiency programs can provide significant **environmental benefits** by avoiding emissions from power plant generation and providing other on-site benefits such as water use reduction. States and utilities as well as organizations such as NEEP have estimated the environmental benefits accruing from programs. Generally, these estimates are based on emissions rates of power plants in the NEPOOL mix. While Maine is part of the NEPOOL emissions profile (with the exception of Maine Public Service), on a statewide basis Maine's power mix consists of a higher percentage of hydropower and biomass and a lower percentage of nuclear, coal and oil. However, because Maine electricity is delivered through the NEPOOL dispatch system, Maine's avoided emissions are those avoided in the NEPOOL system as well.

Energy efficiency programs provide quantifiable economic benefits in the form of job creation, customer bill reductions and increased productivity.

In selecting any portfolio of programs, limited funding forces difficult choices about program breadth and program selection. The selection decision is based on considering the key objectives to be achieved through the performance of the portfolio and then applying appropriate selection criteria (cost-effectiveness, market potential, supporting Maine businesses, environmental performance). The selection process relies heavily on decision frameworks developed in other states and regions to help guide the prioritization process. In selecting programs, given the budget constraints, significant preference has been given to participating in regional programs that already are underway, as opposed to the more expensive route of developing and launching new programs.

#### **D.** Estimation of Funding Available

In the electric industry restructuring legislation the Public Utilities Commission is directed to establish "total conservation program funding expenditures" for each transmission and distribution utility that are based on the relevant characteristics of the transmission and distribution utility's service territory, including the needs of its customers. The Legislature went further in its directive and established a range in potential funding levels, setting a cap not to exceed 0.15 cents per kilowatt-hour of electricity transported; and a floor of not less than 0.5% of total transmission and distribution utility.

Total conservation program expenditures are defined to include expenditures associated with prior conservation efforts (such as CMP's Power Partners contracts), expenditures for program planning (such as assessments placed in the Conservation Fund for SPO activities), and the expenditures for conservation programs delivered by the T&D utilities.

Initial funding levels have been set by the Commission in recent T&D utility rate cases which took effect on March 1, 2000. The Commission established new rate schedules for CMP, BHE, and MPS that include a systems benefit charge for conservation programs. Currently Bangor Hydro Electric and Maine Public Service are collecting conservation program funds at the floor level, while Central Maine Power is collecting at the cap in order to cover existing obligations for outstanding Power Partners contracts. While the public benefit charges for conservation programs are established by the Commission for the three investor owned utilities, the obligation to collect conservation program funds was left in the hands of the consumer owned utilities to be factored into their rate plans as they were filed with the Commission, presumably at the floor level.

The figures shown in the table below are the best estimates of the funding available for new conservation programs, beginning with the 2002 program year. These are the funds available after netting out: prior obligations such as CMP's Power Partners contracts; the planning assessment for SPO and NEEP membership; and planned expenditures for continued existing interim programs.

#### TABLE III-3

Program	Estimated Funds
Year	Available
2002	\$4,155,865
2003	\$5,430,625
2004	\$6,016,539
2005	\$5,415,187

A major variable in making these estimates is the unknown costs associated with CMP's Power Partners contracts. Actual program costs are only known at the end of a program year when the final accounting of energy savings is calculated. Thus fund availability in later program years will need to be adjusted and factored into program plans.

#### E. Proposed Portfolio

After reviewing programs according to each one's potential for having a market impact in Maine, and its contribution to meeting program objectives, the SPO selected a suite of programs that address energy savings opportunities in residential lighting and appliances applications, and in non-residential new construction, renovation, and equipment replacement. Also, market-driven equipment replacement potential appears to exist in some quantity in the electric motor and HVAC markets as well. Thus, the proposed portfolio calls for investment in these markets (where there is the added advantage for Maine to enter ongoing regional programs with market presence and momentum.) Improved building operations and maintenance similarly show promise, and there are at least two programs that Maine can access immediately on essentially a turnkey basis. Residential new construction shows less promise, primarily due to the very small penetration of either baseboard electric or heat pump technologies in Maine.

The proposed portfolio of programs and budget for 2002 are shown below. More detailed program design descriptions are given in the following chapters of this Plan.

#### F. Summary of State-wide Program Budget for 2002

Low Income, Appliance Replacement Fund	\$300,000
Residential ENERGY STAR® Appliances	\$364,000
Residential ENERGY STAR® Lighting	\$540,000
Residential Water Heat Initiative	\$180,000
O&M Training Sessions	\$ 50,000
Motor Up Program	\$145,000
Cool Choice Program	\$156,000
Non-Residential Construction Program	\$2,420,000

Note: the allocation of these budgets among the utilities will be determined based on initial estimates, but refined when more data is available to address or avoid any significant inter-utility-service territory inequities.

# **THE PORTFOLIO OF PROGRAMS**

# **IV. Conservation Program Promotion and Public Education**

#### A. Summary

Strong and effective promotion of energy conservation through public education efforts is an essential element of the statewide electric energy conservation program. Education efforts can be pursued in a variety of ways ranging from broad scale public awareness campaigns, to energy education programs for general public consumption, to schoolcentered programs, to information and education efforts tied to specific conservation programs.

A central assumption of this plan, based upon consumer research and the experience of other jurisdictions, is that the most effective education is that which can be linked directly to a specific consumer opportunity for action. Thus, the Maine electric energy conservation program links promotion, information and education directly to the delivery of specific products and programs, where the education message is tied closely to the objectives of the program. The Maine EnergyStar initiative, for example, will largely be an educational effort to link product knowledge with a purchasing action. This close linkage assures that limited resources are applied to the effective and successful implementation of a conservation program, while at the same time providing an informational and educational message in a way and at a time to help consumers make informed choices.

Utilities are encouraged to integrate program promotion with their ongoing consumer information and educational activities, including support for targeted "public" education programs that increase awareness of conservation opportunities.

### **B.** Background

Throughout the planning process some stakeholders have made a case for a generalized public education program within the overall state plan, especially some form of in school program. The Maine Energy Education Program (MEEP), for example, provides a broad energy curriculum, in a classroom setting, in partnership with grade school teachers and administrators. The programs are well received and effective in teaching students about all energy sources, the impacts of energy choices, and understanding of some of the related economic and environmental issues. The program is includes all energy options including conservation.

A discussion group did meet early in the planning process to consider the development of an in-school educational program that would feature electric energy and the opportunities for conservation. The Green Schools model was considered, where in class education activities lead to projects in the school facility that result in measurable energy savings. A full scale proposal was made for a program that would pursue this model was assessed as being too costly for the limited resources available, at this time, and too uncertain of success based on the early experience of others.

Existing utility supported general public or in-school energy education programs are limited to funding support for the MEEP program, and in the case of MPS periodic staff presentations in local schools. These programs do inform and motivate actions in school and at home, thus providing a good public service to promote energy conservation.

# C. Program Design

1. Program Goal and Objectives

The goal of public informational and educational efforts is to increase awareness of energy conservation opportunities and programs, to provide information about efficiency choices, and to generally promote conservation programs.

Program objectives are to increase participation in programs, and to create a well informed and educated consumer who can make informed choices in the market place,

# 2. Program Elements

1. Promotion of Conservation Programs. In creating and conducting coordinated statewide programs the utilities will have the opportunity to promote public awareness and participation in conservation programs. This is a task that should be undertaken with a consistent message and image that creates recognition for utility sponsored programs and informs customers about program opportunities. Statewide, consistent promotion of programs can be coupled with more customized utility level informational materials and educational activities designed to promote specific efficiency programs.

2. School based programs. Independent of the statewide program promotion, utilities are encouraged to support and participate in school centered efficiency programs when they contribute to increased awareness of conservation opportunities, lead to a demonstrated energy savings, improve energy and resource efficiencies. There are a number of models for such efforts around the country; therefore the selection of any Maine program would be based on a competitive solicitation. As any potential program must provide a balanced consideration of all fuel and efficiency choices, partial funding for the electric energy savings components of such efforts should be considered only when it can be demonstrated that the overall program will receive a mix of funding support from other public or industry sources.

## 3. Program Development

The development of public information and educational materials designed to promote various programs will by necessity evolve as program details are established and the new programs begin to be delivered to customers. The majority of customer educational efforts are tied to the delivery of specific programs, and for programs linked to regional initiatives existing program materials may be used with minimal adjustments. Each utility will need to formulate mechanisms to inform customers of program availability and encourage participation that utilizes existing customer communications methods.

The development of general public information materials that provides a summary of programs should be considered. This public education piece should be designed with a uniform message and presentations of programs for use in general distribution.

The development of a statewide school centered program will need to await future funding availability. In the meantime utilities can continue to support in-school programs when they lead to greater awareness of conservation opportunities and encourage participation in programs.

# **D.** Proposed Budget

The costs for public education are program specific and therefore imbedded in each program budget. The budget impact for educational activities will be influenced by the efforts (promotion, distribution of materials, etc.) undertaken to achieve individual program objectives.

A small percentage of each program could be pooled for used on general program promotion through support of public education activities, including in-school programs. Utilities are free to augment these conservation fund supported programs from other funding sources to meet other company objectives.

# V. Low-Income Household Appliance Replacement Program

#### A. Summary

This program is to designed to provide a funding resource for CAP agencies that can be used to help replace old, inefficient and malfunctioning electric appliances, especially refrigerators, in qualifying low-income households. A well-developed and efficient delivery system is already in place that can be used to implement this program. The Maine State Housing Authority (MSHA), the state level agency responsible for the delivery of federally funded energy assistance and improvement programs for lowincome households, already contracts with local Community Action Program (CAP) agencies to process applications and qualify households for programs. In most cases, the CAP agency delivers fuel assistance, home improvements, and other energy services directly to the clients.

#### B. Background

Electric utility conservation programs for Maine's residential customers are aimed at helping consumers use electricity wisely and efficiently, thereby reducing energy demand and helping them control their energy bills. Investing in improvements in energy use and efficiency often has an up-front cost that can be a very difficult and even impossible expenditure for low-income households, who are struggling to make ends meet. Improving the energy efficiency of low-income households and lowering utility bills has a very significant effect on the household budget and the ability to pay for energy usage (including electricity). In addition, improvements in energy use and related cost savings reduce the need for heating assistance and other assistance programs, thus providing a savings for public assistance programs.

#### C. Program Design

#### 1. Program Goal and Objectives

The goal of the program is to provide funding assistance for the replacement of up to 500 old, inefficient or malfunctioning appliance units, mainly refrigerators, in households receiving energy assistance programs.

Specific program objectives will be developed for each utility and CAP agency area, based on the populations of qualifying households, the expected occurrence of appliances qualified for replacement, and other factors influencing the number of units that need to be replaced.

# 2. Target Market

The target population for this program is reached through the existing MSHA/CAP agency programs, which are in place to provide home heating assistance and weatherization services to qualifying low-income households. The appliance replacement fund, provided by each utility, is available to the providing agency to pay (up to the full cost) for the replacement of refrigerators, according to a pre-defined set of criteria and qualifications.

# 3. Other Program Elements/Marketing Activities

To be determined.

# 4. Implementation Plan and Schedule

The establishment and use of an appliance replacement fund will require the development of a close working relationship between the utility and the agencies providing energy assistance programs in its service territory. A formal working agreement will be needed to:

- establish and define program parameters for qualifying measures,
- set up procedures and processes for accessing the fund, and
- describe the record keeping and reporting requirements.

The SPO will work with the utilities and CAP's to facilitate the development of a formal working agreement that creates a uniform, efficient program, with established procedures and processes, and that allows for necessary variations to account for local conditions. The program is expected to be in place by the start of the 2001-2002 heating season.

# 5. Program Administration

Each utility will set an annual budget amount to support this program, based on mutually established program objectives and budget constraints. The utilities will maintain records of fund use, and estimated energy savings, in sufficient detail to fulfill any reporting requirements.

Administrative details will cover the process for the CAP agencies to invoice the fund. The appliances will be purchased through the usual competitive vendor procurement practices. The CAP agency will invoice for the purchase price, costs of proper disposal, and directly related administrative cost. The CAP agency will need to provide a certification that the replacement meets the terms and conditions for using the fund. The CAP agencies will provide data on the replaced appliance, including wattage measurements (or other means) obtained during the audit/program qualification process that can be used to establish estimated energy savings.

#### **D.** Program Evaluation, Market Research

The statewide goal of 500 units established for the appliance replacement program is estimated based on the results of the REACH (Residential Energy Assistance Challenge) program, which was run in several CAP areas. The actual number of qualifying units needing replacement will emerge from the first year's program experience.

### E. Proposed Budget

\$300,000 for 2002

### F. Program Cost Effectiveness

See REACH evaluation report (in progress) for an analysis of the energy savings and cost effectiveness of refrigerator and other appliance replacements.

# VI. Residential ENERGY STAR® Lighting Products and Fixtures Program

### A. Summary

This program is designed to promote and support the widest possible use of compact fluorescent lamps and fixtures by increasing the availability of products as well as consumer acceptance and use of these products. Program effectiveness is leveraged by participation in national and regional lighting initiatives to facilitate product development, marketing, and use. This program has several elements:

- Local utility staff or contractor activities to educate customers and encourage the selection and use of featured products, including the use of rebates and other incentives and promotions,
- A retailer support program delivered on a statewide basis as part of the regional NEEP initiative,
- Cooperative marketing and promotion activities with local retailers, wholesalers and distributors to support ENERGY STAR® product selection,
- A lighting products catalogue, and
- Outreach and educational programs for housing designers and builders, and property owners/managers to promote ENERGY STAR® product selection in new house construction and renovation projects.

Program details are tailored to account for local market conditions.

### **B.** Background

### 1. Residential Lighting Programs in Maine

Maine utilities have historically offered residential lighting programs that featured the distribution of compact fluorescent lamps (CFL) to customers through various promotions and distribution programs. Some consumer owned utilities continue to offer CFL to customers at discounted prices. These programs helped raise consumer awareness and increased the use of CFLs as a cost effective way to conserve energy and control electricity bills, while maintaining adequate and comfortable lighting.

### 2. Market Opportunity

In Maine, electricity consumption comprises approximately 15.8% of all residential energy use, on a BTU heat value basis. In 1997, Maine households consumed 3.66 billion kilowatt hours of electricity, with a major share used for lighting.

The purchase of various energy-consuming products (e.g., lighting fixtures, major appliances, consumer products) is a market-driven event that occurs during new construction, remodeling, or equipment replacement projects. Typically, the average residential household purchases one of these products only every 10 to 25 years. Once a unit is selected and installed, any opportunity for enhancing efficiency is essentially lost. Thus, it is critical that efficiency opportunities are addressed at the time of purchase.

Today a new generation of CFLs provides wider product choice and greater flexibility in lighting applications than many consumers realize. Most residential customers can now save even more energy in more applications by the use of this new generation of energy efficient lamps and fixtures.

## 3. ENERGY STAR® Framework

The U.S. Department of Energy (DOE) and the Environmental Protection Agency (EPA)'s nationally recognized ENERGY STAR® product labeling program is designed to build customer awareness and market demand for high-quality energy efficient products. The DOE and EPA are promoting the use of energy efficient equipment by awarding the ENERGY STAR® label to appliances and electronic equipment that significantly exceed the minimum national efficiency standards. This label helps consumers easily identify these more efficient products.

The ENERGY STAR® program provides Maine with a unique foundation for quickly and efficiently developing and implementing a broad based residential energy efficiency program targeting several products types, while simultaneously serving the residential new construction, remodeling, and replacement markets. By building off the current ENERGY STAR® program platform Maine can leverage its relatively modest program resources with support from both national ENERGY STAR® efforts and regional ENERGY STAR® programs (such as those sponsored by the Northeast Energy Efficiency Partnerships). These regional and national efforts provide Maine with access to national manufacturers and chain retailers that would be very difficult achieve otherwise. These market actors are critical for influencing change in local markets.

# C. Program Design

### 1. Program Goals and Objectives

The goal of this residential lighting program is to increase the use of ENERGY STAR® rated compact fluorescent lights (CFL) and fixtures in Maine households. This will be done through a market based program that coordinates marketing and promotional efforts designed to make products readily available and to encourage/support consumer selection and use of high efficiency residential lighting products, including new ENERGY STAR® labeled lighting fixtures.

The Maine ENERGY STAR® Lighting Products and Fixtures Program is designed to coordinate with and gain the advantages that are available from participating in the NEEP sponsored Northeast ENERGY STAR® Residential Lighting Initiative, which is working to create long-term and permanent changes in regional and local markets. The emphasis of the Maine program is on local market development and customer promotions within utility service areas.

Measurable objectives:

- a) Increase market share and sales volume of ENERGY STAR® CFLs and fixtures.
- b) Foster demand in the marketplace so that the unsubsidized retail prices of ENERGY STAR® CFLs continue to decline.
- c) Expand the number and types of retail stores carrying and promoting ENERGY STAR® CFLs and fixtures.
- d) Increase consumer recognition and understanding of ENERGY STAR® lighting products.
- e) Support regional and national efforts to improve availability of new fixture designs using efficient lighting.
- f) Expand the number of developers, property owners and managers, housing authorities, and others that specify/use ENERGY STAR® lights and fixtures for new construction, remodeling, and replacement.

# 2. Target Market

The target market for this program is all residential electricity customers.

The market for CFLs is changing in Maine, due in part to a spillover effect from national and regional efforts to make the product more available and to promote customer use. As a result of increasing demand, product prices are declining, and consumer awareness is improving. CFL are now widely available in Maine retail outlets, including some grocery stores. Additional work is needed to assure the full participation of retailers, to promote and market the products, <u>and</u> to improve customer awareness and understanding of product selection and appropriate usage.

The market for compatible CFL fixtures is just at the beginning of product development, manufacturing, distribution, and sales. At this early stage in market development, support in the form of consumer demand is needed to encourage the development and sales of efficient lighting fixtures.

In other jurisdictions, utilities are using a lighting products catalog, incorporating a rebate program, to encourage and assist customers with the purchase of more efficient lamp and fixture products. Catalog offerings are tailored and targeted to the needs of customers in each utility area, both to control program costs and to increase the demand for the most popular products.

In addition, decisions about lighting and related equipment in residential new construction and remodeling are often made by the developer/builder, or property manager and not the ultimate occupant of the unit. The choice of lighting product is heavily influenced by the impact on construction costs and not by longer term operational and maintenance costs for the building occupant. Residential building designers and contractors, and property managers of private and public projects, are prime targets for educational, informational outreach efforts (and incentive programs) designed to encourage the selection and installation of energy efficient lighting and especially fixture products.

#### 3. Program Elements/Marketing Activities

Maine program objectives are leveraged by participation in existing national and regional initiatives that are designed to create and sustain structural marketplace changes that increase the availability, consumer acceptance, and use of ENERGY STAR® qualified products. Maine utilities will participate in the regional lighting initiative sponsored by NEEP to take advantage of retailer outreach and marketing programs. To the extent practical, the marketing materials and promotional messages employed by Maine utilities should align with the regional initiatives. Certain elements of the Maine program, such as incentive levels and a marketing plan, will be specifically designed for Maine markets and program budgets.

Maine will bolster its in-state efforts by producing a consumer products catalog for energy efficient lighting and other resource saving products not currently readily available in local market outlets. The details of the Maine-specific program elements will be developed during the final implementation planning process.

During the initial years of this program an appropriate rebate level, given the current and evolving state of the Maine marketplace, needs to be determined. Greater availability, reduced costs, and the increased use of CFLs that have already been gained through the efforts of the regional program (and other market factors) suggest that the market is changing such that the need for rebate incentives is reducing to a point where continued consumer information and education, supported by targeted marketing efforts, will be enough to finish transforming the marketplace for efficient lamp products. The rebates will help promote consumer interest and overcome the market hurdle of higher first cost.

The market for fixtures is less mature and will more clearly benefit from the incentive of product rebates. Rebates and incentives, coupled with product promotion, will be needed in the early years to move customers toward ENERGY STAR® fixtures and help overcome any first cost hurdles.

4. Implementation Plan and Schedule

The residential ENERGY STAR® programs (lighting and appliances) are implemented at two levels – at the Maine utility level and by participation in regional initiatives.

Utility level program elements will be developed on a consistent state-wide basis, with flexibility in meeting particular needs that may exist in the different service territories. Regional program elements are achieved through utility membership in NEEP and participation in the regional lighting program.

A Maine program "manager" will need to be hired by competitive bid.

This regional initiative is already in place and operating in the rest of the northeastern states. Expansion of program activities to Maine can be accomplished relatively quickly and cost effectively by extension of the existing regional program as it is generally implemented in the region. To implement Maine's participation in the initiative, contractual arrangements will need to be made with several existing (or new) program services contractors currently providing program services.

Representatives of Maine utilities are participating in the regional initiative's program working group to assure that Maine program objectives are duly considered and that program activities are tailored to Maine utility service areas. Maine program actions are designed to support and augment the objectives of the regional program.

5. Program Administration

To carry out this program, the Maine utilities will contract jointly for a program manager. The program manager will be responsible for working closely with all program vendors and Maine utility managers to ensure that utility activities are consistent with program guidelines and delivered with high customer satisfaction. The program manager's duties will include:

- designing and implementing program guidelines and criteria,
- managing in-state program contractors,
- overseeing development of marketing efforts and materials (including appropriate use of regional and national materials),
- coordinating among the in-state utilities to ensure state-wide consistency,
- managing program budgets,
- planning future program enhancements, and,
- attending regional working group meetings, though a utility employee(s) will be responsible for representing Maine's interests on the working group.

Depending upon capabilities, staff availability and the wishes of the individual Maine utilities, this *contractor* may be an existing utility who could make a competitive bid to provide the services specified in an RFP to provide program management services.

Several other program functions also are best handled by jointly hired contractors:

• A vendor outreach services contractor conducts retailer recruitment and training, placement of point of purchase marketing materials and any rebate coupons, regular visits to retailers, product labeling, special promotions, and in general acts as liaison between the utility and the retailer.

- A marketing *contractor* develops the marketing, advertising, and promotional campaign.
- A *fulfillment contractor* processes rebate coupons, produces and distributes catalogs, staffs telephone inquiry line, etc. Given that rebate levels (and the duration of incentives) will be specific to Maine, this function would most likely be Maine-specific.

The first two, in particular, are likely to be handled by contractors selected by the regional working group, of which Maine utilities will be voting members. Some of these contracts are already in place, so Maine's participation will be handled as described in Section C.4 above. Over time these contracts would have to be renewed through competitive bidding, which would be open to Maine-based firms. Depending on specific details of the work to be contracted and budget availability, Maine could elect to contract for these services independent of the working group, but consistent with the goals of the regional initiative. The fulfillment contractor also will be selected periodically by competitive bid.

Administration of the regional components of the program is provided by the NEEP program manager. The Lighting Initiative working group (of which the Maine utilities are now members) provides strategic program direction and makes program policy decisions.

## **D.** Program Evaluation, Market Research

Some baseline market assessment is needed to more clearly understand current market conditions in Maine, especially as circumstances may vary between utility territories. Current understanding and documentation of regional markets and consumer behaviors includes much of Maine's markets since the national and regional chain retailers that operate stores in the state are already engaged in the regional program. A Maine baseline study may be necessary, if regional program evaluations do not provide the information needed, to document program achievements (progress on measurable objectives) at the state and utility level.

Program evaluation of the lighting initiative is organized on a program wide or regional basis, based on an evaluation plan developed by the NEEP working group, and is carried out with the (apportioned) support of the utility partners in the program initiative. Program and market evaluations are conducted periodically to measure progress in meeting program objectives. A regional program evaluation of the lighting initiative is planned, and budgeted, but to-date no planning for the study has been done. Ongoing program monitoring is provided by contractor reporting, which provides timely feedback on the status of the market and progress made toward meeting program goals and objectives.

### E. Proposed Budget

\$540,000 for 2002

# VII. Residential ENERGY STAR® Appliances Program

### A. Summary

The purpose of this program is to increase electricity customer awareness, selection, and use of Energy Star labeled appliances. Program goals and objectives are achieved through the coordinated delivery of activities to support local retailers, to promote Energy Star choices, and to provide consumer information and education. Customer incentives will be used selectively, when they can aid in reaching program objectives. Program effectiveness is leveraged by participation in national and regional initiatives to facilitate product development, marketing, and use. The program consists of several elements:

- Local utility activities to educate customers and encourage the selection and use of featured products, including rebates and other incentives and promotions,
- Participation in national, regional, and local cooperative marketing and promotion activities that support Energy Star retailers and manufacturers,
- A retailer support program delivered on a consistent statewide basis through the regional NEEP sponsored ENERGY STAR® Appliance Initiative,
- Linkage to an efficiency products catalogue that may include additional resource saving products, and
- An outreach and educational program for residential house designers and builders, and property owners/managers, to promote ENERGY STAR® product selection.

Program details are tailored to account for local market conditions.

### **B.** Background

### 1. Market Opportunities

ENERGY STAR® labeled appliances are really a new generation of home appliances. They incorporate new designs and technologies to achieve enhanced energy and resource efficiency, while still providing the service and values customers expect from their appliances.

The mandated standards for energy efficiency in household appliances have improved so that today new appliances are much more energy efficient. Thus, as old appliances are replaced over time, the level of efficiency will also rise. Energy Star appliances, with efficiencies significantly better than the required standard, are available for most household equipment and provide the consumer with an option to gain further energy savings (although in some cases the ENERGY STAR® equipment is only slightly more efficient than comparable equipment that meets the required standard.). A market oriented program designed to encourage and assist customers in the selection and use of

Energy Star labeled appliances needs to account for changing market conditions and adjust the levels of promotion and assistance consistent to each product opportunity

#### 2. ENERGY STAR® Framework

The U.S. Department of Energy (DOE) and the Environmental Protection Agency (EPA)'s nationally recognized ENERGY STAR® product labeling program is designed to build customer awareness and market demand for high-quality energy efficient products. The DOE and EPA are promoting the use of energy efficient equipment by awarding the ENERGY STAR® label to appliances and electronic equipment that significantly exceed the minimum national efficiency standards. This label helps consumers easily identify these more efficient products.

The ENERGY STAR® program provides Maine with a unique foundation for quickly and efficiently developing and implementing a broad based residential energy efficiency program targeting several products types, while simultaneously serving the residential new construction, remodeling, and replacement markets. By building off the current ENERGY STAR® program platform Maine can leverage its relatively modest program resources with support from both national ENERGY STAR® efforts and regional ENERGY STAR® programs (such as those sponsored by the Northeast Energy Efficiency Partnerships). These regional and national efforts provide Maine with access to national manufacturers and chain retailers that would be very difficult achieve otherwise. These market actors are critical for influencing change in local markets.

### C. Program Design

#### 1. Program Goals and Objectives

The goal of this program is to increase the use of Energy Star labeled appliances in Maine households. This goal is achieved by the development and implementation of a market oriented program that seeks to coordinate the manufacturing, wholesaling, and retailing of ENERGY STAR® labeled appliances with marketing and promotion efforts to inform and educate consumers about the selection of high efficiency appliance products that meet their needs.

The Maine Energy Star appliance program is designed to coordinate with and gain the advantages that are available from participating in the regional Northeast ENERGY STAR® Appliance Initiative, which is working to create long-term and permanent changes in regional and local markets. The emphasis of the Maine program is on local market development and customer promotions within utility service areas.

Measurable objectives:

a) Increase consumer recognition and understanding of ENERGY STAR® labeling.

- b) Increase the market share and sales volume of ENERGY STAR® labeled appliances sold by Maine retail outlets.
- c) Increase the number of ENERGY STAR® product offerings in Maine.
- d) Encourage demand to help reduce the prices of Energy Star appliances (so that incremental cost to the customer is reduced.)
- e) Increase retailer promotion of Energy Star appliances.
- f) Expand the number of developers, property owners and managers, housing authorities, and others that specify/use ENERGY STAR® appliances in new construction, remodeling, and replacement projects.

### 2. Target Markets

The target market for this program is all residential electricity customers.

The market for ENERGY STAR® labeled appliances is changing in Maine, due in part to a spillover effect from national and regional efforts to make the products more available and to promote customer selection. Market shares for ENERGY STAR® clothes washers, refrigerators, and dish washers sold in Maine by national chain stores compare well with national averages, but are generally less than the rest of the northeast states. As a result of increasing demand, product prices are declining, and consumer awareness is improving. ENERGY STAR® appliances are now widely available in Maine retail outlets, and sales are reported as brisk. Additional work, however, is needed to assure the full participation of retailers to stock, promote and market the products, <u>and</u> to improve customer information and understanding for product selection.

3. Program Elements/Marketing Activities

Maine program objectives are leveraged by participation in existing national and regional initiatives that are designed to create and sustain structural marketplace changes that increase the availability, consumer acceptance, and use of ENERGY STAR® qualified products. Maine utilities will participate in the regional appliance initiative sponsored by NEEP to take advantage of retailer outreach and marketing programs. To the extent practical, the marketing materials and promotional messages employed by Maine utilities should align with the regional initiatives. Certain elements of the Maine program, such as incentive levels and a marketing plan, will be specifically designed for Maine markets and program budgets.

Maine may choose to bolster its in-state efforts by producing a consumer products catalog for energy efficient appliances and other resource saving products not currently readily available in local market outlets. The details of the Maine-specific program elements will be developed during the final implementation planning process.

During the initial years of this program an appropriate rebate level, given the current and evolving state of the Maine marketplace, needs to be determined. Greater availability,

reduced costs, and the increased use of ENERGY STAR® appliances that have already been gained through the efforts of the regional program (and other market factors) suggest that the market is changing such that the need for rebate incentives is reducing to a point where continued consumer information and education, supported by targeted marketing efforts, will be enough to finish transforming the marketplace for efficient appliances. Rebates will help promote consumer interest and help overcome the market hurdle of higher first cost.

## 4. Implementation Plan and Schedule

The residential ENERGY STAR® programs (lighting and appliances) are implemented at two levels – the Maine utility level and by participation in regional initiatives.

Utility level program elements will be developed on a consistent state-wide basis, with flexibility in meeting particular needs that may exist in the different service territories. Regional program elements are achieved through utility membership in NEEP and participation in the regional appliance initiative.

This regional initiative (for residential appliances) is already in place and operating in the rest of the northeastern states. Expansion of program activities to Maine can be accomplished relatively quickly and cost effectively by extension of the existing regional program as it is generally implemented in the region. To implement Maine's participation in the initiative, contractual arrangements will need to be made with several existing (or new) program services contractors.

Representatives of Maine utilities will participate in the regional initiative's program working group to assure that Maine program objectives are duly considered and that program activities are tailored to Maine utility service areas. Maine program actions are designed to support and augment the impact of the regional program.

### 5. Program Administration

To carry out this program, the utilities will contract jointly for a program manager. The program manager will be responsible for working closely with all service vendors and utility managers to ensure that the program is consistent with program guidelines and delivered with high customer satisfaction. The program manager's duties will include:

- designing and implementing program guidelines and criteria,
- managing in-state program contractors,
- overseeing development of marketing efforts and materials (including appropriate use of regional and national materials),
- coordinating among the in-state utilities to ensure state-wide consistency,
- managing program budgets,
- planning future program enhancements, and,

• attending regional working group meetings, though a utility employee(s) will be responsible for representing Maine's interests on the working group.

Depending upon capabilities, staff availability and the wishes of the individual Maine utilities, this *contractor* may be an existing utility who could make a competitive bid to provide the services specified in an RFP to provide program management services.

Several other program functions also are best handled by jointly hired contractors:

- A vendor outreach services contractor conducts retailer recruitment and training, placement of point of purchase marketing materials and any rebate coupons, regular visits to retailers, product labeling, special promotions, and in general act as liaison between the utility and the retailer.
- A marketing *contractor* develops the marketing, advertising, and promotional campaign.
- A *fulfillment contractor* processes rebate coupons, produces and distributes catalogs, staffs the telephone inquiry line, etc. Given that rebate levels (and the duration of incentives) will be specific to Maine, this function would most likely be Maine-specific.

The first two, in particular, are likely to be handled by contractors selected by the regional working group, of which Maine utilities will be voting members. Some of these contracts are already in place, so Maine's participation will be handled as described in Section C.4 above. Over time these contracts would have to be renewed through competitive bidding, which would be open to Maine-based firms. Depending on specific details of the work to be contracted and budget availability, Maine could elect to contract for these services independent of the working group, but consistent with the goals of the regional initiative. The fulfillment contractor also will be selected periodically by competitive bid.

Administration of the regional components of the program is provided by the NEEP program manager. The Appliance Initiative working group (of which the Maine utilities are now members) provides strategic program direction and makes program policy decisions.

# D. Program Evaluation, Market Research

Some baseline market assessment is needed to more clearly understand current market conditions in Maine, especially as circumstances may vary between utility territories. Current understanding and documentation of regional markets and consumer behaviors includes much of Maine's markets since the national and regional chain retailers that operate stores in the state are already engaged in the regional program. A Maine baseline study may be necessary, if regional program evaluations do not provide the information needed, to document program achievements (progress on measurable objectives) at the state and utility level. Program evaluation tasks are carried out on a program wide or regional basis, with the (apportioned) support of the utility partners participating in the program initiative. Program and market evaluations are conducted periodically to measure progress in meeting program objectives. A regional program evaluation is planned and budgeted, but to date no planning for the actual study has been done.

#### E. Proposed Budget

\$364,000 for 2002

# **VIII. Domestic Water Heater Program**

#### A. Summary

The purpose of this program is to provide a transition from the current and long-standing water heater wrap program to one that: (a) encourages replacement of failed appliances (or initial purchases in new construction) with the highest efficiency device on the market and (b) still captures savings from the application of ancillary efficiency products. In addition, a pilot program to test emerging water heating technologies (such as air-source heat pump water heaters) will be considered for implementation in the future.

#### **B. Background**

The number of households using electric water heaters continues to decline, both in terms of absolute numbers and as a proportion of electric load. Relatively high electric rates (compared to alternative energy choices) and the resulting cost for heating water has prompted significant shifts in consumer choice in equipment used for domestic water heating.

New electric water heating equipment in the marketplace is significantly more energy efficient than older models. Beginning in the mid-1980's and continuing into the early 1990's, electric water heater manufacturers increasingly included foam insulation, heat traps, and other efficiency features in the their products. In the early 1990s, new Federal energy standards required energy efficiency features on all water heaters. In January 2001 the US Department of Energy published new efficiency standards for water heaters to take effect January 2004. The incremental improvements in the efficiency of water heaters have already rendered external wraps marginally cost-effective, and when these new standards take effect a tank wrap will no longer be cost-effective.

Past and on-going utility programs that provide low cost or free access to water heater wraps, pipe insulation, and low flow shower heads have made significant inroads into the existing population of residential water heaters. Although customer interest in heater wraps and associated efficiency measures remains high, both the penetration of the programs into the existing market and the improved efficiency of new equipment suggests that the opportunity for energy savings from the current approach has been mostly realized. While little energy savings are available from wrapping newer models of water heaters (and doing so may void some manufacturers' warranties), savings are still available from associated efficiency products, such as pipe wraps and low flow showerheads.

#### C. Program Design

1. Program Goals and Objectives

Goal #1. To help utility customers achieve the energy (and resource) savings associated with new and emerging electric water heating technologies and associated water use management.

Goal #2. To transition existing utility programs and customers to a market based environment where customers have access to efficient products, goods, and services that are available as a matter of course through conventional retail and/or vendor/installer channels.

### Measurable Objectives:

- a. Improve customer knowledge and understanding of new water heating choices and their proper use to maximize efficiency and associated resources savings.
- b. Encourage and assist customers to take advantage of add-on energy and resource savings packages, through the use of a rebate or coupon program and products catalog.
- c. Support the continued development of air source heat pump water heater technology, developed and manufactured by Maine companies.

#### 2. Target Market

The target market for this program is homeowners, builders, plumbers, housing managers, hardware and home supply retailers, plumbing supply wholesalers, and others involved in the selection and installation of new and replacement electric water heaters. The program is designed to provide support for the selection of energy efficient units and encourage the use of ancillary efficiency products.

Utility programs that provide water heater wraps, pipe insulation, low flow showerheads, etc. will continue through a transition year, based upon customer requests and using existing delivery mechanisms.

Ancillary efficiency products may also be available from an efficiency products catalog developed in conjunction with the residential ENERGY STAR® lighting program.

### 3. Program Elements/Marketing Activities

Working with vendors and installers of domestic water heat equipment, this program is designed to encourage the selection of the most efficient water heater available. Customers at the point of purchase of a new or replacement water heater will be encouraged to also purchase pipe and tank-base insulation, showerheads, faucet adaptors, and other efficiency products with the use of an appropriate incentive (utility rebate for an add-on package) or direct assistance program. These "add-ons" are expected to capture energy savings and improve related resource efficiencies. Retailer support services and marketing will be similar (albeit smaller) to the ENERGY STAR® lighting and appliance programs.

Water heating related efficiency products will also be offered through an energy efficiency products catalog (see ENERGY STAR® Lighting program description) for consumers who are not making a new or replacement purchase but would like to gain the savings associated with wrapping pipes and using water flow control devices.

A pilot test of new air-source heat pump water heater technologies will be considered as an independent program (in the future). This technology is applicable in Maine's climate and type of housing, but a number of technical application issues and questions need to be addressed relating to the performance of the equipment in typical applications before a full scale program can be developed.

During the transition year (2002) tank wraps will be made available to customers with qualifying older tanks, but early retirement and replacement by a new unit will be encouraged as a cost-effective alternative. Due to the declining population of older equipment and the existence more efficient equipment, wraps will not be as heavily promoted as they have been in the past.

### 4. Implementation Plan and Schedule

The water heater program can be developed in conjunction with the implementation of the residential ENERGY STAR® appliance program. The retail vendor support aspects of this program can be rolled into the appliance vendor support task. Marketing and promotion activities will be unique to state markets and utility service areas and will need to be developed for local delivery. Any rebate or other incentive fulfillment could also be rolled into a contract issued for this function in the appliance or lighting program.

Individual utilities will continue to provide water heater wraps and associated products through program mechanisms already in place, at least through a transitional year (2002) while the program emphasis is shifted to a retail outlet program, supported by appropriate incentives.

#### 5. Program Administration

The administrative details for managing this program will need to be worked out in conjunction with the implementation of the ENERGY STAR® lighting and appliances programs. Because this is a uniquely Maine program there are no regional or national programs that can be leveraged or modeled, but the market oriented tasks envisioned in this effort are similar to the other residential programs, so that the administration of this program could be rolled into the residential appliance program structure.

## D. Evaluation, Market Research

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# E. Proposed Budget

\$180,000 for 2002. (The initial program budget is based on existing utility expenditures for wrap programs, but with program experience it will be adjusted to reflect program changes.)

# IX. Non-Residential Construction, Renovation, Remodeling, and Improvement Program

# A. Introduction

This is major new program initiative aimed at achieving energy efficiency improvements in the commercial, industrial, and institutional market. The program will provide a package of technical and design assistance, as well as incremental cost incentives, to assist in the construction, renovation, and operation of buildings that are more efficient than energy code requirements or standard practice in Maine. The program is designed as a uniform statewide program that can accommodate a variety of project proposals and opportunities.

The program design provides several project pathways depending on the stage and scale of a project. For projects that are still in the conceptual stage (or for existing facilities that are expanding or will be completely renovated), a *comprehensive* approach can be taken. This path allows for design assistance, scenario modeling, and total building equipment specification. At this early stage in project planning measures that can commonly be considered include: building orientation and site considerations, envelope improvements (including windows, day lighting and shading), electric motors and drives, HVAC equipment and system design, and lighting design and equipment selection.

If the design process is well underway and for renovation/improvement projects, a more *prescriptive* approach to incorporating discrete measures can be followed to capture the considerable efficiency to be gained through the selection of prescribed more efficient equipment.

For more unique opportunities, or for specialized manufacturing processes, a *custom* path allows customers to propose projects that will provide significant energy savings, while still meeting their own unique needs.

# **B. Background/Market Opportunity**

Programs with this set of features operated by utilities or other sponsors in other jurisdictions have had demonstrable success in upgrading standard equipment specifications and design practices in their areas (as confirmed by evaluations in such jurisdictions as Massachusetts, New Hampshire, Rhode Island, Connecticut, and California). The best programs combine sophisticated technical assistance to the owner's design team with incentives, both delivered in a manner and on a schedule that complements the owner's project timeline.

There is a market-driven opportunity to achieve energy efficiency (through transformation in design and equipment specification practices) at minimal cost when new buildings are designed and constructed, and when existing ones are renovated or

expanded. The fundamental energy impact of early building design decisions may continue for its full life - perhaps a hundred years or more. Likewise, initial equipment choices may establish energy consumption patterns for twenty to thirty years, until that equipment fails. If the narrow and fleeting window to influence building design and equipment specification is missed, it is not hyperbole to state that the opportunity is lost for a lifetime.

As evidenced by annual construction awards, Maine shows a relatively steady upward trend in non-residential construction activity since 1997, reaching a level well above that experienced during the first half of the 1990s. This activity reflects the extended period of economic prosperity and growth through the late 1990s, especially in central and southern parts of the state. Another indicator, net change in the number of commercial accounts at Central Maine Power, substantiates this pattern. CMP gained 1336 new commercial and industrial accounts between March 2000 and March 2001, for a total of 56,280 C&I customers.

There is a significant level of public facility construction underway, particularly new school construction and renovation, with at least 26 projects currently active around the state. New schools or other public building projects could provide a high visibility market opportunity for this program, and provide a demonstration for educating building designers, general contractors, and building owners about energy efficient design and construction standards and practices.

The wide variety of electricity-consuming end uses in commercial, industrial, and institutional facilities provides a range of conservation and efficiency project opportunities. This program is designed to be flexible enough to entertain and accommodate a variety of electric energy savings projects, while accommodating owner preferences in building design and function.

# C. Program Design

1. Program Goals and Objectives

The goal of this program is to raise energy efficiency in commercial, industrial, and institutional buildings to a level substantially above current building codes and practices.

Measurable objectives include:

- a) Encourage a significant percentage of designers/builders to adopt higher energy efficiency standards in the early stages of project design and construction planning, thus changing common design practices.
- b) Develop an effective statewide program that demonstrates success in upgrading standard equipment specifications and design practices, supported by a program of technical assistance to the building owner's design team with

incentives, delivered in a manner and on a schedule that complements the owner's project timeline.

c) Coordinate program assistance and incentives with other conservation programs that encourage and support the selection and use of high efficiency products, such as premium electric motors and efficient unitary HVAC equipment and systems.

## 2. Target Markets

When fully developed, the target markets for this initiative will be all non-residential new construction, renovation, remodeling and improvement projects in the state. However, within this broad market, program managers will need to make decisions about how and where to focus limited resources to achieve the greatest program impact. Not all designers or developers will wish to participate in the program and not all building projects will present worthwhile prospects for investment program resources.

It is anticipated that the mix of measures in Maine's program will be very similar to those that have been identified (in similar programs in the Northeast) as both exceeding common practice and yet still cost-effective to both society and the building owner. (For example, Maine could look to the experiences of the National Grid Design 2000 Program or Northeast Utilities' Energy Conscious Construction Program.)

# 3. Program Elements/Marketing Activities

This program should have several participation options, depending where the building is in its construction or renovation schedule and the owner's wishes. In addition to core program elements, there could also be several specialized services and options to address unique efficiency opportunities.

Customers should be able to participate in the core program via three distinct avenues:

A *Prescriptive Path* would allow customers to choose equipment from a pre-qualified list of measures and receive an incentive that averages a percentage of incremental cost (75% is common in similar programs), adjusted for consideration of market barriers, baseline construction practices and market transformation objectives. This path is designed for customers who have projects that are beyond the design phase, and perhaps are in actual construction. These may include new construction, renovation, remodeling, and equipment replacement projects. Prescriptive measures are those technologies where energy savings can be predicted with reasonable accuracy across all applications (as compared to counterpart technologies of lesser efficiency). These technologies include: lighting equipment and controls, unitary HVAC equipment, chillers, motors, and variable speed drives. This path often serves as the customer's initial exposure to the program and, following an initial satisfactory experience, customers may choose the more sophisticated Comprehensive or Custom Paths for subsequent projects. (Note that any packaged HVAC or premium efficiency motors measures should be consistent with other state and regional programs established to build regional market demand for and supply of high efficient equipment.)

A *Custom Path* allows customers to request technical assistance to qualify unique measures of their choosing that are not on the prescriptive list, and receive an incentive (commonly 80% of incremental cost, adjusted as above) for this equipment as well. The Custom Measure Path is designed to encourage non-standard energy efficiency measures and allows customers to request a technical assessment of measures of their own choosing that are not on the prescriptive list. This option allows for more comprehensive and creative consideration of projects that are more complex than the Prescriptive Path allows, but involve less than a whole building design. It also encourages and rewards customer initiative and creativity. Often the savings generated by these measures are site and end use-specific, and thus a detailed analysis is required to qualify them for incentives. Measures that may be eligible for the Custom Measure Path include lighting systems, shell measures, HVAC systems, motor systems, refrigeration measures, and a variety of industrial process end uses.

Project viability, eligibility and incentives are assessed on a case-by-case basis, and are determined by a technical study, which details energy and demand savings, and project costs. The study should be conducted according to program specified procedures and is subject to review and approval. The baseline standard practice against which each proposal is judged is determined on a on a case-by-case basis, using such resources as: current baseline studies and other market research, the program experience of Maine utilities, as well as utility or public program experience from other comparable jurisdictions.

A Comprehensive Building Design Path allows the customer, the design team, and program - supported experts to work together from the conceptual design stage of a new construction or substantial renovation project to consider holistic design and equipment options to improve the overall efficiency of a building. Under this approach customers are eligible for both program-sponsored technical assistance in defining and costing efficiency options, as well as reimbursement to the customer's own design team for additional design work or analysis necessary to accommodate program recommendations. The customer's financial incentive is calculated and awarded based on an analysis of the entire project design and the interrelationship between the various building energy-consuming systems. In order to encourage such a comprehensive approach, incentives are usually calculated at a high percentage of incremental cost (often 90%), also adjusted as noted above.

Comprehensive Building Design provides technical support and incentives which allow building owners and their design teams to aggressively pursue high efficiency options that fully integrate building envelope, lighting and mechanical systems to produce a building that is as efficient as current technology and design techniques allow. The combination of technical consultation and incentives provided by the program should cover a significant portion of the additional design, modeling, and equipment costs required to turn an average building into an exemplary one.

Also, customers participating in the core program should be offered an array of *ancillary and supportive services* targeted to their specific needs, including:

- Building Commissioning for larger comprehensive or custom projects where both the customer and the program's investment are substantial. The Building Commissioning service should have two objectives: (a) to demonstrate the value of commissioning services to customers, thereby building a market-based demand for the service, and (b) to provide quality control when both the program and the customer have made a significant investment in complex ECMs. The target market for Commissioning Services is larger new construction and renovation projects with mechanical systems present.
- Technical Assistance Services on a cost shared basis from a pool of statewide contractors that have been pre-qualified for subsequent competitive selection by program staff. The Technical Assistance Services component of the program should provide technical support matched to the needs and capabilities of commercial and industrial customers. Services should include detailed energy efficiency studies for C&I buildings, and specialized technical studies, such as studies of industrial process improvements, chiller optimization projects, and compressed air projects. The purposes of this service are: (1) to increase effective customer participation in program; (2) ensure the best utilization of core program services and incentives; and (3) encourage market transformation in design, specification, installation and construction practices.
- 4. Implementation Plan and Schedule

Given the complexity of this program, the next step in implementation is the development of a detailed program design, followed with a limited number of pilot projects to test the program design and to gain program experience. Pilot projects would be limited to a few high-profile buildings and/or working with a few influential developers or design firm. This process should unfold as follows:

The State Planning Office will issue a competitive solicitation for a contractor to: (1) prepare a detailed program design, including the forms and materials needed for project implementation as outlined above, using materials and experience from proven program models; and (2) assist in the pilot implementation, thereby providing experience and insights from other jurisdictions to Maine's effort, as well as providing training and adjunct staff services to Maine's utilities, who will assist in the eventual full program implementation; and (3) design a recommended program administration delivery model for the state, incorporating the resident skills of the utilities, but also considering alternative models for delivery and administration, including an independent program operator that would be competitively selected. Any contractor selected for these tasks

should have practical experience designing and implementing a similar program elsewhere.

In Phase One, the contractor would be responsible for developing a final detailed program design, program marketing, administration, implementation and project verification requirements including such elements as: program procedures, requirements, and forms; a list of qualified prescriptive measures; a process to review and qualify potential custom projects; a procedure for delivering whole building design services, a marketing strategy and implementation plan; etc.

In Phase Two, the contractor will identify, develop, and manage several actual pilot building projects through to completion. This will both demonstrate and introduce the program to the Maine design and development community and provide a practical test of the implementation plan developed in Phase I.

In Phase Three, the contractor will draw on their experience through phases one and two to recommend the appropriate administrative and delivery structure for the full-scale program, which would begin in 2003.

5. Program Administration – covered in Section 4 above.

## D. Program Evaluation, Market Research

Evaluation of the non-residential construction program will require a mix of traditional impact and process evaluations, as well as a multi-utility study to evaluate the success of statewide program administration and delivery. Specialized evaluations and studies may be necessary due to the variety and complexity of projects supported under this program.

The impacts and success of complementary programs will be evaluated as part of the program analysis of those programs. Detailed evaluation plans for regional efforts, such as energy efficient motors and unitary HVAC initiatives being administered through NEEP, will be developed and carried out by the participating utilities and other partners.

### E. Proposed Budget

\$2,420,000 for 2002

# X. Maine MotorUp Program

#### A. Summary

This market-driven program works to promote and support the selection of high efficiency electric motors in Maine's industrial and commercial sectors. Program elements include a vendor support program to assure the availability of efficient motors, a marketing and promotional campaign aimed at both vendors and consumers (to identify and promote premium motors and related program opportunities), information and educational materials for consumers, and rebates to help encourage and support selection of qualifying motors.

#### **B. Background**

This program takes advantage the Northeast Premium Efficiency Motors Initiative, which is working to change the regional and national marketplace for polyphase electric motors (one to 200 horsepower) to one in which product sales and consumer preferences are for high-efficiency products for replacement or repair. It will provide an opportunity for customers, primarily those in the industrial rate classes, to achieve considerable energy savings, with related manufacturing, financial and environmental benefits. This program will be integrated as a complementary element into the non-residential construction program for commercial, industrial, and institutional buildings.

#### C. Program Design

#### 1. Program Goals and Objectives

The goal of the Maine program is to increase the level of motor efficiency in the manufacturing and commercial sectors. This can be accomplished by encouraging the use of higher efficiency motors for new and replacement installations, or by rewinding for efficiency improvement.

The objectives of the Maine program are to:

- a) Increase consumer awareness of and demand for CEE-qualifying motors.
- b) Increase availability of efficient motors through the established distribution system.
- c) Increase sales of qualifying motors.
- d) Reduce price differences between standard and high efficiency motors.
- e) Promote quality and efficiency in motor repair and motor system services.
- f) Assist and support utility customers in identifying and selecting the appropriate motor, at the highest level of efficiency possible, that meets their needs.

## 2. Target Market

The target market is Maine industrial firms that use three phase electric motors to run processing and material handling equipment, operate air handling and space conditioning equipment, and power a wide variety of manufacturing equipment.

Particular emphasis will be given to Maine firms identified as Industries of the Future by the USDOE Office of Industrial Technologies. The Industries of the Future program, implemented in Maine through a cooperative partnership managed by the Maine Manufacturing Extension Partnership (MEP), is targeting the forest products industry – pulp and paper and wood products (primary and secondary), and the metals castings and fabrication industry, for energy-efficiency improvements.

## 3. Program Elements/Marketing Activities

Maine program objectives are leveraged by participation in existing national and regional initiatives that are designed to create and sustain structural marketplace changes that increase the availability, consumer acceptance, and use of CEE-qualified products. Maine utilities will participate in the regional motors initiative sponsored by NEEP to take advantage of supplier/distributor outreach and marketing programs. To the extent practical, the marketing materials and promotional messages employed by Maine utilities should align with the regional initiative.

The regional initiative provides a detailed schedule of rebates based on motor size and efficiency rating for a list of qualifying brands and models. These established rebate levels and qualifying models are an integral part of the program. Future changes in program wide standards can be reviewed for applicability in Maine, based on the current degree of market change and equipment penetration levels, expected levels of participation, and budgetary constraints.

The Maine Industries of the Future Program provides a unique opportunity to link the efficient motors program with the delivery of technical services to Maine manufacturing businesses. MEP service providers working with individual business will have the opportunity to present the advantages of utilizing more efficient motors and the existing rebate programs as part of their bundle of services and tools. MEP engineers and related support staff typically perform in-plant analyses, make recommendations for improvements, and increasingly assist businesses to implement the changes. The Motors program becomes one more service that can be provided to the Maine manufacturer.

### 4. Implementation Plan and Schedule

The Motor Up program is implemented at two levels – at the Maine utility level and by participation in the regional initiative.

Utility level program elements will be developed on a consistent state-wide basis, with flexibility in meeting particular needs that may exist in the different service territories. Regional program elements are achieved through utility membership in NEEP and participation in the regional motors program. Utility promotion and supporting participation in educational and informational activities will be vital to the success of this program.

The regional Motor-Up initiative is already in place and operating in the northeastern states. Initiation of program activities in Maine can be accomplished relatively quickly and cost effectively through expansion of the existing regional program as it is generally being implemented. To implement Maine's participation in the initiative, contractual arrangements will need to be made with several existing (or new) program services contractors currently providing program services.

Representatives of Maine utilities will participate in the regional initiative's program working group to assure that Maine program objectives are duly considered and that program activities are tailored to Maine utility service areas. Maine program actions are designed to support and augment the objectives of the regional program.

#### 5. Program Administration

Depending upon staff availability and the wishes of the individual Maine utilities, existing utility staff will be able to provide program information and linkages for their customers who might benefit from participation in the MotorUp program.

Other program functions, such as vendor outreach and marketing, will be handled by contractors selected by the regional working group, of which Maine utilities will be voting members. Some of these contracts are already in place, so Maine's participation will be handled as described in Section C.4 above. Over time these contracts would have to be renewed through competitive bidding, which would be open to Maine-based firms. Depending on specific details of the work to be contracted and budget availability, Maine could elect to contract for these services independent of the working group, but consistent with the goals of the regional initiative.

Administration of the regional program is provided by the NEEP program manager. The program initiative working group provides program direction and contractor oversight and makes program decisions, in which Maine utilities will participate. Contractors carry out the implementation of the program, working with supporting utility members, in accordance with program plans.
# **D.** Program Evaluation, Market Research

Currently, the three investor owned utilities, with the assistance of the SPO, are supporting an analysis of Maine's electric motor market as a part of the Northeast Motor Market Assessment and Program Evaluation. The Maine component will be a baseline study that will determine the current level of premium efficiency motor sales and use in Maine, and the awareness of supporting programs and promotions. This market assessment will be important in determining the final design details for a Maine MotorUp Program.

# E. Proposed Budget

\$145,000 for 2002

# XI. Maine Cool Choice Program (HVAC)

#### A. Summary

The Maine Cool Choice program works to promote and support the selection and proper installation of high efficiency unitary HVAC equipment in new construction, renovation, and replacement projects. A retail vendor program element supports distribution and stocking practices to assure equipment availability. A contractor recruitment and support element works to enlist the participation of HVAC contractors and others involved in the selection, installation, and operation of HVAC systems. A training program assures quality installations for optimum operation. And customer rebates, education and awareness activities inform and encourage designers, contractors, and building owners/operators to choose high efficiency units.

#### **B.** Background

This program is designed to take advantage of the regional Cool Choice Initiative, which is a market transformation program working closely with manufacturers and distributors, HVAC contractors, and building owners to promote the use of higher efficiency unitary HVAC equipment. In addition it will be incorporated as a complementary element into the non-residential construction program for commercial, industrial, and institutional buildings.

#### C. Program Design

#### 1. Program Goals and Objectives

The goal of the Maine Cool Choice Program is to increase the level of energy efficiency in unitary space conditioning systems installed in commercial, industrial, and institutional buildings.

The objectives of the program are to:

- a) Increase product availability
- b) Increase sales of qualifying products
- c) Increase contractor and customer awareness of qualifying products
- d) Reduce incremental cost of qualifying products
- e) Promote quality installation practices

### 2. Target Markets

The primary market opportunity is new construction, renovation, and replacement projects in office buildings, retail space, industrial plants, and public facilities, particularly in southern and central Maine locations where unitary HVAC systems are increasingly being installed in new building construction.

This program is targeted to the three principal participants in the decision making process regarding the selection of HVAC equipment – equipment vendors, contractors, and the building owner.

# 3. Program Elements/Marketing Activities

The program emphasizes the role of HVAC contractors through promotion and training opportunities, since most projects will involve HVAC contractors and others involved in the specification, selection, and installation of equipment.

Maine program objectives are leveraged by participation in existing national and regional initiatives that are designed to create and sustain structural marketplace changes that increase the availability, customer acceptance, and use of qualified products. Maine utilities will participate in the regional Cool Choice unitary HVAC initiative sponsored by NEEP to take advantage of supplier outreach and marketing programs. To the extent practical, the marketing materials and promotional messages employed by Maine utilities should align with the regional initiative.

The regional Cool Choice Initiative provides a program infrastructure and slate of activities that work to promote the selection of high-efficiency equipment by assuring that products are available, that equipment specifiers and installation contractors are aware of the values of the equipment to customers, and educating customers to ask for more efficient equipment. Further, the regional program provides a uniform coordinated system for processing rebates and incentives.

Incentives are available to commercial, industrial, and institutional customers to cover incremental costs of qualifying equipment. The regional initiative provides a detailed schedule of rebates based on unit size and efficiency rating for a list of qualifying brands and models. These established rebate levels and qualifying models are an integral part of the program. Future changes in program wide standards can be reviewed for applicability in Maine, based on the current degree of market change and equipment penetration levels, expected levels of participation, and budgetary constraints.

### 4. Implementation Plan and Schedule

The Cool Choice program (unitary HVAC) is implemented at two levels – at the Maine utility level and by participation in regional initiatives.

Utility level program elements will be developed on a consistent state-wide basis, with flexibility in meeting particular needs that may exist in the different service territories. Regional program elements are achieved through utility membership in NEEP and participation in the regional lighting program.

The regional Cool Choice initiative is already in place and operating in the Northeastern states. Expansion of program activities to Maine can be accomplished relatively quickly and cost effectively by extension of the existing regional program as it is generally implemented in the region. To implement Maine's participation in the initiative, contractual arrangements will need to be made with several existing (or new) program services contractors currently providing program services.

Representatives of Maine utilities will participate in the regional initiative's program working group to assure that Maine program objectives are duly considered and that program activities are tailored to Maine utility service areas. Maine program actions are designed to support and augment the objectives of the regional program.

#### 5. Program Administration

Depending upon staff availability and the wishes of the individual Maine utilities, existing utility staff will be able to provide program information and linkages for their customers who might benefit from participation in the Cool Choice program.

Other program functions, such as vendor outreach and marketing, are likely to be handled by contractors selected by the regional working group, of which Maine utilities will be voting members. Some of these contracts are already in place, so Maine's participation will be handled as described in Section C.4 above. Over time these contracts would have to be renewed through competitive bidding, which would be open to Maine-based firms. Depending on specific details of the work to be contracted and budget availability, Maine could elect to contract for these services independent of the working group, but consistent with the goals of the regional initiative.

Administration of the regional program is provided by the NEEP program manager. The program initiative working group provides program direction and contractor oversight and makes program decisions, in which Maine utilities will participate. Contractors carry out the implementation of the programs, working with supporting utility members, in accordance with program plans.

#### **D.** Program Evaluation, Market Research

As with other new programs, additional market research is needed to more accurately quantify the current and expected levels of activity in HVAC installations and use.

Furthermore, as experience is gained the program will need to be adjusted to account for changes in the market, including ultimately an exit plan to either conclude the program or re-tool for a related efficiency opportunity.

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# E. Proposed Budget

\$156,000 for 2002

# XII. Building Operations and Maintenance Training

### A. Summary

Two O&M training programs will be initiated in the first year of the program. Bangor Hydro Electric will organize and host a session of the Certified Energy Managers (CEM) Training course provided by the Association of Energy Engineers. This program will provide C/I customers an opportunity to expand their knowledge and understanding of energy issues, options, and choices which should lead to in-house projects and increased energy savings over time. Central Maine Power will oversee the second training opportunity, by hosting the NEEP sponsored Building Operator Certification (BOC) course at one or two sites in central and southern parts of the state. This course is targeted primarily to hands-on facility and maintenance staff. A third option, training through Maine's technical colleges, will be investigated in more detail after the first two pilots are underway.

# B. Background: Overview of the Operations and Maintenance Market Opportunity

In most existing non-residential buildings, improvements to the operations and maintenance of the facility itself and its installed equipment represent the largest and least expensive pool of untapped energy and cost savings potential. Pilot O&M programs (primarily in the Pacific Northwest) have shown potential savings of about 14% in government and commercial buildings, and (conservatively) 6% in industrial facilities, across all fuels, at modest cost. Research in other jurisdictions has indicated that the best target markets for introduction of better O&M practices include property management firms, owner-occupied large offices, schools, state and other institutional facilities, and small industrial facilities. Better building operation also improves worker health and satisfaction, extends equipment life, and provides somewhat increased protection against litigation.

There are a number of potential initiatives to improve O&M practices, including building commissioning and recommissioning, improved equipment monitoring, and training for building operators and other personnel involved in facility or energy management.

# C. Program Design

### 1. Program Goals and Objectives

The overarching goal for a building O&M program is to establish resource-efficient building operation and maintenance as the standard for commercial and institutional building performance. This goal is achieved by increasing the knowledge and skills of building managers and O&M personnel to operate and maintain commercial and institutional buildings for comfort, safety, and efficiency.

In the case of the planned training courses, the objective is to provide localized energy management training for utility key account customers, business managers, and facilities operators to improve their awareness of energy issues, and their ability to better manage/control energy use. While these training courses do not necessarily produce immediate and measurable energy savings, experience suggests that participants do, over time, make energy efficiency improvements in their facilities as a result of the greater awareness and knowledge gained from taking the course. In the case of the BOC training, participants are required to conduct in-plant practice assignments which often lead to energy use improvements.

### 2. Target Markets

BHE has previously solicited key account participation in a CEM program, and will notify these customers of the availability of the two courses. CMP will also solicit participation from its customers, as will the other utilities. Both courses are open to all utility C/I customers across the state.

In addition to utility customer participation, it is anticipated that utility staff and others will be able to take the courses as space allows.

### 3. Program Elements/Marketing Activities

The Certified Energy Manager (CEM) Course: This course is offered by the Association of Energy Engineers and covers all areas critical to effective energy management. It requires a post-secondary degree and considerable experience in the energy management profession as prerequisites. There are two and five day course options. This course is targeted more to energy managers and other professionals who already have considerable experience in energy management techniques and technologies.

**The Building Operator Certification (BOC) Course:** This course and certification was developed by the Northwest Energy Efficiency Alliance. It is currently being offered by NEEA in the Pacific Northwest and in the other five New England states (with expansion in 2001 to New York and New Jersey) by Northeast Energy Efficiency Partnerships. This course involves eight days of training over seven months, covering major energy systems, bill tracking, codes, and air quality. Class attendance, successful completion of written tests, and in-plant practice assignments are required to achieve a certification. As the title implies, this course is targeted primarily to hands-on facility and maintenance staff. There are no educational or experience prerequisites.

The Maine Public Service Company proposes the development of a pilot program for a Maine Energy Management Certificate Program, using the talented and expert faculty in the states' technical college system, and centered at the Northern Maine Technical College. This would be a program aimed at energy analysts, facility manager/building operators, building systems technicians, utility representatives, plumbing and heating contractors, sales/marketing staff of energy related firms, municipal workers, school maintenance personnel, state energy officials, HVAC and control firms, and graduates of, or upper-class students in, academically related programs at the technical colleges. A certification program, comprised of academic work and applied learning activities, might entail 15-18 credit hours of classroom work plus additional project work. A number of course offerings are proposed, but the final array of courses and content still needs to be determined.

There are other more narrowly targeted O&M curricula and training programs (such as the specialized school building operator training course, developed by the Seneca College Centre for the Built Environment in Ontario, and delivered through a number of other educational institutions in Canada), which should be explored as well.

An incentive (up to 50% of participant costs, for key account and other utility customers only) is deemed necessary because the participant cost is relatively high. It is common practice for some share of the cost to be paid either by the participant's employer or a sponsoring utility. A reasonable cost share helps the participant and signals the utility's interest in improving energy efficiency for its customers.

#### 4. Implementation Plan and Schedule

Efforts are underway to plan and schedule these training sessions. The CEM course is tentatively scheduled for an October 2001 time frame, while planning for the BOC course is on hold while CMP fills a vacant staff position. It is expected that the BOC course will be held beginning later in 2001.

Activities in the first year of this program will focus on developing training options for building management and operations professionals in Maine. This is accomplished by sponsoring two established but different training program opportunities, conducted on a pilot basis. This initial phase is a function of the limited funding available, the perceived demand for training options in Maine, and the need to develop a trained constituency that in turn can take advantage of energy conservation/efficiency programs as they become available.

#### 5. Program Administration

Program administration for the two pilot offerings is provided by the host utility staff. The two hosting utilities are taking the responsibility of working with the organizations who conduct the training sessions. They will help plan and organize the sessions, promote participation, and provide the physical sites and other supporting arrangements.

The SPO is providing support for the planning and organization of the course offerings.

#### **D.** Program Evaluation

An evaluation of the CEM program will be necessary for assessing the success of the training session, as well as for establishing the need and opportunities for any subsequent program activities. The evaluation should cover such aspects as identifying additional demand for the CEM program and certification, participants' needs and evaluation of the course, program timing, location, content, etc., and follow-up to document energy improvements/changes resulting from the courses.

The NEEP sponsored BOC program is scheduled for a program evaluation in 2003, following its first full two years of operation in the region. This evaluation would include Maine participation in the program.

Experience from the two pilot courses should help provide the information necessary to assess the viability and structure of a Maine Energy Management Certification Program.

### E. Proposed Budget

\$50,000 in 2002

# XIII. Program Implementation, Monitoring and Evaluation

### A. Implementation

The statute directs the State Planning Office to "guide the development of statewide conservation programs to be implemented by T&D utilities pursuant" to the electric industry restructuring law. The SPO is further directed to "create objectives and an overall energy strategy for such conservation programs". This Conservation Program Plan fulfills that task. It provides guidance for the development and implementation of a portfolio of conservation and efficiency programs that will achieve electric energy savings, flowing from the market oriented programs that take advantage of existing regional initiatives, as well as, the creation of new Maine programs. Program implementation planning now shifts to the utilities, under existing statutory direction.

At this stage in the process of creating new statewide electric conservation programs serious concerns arise as to how programs will be managed overtime to achieve their full potential. How will program consistency be achieved when they are delivered by individual utilities? How will inherent efficiencies in coordinated program delivery be realized? Will the utilities be able to maximize full program potential, without some formal administrative structure to coordinate the management of the programs? The statute is silent on the issue of program administration and management, leaving it in the hands of the utilities to carry out successful programs, as long as they are consistent with the Conservation Program Plan.

To provide some guidance on this critical element of program implementation the SPO asked the stakeholder group to provide comments on a set of four options for program administration. The options ranged from the status quo, where programs are implemented by the utilities to the best of their abilities; to the creation of one or more independent program managers, hired by competitive bid, who would be responsible for all aspects of program development and delivery, including responsibility for program success.

The primary concerns for program implementation are achieving consistent statewide delivery of programs, with an effective level of coordination, and a strong emphasis on program promotion and performance. The utilities have years of experience delivering programs, with success in meeting program objectives, but the level of cooperation and coordination needed to deliver these new conservation programs on a statewide basis will be a new experience in utility cooperation, one that will be a challenge to achieve.

One suggestion to assure program success is the creation of an independent program manager, who is responsible for the implementation of programs, consistent with the Conservation Program Plan. A dedicated program manager will assure that programs are delivered on a statewide basis, and are coordinated and consistent in program details, and will achieve the efficiencies that are inherent in a consistent delivery of programs. A program manager should be hired by competitive bidding, which can include an

appropriately organized subsidiary of a Maine utility, to carryout specified programs and related activities under the terms of a performance oriented contract.

Although the SPO has some latitude in making a recommendation for the creation of an independent program manager within the wording of existing law, this is a significant new direction in the delivery of conservation programs that should receive Legislative attention. Consequently the SPO will recommend that this issue be considered in an appropriate legislative process in order to gain additional direction on this critical matter.

In the meantime, the SPO will continue to play an essential role in the program implementation process by reviewing and approving proposed utility implementation plans, including proposed competitive bidding plans, for consistency with the objectives, strategy, and planning guidance established in the program plan. This means that the SPO will continue to play a leadership role to assist the planning process and to assure program consistency through the implementation planning and program development stages.

# B. Monitoring

The SPO is directed to monitor and evaluate the implementation of programs for consistency with the program plan and to negotiate with utilities for program modifications when changes are supported by evaluation results or changed circumstances in the marketplace.

This task will require a fairly active role in monitoring program delivery, which will be achieved through established reporting mechanisms. Each utility is required to report semi-annually on program activities and expenditures, which should include the necessary information to monitor program progress towards its measurable objectives.

Monitoring is a built-in task in most program designs to assure the timely reporting of information needed to track program activities, and catch any problems at an early stage.

### C. Evaluation

The initial set of programs is planned for implementation and delivery in 2002, with a three-year time horizon for full program development. Program reporting will provide tracking information for program activities and achievements, but it is anticipated that more formal program evaluations will be conducted. In some cases program evaluations will be included as part of the evaluation of regional programs in which the utilities are participating. In other cases, with Maine specific programs, formal evaluations will need to be conducted to measure the success of the program. The evaluations would then be the basis for program adjustments or even termination if warranted.

A three-year horizon allows enough time for programs begin to have a meaningful effect, and is also a reasonable time frame to catch and adjust programs that are not achieving expected results. Program evaluations are a key element in the necessary exit strategies for adjusting programs as experience is gained.

The evaluation of the overall performance of the portfolio of programs and future program changes is a task that will be the responsibility of the State Planning Office as a function of its program monitoring role.

#### D. Budget Implications

Program planning support for the State Planning Office is provided, by statutory direction, from annual utility assessments directed by the PUC for deposit in the Conservation Fund managed by the SPO for such purposes. Current assessment is about \$156,000.

Specific program evaluation costs are included in each program plan, and will vary depending on the current stage of program development. In some cases, early program baseline studies may be needed, and in other cases program evaluation cost will be shared by all program sponsors.

Program administration is a collective cost that is spread across all the programs. Program administration costs can be expected to be in the range of seven to ten percent of total conservation expenditures, based on recent experience in other jurisdictions delivering similar portfolios.

# XIV. Program Reporting

#### A. Background

In the past utilities have been required to file quarterly conservation program reports with the Maine Public Utilities Commission (MPUC). Upon industry restructuring the Commission revised its rules for reporting, maintaining a minimal requirement for basic program information, while awaiting anticipated changes related to the development of new statewide conservation programs.

Under Chapter 380 of the Commission's Rules the utilities are required to file semiannual conservation program reports that include a description of each program offered, the number of measures installed or completed and the number of customers participating, an estimate of the electricity savings resulting from each program, and the costs incurred by the T&D utility. Each report covers the most recent six-month period and includes a cumulative summary since the start of the program. In addition, the utilities are required to file copies of any program evaluation reports filed with the State Planning Office.

The new set of market oriented conservation programs are a marked departure from past programs, which were focused on specific conservation measures delivered directly to customers. New market transformation programs are more "project" like, with program activities and expenditures aimed at various market functions and players (in addition to direct customer program elements) to create the conditions in which electricity consumers will benefit from the selection and use of higher efficiency products and services. These differences in the types of programs will require some changes in the information content and procedures for program reporting.

### **B.** Reporting Needs and Requirements

In addition to the Commission's requirement to document conservation fund expenditures and program accomplishments, new reporting needs are created by the SPO's responsibility to monitor and evaluate program delivery and effectiveness over time. This task will require the utilities to report on program activities directly to the SPO. These reporting requirements and needs will not be mutually exclusive in informational content, but the reporting format will differ from past reporting and will require changes in utility procedures for record keeping and report preparation.

Three types of program reports will be needed:

- 1. Program activity reports for the SPO,
- 2. Periodic program evaluation reports for the SPO (and the PUC),
- 3. Conservation program reports required by the PUC.

Program reporting for the SPO has two components -(1) program activity reports that support the monitoring of activities, trends and accomplishments, in order to assure consistency with program strategies and guidance, and (2) program evaluation reports that document program accomplishments and associated benefits and that are needed to assess the effectiveness of the program and identify any needed changes. Program activity reports are necessary to help the utilities and the SPO monitor programs, and would not need to be filed with the Commission. Program evaluation reports would be required to be filed with the commission, under present rules.

PUC reporting may need to be adjusted to accommodate expenditures for program activities that do not have an immediate and measurable energy savings. The report will continue to include the dollar cost and energy savings associated with the delivery of specific measures, where that is possible. Utilities will also file periodic program evaluations, which will provide the basis for a full accounting of energy savings.

### C. Program Reporting

Most of the new programs have a market change component as part of the program design. Some programs, such as the low income appliance replacement fund, programs with rebate/incentive and product sales elements, and cost sharing will still be documentable in terms of the number of measures installed and customers served, along with estimated energy savings and program costs. Other program elements conducted under contractual arrangements for services can be reported as a program activity, along with accepted administrative costs.