

# **Budgets and Modifications for Conservation and Load Management Activities for Year 2002**

**Submitted jointly by:**

**The Connecticut Light and Power Company**

**and**

**The United Illuminating Company**

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## **I. OVERVIEW**

Connecticut Public Act 98-28, signed into law by Governor John G. Rowland on April 29, 1998, significantly altered the shape and nature of regulation of the electric utility industry in Connecticut. The Act provided for retail choice of electricity supply and opened the generation segment of the industry to the forces of competition beginning in the year 2000. Recognizing the important role energy conservation can play in this restructured industry, the Connecticut General Assembly provided increased funding for utility-sponsored conservation and load management (“C&LM”) efforts. For the years 2000 and 2001 The Connecticut Light and Power Company (“CL&P”) and The United Illuminating Company (“UI” and, together with CL&P, “the Companies”) submitted strategic proposals to operate C&LM services in a restructured electric industry in a way that encourages the efficient use of energy and promotes a cleaner environment for Connecticut.

The Conservation and Load Management Plans for 2000 and 2001 were developed in conjunction with the Energy Conservation Management Board (“ECMB”), which was established by Public Act 98-28. CL&P’s Plan for 2000 was reviewed by the Department of Public Utility Control (the Department) in Docket No. 99-09-30, and a Decision was issued on May 10, 2000. UI’s Plan for 2000 was reviewed by the Department in Docket No. 99-10-18, and a Decision was issued on June 14, 2001. The Companies’ Plans for 2001 were reviewed by the Department in Docket No. 01-01-14. On September 19, 2001, in its Decision in Docket No. 01-01-14, the Department approved the 2001 programs and budgets for both 2001 and 2002. Order No. 1 of that Decision directed the Companies to submit any revised 2002 budgets and any major program modifications for 2002 by January 31, 2002. This document is submitted pursuant to that Order.

Since its inception, the ECMB has held meetings in public on a regular basis and encouraged comments from public parties. The Decision in Docket No. 01-01-14 adopted a process for obtaining public input by approving a “Roadmap” developed by the ECMB. The ECMB has been following this process, and in response to input from over twenty members of the public, the ECMB has developed a matrix showing the Board’s opinions of and actions in response to public suggestions made since inception of the Board. This matrix is provided here as Attachment 1.

This filing for 2002 reflects joint work undertaken by the Companies with the ECMB and its consultants to address the Department's Orders in Docket No. 01-01-14. The major issues follow, and a listing of Orders and responses of the Companies is provided in Attachment 2:

- Pursuant to Order 1 of the Decision, CL&P and UI developed budgets for 2002. These budgets indicate in footnotes the specific suggestions from public comments which are addressed in the programs. The footnotes refer to public proposals listed and summarized in Attachment 1.
- The two Companies have worked together over several months to bring their commercial and industrial (C/I) new construction programs to a state in which they are essentially identical. This adds to the number of programs which are now identical across the state. The Companies were successful in developing identical residential and small C/I programs for 2001, and they were also able to develop two additional identical C/I programs for 2001: the Request for Proposal (RFP) program initiated as a pilot in 2000; and a new RFP program for C/I Operations and Maintenance which was begun late in 2001, following receipt of the Department's approval.
- Pursuant to page 9 of the Decision, the Companies have planned additional appliance rebate initiatives for residential room air conditioning, refrigerators, clothes washers and dishwashers. This program is explained herein in Section II..

In this filing, the Companies also address page 15 of the Decision directing the Companies to expand the RFP program to all customer classes. The Companies are pleased to report that the RFP program is open to all C/I classes, and there have been proposals and projects for all C/I classes in the program to date. However, for reasons explained in Section III of this filing, the Companies believe it is more cost-effective to expand the program via the Community Based Program (CBP). There are several pilots being evaluated at this time which serve the residential class and the CBP can provide third-party participation to the residential class. The Companies respectfully request the Department to reconsider this issue.

## **Overall Goal and Objectives**

The overall goal of the efforts in C&LM is to advance the efficient use of energy, reduce air pollution and negative environmental impacts, and promote economic development and energy security in Connecticut. The Companies place energy efficiency within the context of a comprehensive state energy plan, which also represents generation capabilities, including renewable energy options.

Our stated specific objectives to achieve this goal include the following:

- Lower energy costs and increase aggregate productivity through cost-effective C&LM initiatives;
- Create an energy efficiency “ethic” through communication of the economic and environmental value of efficient energy use;
- Increase measurable energy efficiency to strongly position Connecticut businesses and organizations for success in the global economy;
- Provide a high quality program that meets customers’ needs and that addresses market barriers to energy efficiency, especially for special needs groups;
- Allocate C&LM resources in an equitable manner across all customer sectors;
- Pursue uniform statewide programs between CL&P and UI;
- Pursue increased use of third party planning and delivery of programs;
- Demonstrate measurable success in achieving energy efficiency goals, in terms of environmental and economic betterment; and
- Seek linkages to other funds and environmental initiatives.

## **Strategic Allocation**

Public Act 98-28 takes a broad view on what activities and initiatives could be addressed with the Conservation and Load Management Fund. The Companies believe these resources should continue to be strategically allocated to provide long term benefits to Connecticut and its citizens.

The Companies propose that C&LM funds continue to be allocated among the following five broad strategic initiatives:

- Market Transformation and Lost Opportunities;
- Technical Assistance, Information and Outreach;
- Special Needs Markets; *i.e.*, low income, state and municipal buildings (proposed treatment of state programs and projects is consistent with previous years);
- Economic and Competitive Market Development; and

- Other Programs, *i.e.*, ISO Load Response; Research, Development and Demonstrations.

### **Planned 2002 Budgets**

Following are four sets of tables: Table A, Table B, Table C, and Table D. Each Company has one of each table. Table A for each Company provides a summary of the 2001 C&LM budget previously filed with the Department and a planned 2002 C&LM budget. Table B for each Company provides key information, including cost-benefit ratios for each program for 2002. Table C for each Company provides a breakdown of the 2002 budget into categories of expenses. Table D for each Company provides a detailed 2002 marketing budget.























## II. MAJOR MODIFICATIONS TO PROGRAMS

### Actions To Make C/I New Construction Identical

UI's Energy Blueprint and CL&P's New Construction programs are re-designed for the 2002 program year to capture the lost energy efficiency opportunities at the time of naturally occurring market events, such as new construction, expansion, major renovations, remodeling, and equipment replacement. The programs will provide identical financial incentives and process methodologies to customers for prescriptive measures. This joint design eliminates confusion that C&I customers, architects and design engineers may experience when working in both Companies' service territories.

As in previous years, both UI's Energy Blueprint and CL&P's New Construction programs are fully integrated programs encouraging the design and construction of energy efficient building envelopes, lighting systems, HVAC systems, motors, renovations and tenant fit-outs and other energy components of commercial and industrial buildings. However, the major advancements can be found in the agreed joint incentives and program standards. The following listing identifies the major points of agreement:

#### General

- Design Grants will still be offered
- Joint training sessions will be conducted with design engineers and architects

#### Lighting

- Baseline calculations will be based on ASHRAE 90.1 – 1999
- Incentives start at .1 watt below baseline criteria and are calculated on a cents / sf basis
- Incentives are capped at a cents / sf basis or a dollars / fixture basis whichever is less
- Bonus incentives will be paid to assist emerging technologies
- Occupancy sensor incentives will be calculated on the number of controlled fixtures

#### HVAC

- Incentives for unitary & split HVAC systems < 30 tons are based on regional market transformation values
- Incentives for packaged terminal A/C units are based on regional market transformation values
- Incentives for chillers less than 100 tons will be based on a dollar / ton value
- Chillers greater than 100 tons will be calculated as a prescriptive custom measure based on incremental costs

#### Motors, VFD's & Transformers

- Incentives for high efficiency motors are based on regional market transformation values
- Incentives for VFD's will be prescriptive for HVAC applications only
- VFD incentive levels are under review
- Transformers must comply with ENERGY STAR's TP-1 standards

#### Envelope

- Prescriptive criteria and incentives rates are under review.

Custom

- The utilities will review custom measures on a case by case basis to maintain flexibility.

## **Residential Energy Star Appliance Program**

Objective:

The goal of this program is to expand the number of high efficiency appliances throughout Connecticut for several types of appliances. In 2002, this program will supplement the Companies' existing efforts with rebates in the HVAC programs. In 2002, both companies will also promote Energy Star Appliances by offering rebates for qualifying models of:

1. Room Air Conditioners
2. Dishwashers
3. Refrigerators

In addition, the companies will continue rebates for Clothes Washers at reduced levels.

Target Market:

The approximately 280,000 residential homes in UI's service territory and the approximately 1 million residential homes in CL&P's service territory.

Program Description:

Based on past successes with rebates for clothes washers, the Companies hope that by offering an incentive for these additional types of appliances, the Companies will have a positive impact on improving the market share for these Energy Star compliant appliances. Due to the increase in Federally mandated appliance standards, the Companies are able to offer only a modest customer rebate of \$25.00 for Refrigerators, Clothes Washers, Dishwashers and room air conditioners. In addition there will be a dealer support and training.

According to the EPA, the benefits for purchasing these Energy Star Appliances are<sup>1</sup>:

Clothes Washers:

At least 50% more efficient than minimum federal government standards.

- Benefits: Lower utility bills, 35-50% less water used per load, bulky items fit easily in the super capacity basket, and better water extraction means less dryer time, for further

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energy savings.

Dishwashers :

At least 25% more efficient than minimum federal government standards.

- Benefits: Lower utility bills, improved washing systems eliminate pre-rinsing, and less energy used to heat the water to clean the dishes.

Refrigerators:

At least 10% more energy efficient than the July 1, 2001 minimum federal government standards.

- Benefits: Lower utility bills and less heat produced by compressor, which reduces the load on the home air-conditioning unit and improves comfort.

Room Air Conditioners:

At least 10% more energy efficient than the minimum federal government standards.

- Benefits: Lower utility bills.

Marketing Strategy:

Consumers obtain most information used in purchasing appliances from retailers. Therefore, the primary marketing strategy for the appliances initiative is the enlistment of retailers, and the provision of training and point-of-purchase marketing support. The Companies also participate in a strong consumer marketing campaign in conjunction with national and regional marketing efforts where the technologies and the ENERGY STAR brand is promoted to consumers. The program is also promoted and supported through the SmartLiving Catalog and the SmartLiving Centers.

### **Northeast Energy Efficiency Partnership Programs (NEEP)**

The Companies are exploring the cost-effectiveness of NEEP programs. The Decision in Docket No. 01-01-14 indicated a concern regarding the cost-effectiveness of the motor and HVAC NEEP C/I activities. The two Companies are currently exploring a way to remain involved in the regional efforts of these programs, while improving the cost effectiveness of the programs themselves. The Companies believe they may be able to implement the programs with significantly lower overhead costs, yet remain on the NEEP working groups to stay involved in the regional benefits. The Companies are also planning to explore “benefits versus costs” of continuing involvement in other NEEP initiatives, such as Design Lights.

## **Community Based Program**

Based upon thorough discussions with ECMB consultants, in 2002 the Companies plan to pilot several program features in the Community Based Program. These will be developed by first quarter 2002 and implemented in the later part of the year. The pilots include:

- Financing for customers, including Energy Efficient Mortgages for Low- and Moderate income homebuyers (see Attachment 3);
- Implementation of a more comprehensive HVAC initiative that goes beyond rebates for qualifying equipment;
- Replacement of older, inefficient refrigerators;
- On-site services, including for electric heat and non-electric heat customers (see attachment 4); and
- Increased marketing emphasis on heat pump water heaters.

It is possible the two Companies will share in one or more of these pilots, such that both UI and CL&P do not need to pilot all of the program features. The Companies plan to provide details of these pilots to the Department, as they become available.

## **“Not So Big” Model Home**

Rather than develop an additional SmartLiving Center in 2002, CL&P plans to develop a showcase home within the context of its Energy Star Home Program which is a demonstration of the “Not So Big” building concept. Plans are for this home to be built and owned on mortgage by the Company or a builder, exhibited for several months, and then sold. This could result in economic benefits to the C&LM fund. Long-term plans are also to participate in development of a plan book for “Not So Big” homes so that consumers would have one easy source of finding plans.

The “Not So Big” concept is based upon energy savings through efficient building consistent with Energy Star practices, but also energy savings through reduced overall square footage. Design features include many techniques to make the homes more comfortable rather than larger. For example, some techniques are: creation of “long lines of vision” by utilizing space from room to room and with creative use of windows; use of features such as built in book cases and paneling to make homes more livable, even if they are smaller; some smaller “get away” quiet spaces to create the feeling of a secure environment.

## **Emphasis on EESmarts™ and Education with SmartLiving™ Venues**

The EESmarts™ energy efficiency learning initiative is a joint C&LM program which offers grade appropriate energy education to students (K-12) in Connecticut. Important to this initiative, is the Department's desire to integrate EESmarts™ with ~~into~~ the SmartLiving™ Centers and the SmartLiving™ Catalog.

For 2002, the Companies will further investigate the use of the SmartLiving™ Catalog in conjunction with the educational program. For example, students in the EESmarts program will be directed to the Catalog, for children's education material, which may include EESmarts™ pieces, and they may be asked to find information regarding wattage savings from going from incandescent to CFL.

Educators and students who participate in the EESmarts™ programs are encouraged to tour the SmartLiving™ Centers in Newington and Orange to expand and enhance the energy education provided in the classroom. They can receive guided tours and participate in activities which further illustrate the value of energy efficiency. UI's Orange Center offers interactive games and displays. CL&P is investigating redesigning their existing Center in Newington to incorporate games and displays.

### **SmartLiving Catalog**

Plans for the catalog for 2002 include increasing the emphasis on Energy Star Lighting, working with local lighting manufacturers to produce Energy Star qualified products and also to begin the transition of the catalog to a magazine format. This latter transition for 2002 will focus on expanding the current insert section of the catalog to include an expanded featured technology section as well as an expanded kids section.

### **III. OTHER INITIATIVES**

#### **Communications**

Based upon feedback from the Technical Session held by the Department on September 25, 2001, the Companies have been working more closely together on communications issues, both for general awareness and program materials and activities. The Companies have held several meetings over several months and believe both planning and implementation of communications efforts are more in common than previously possible in the first year of common programs.

In a letter to the Department dated October 19, 2001, the Companies indicated they would update the Department regarding the use of a common slogan in this filing. The Companies have met several times on this topic and have enlisted the help of Lang Durham Advertising to develop a generic slogan for use in 2002. At this point in time, the Companies are exploring options for a common slogan. These options, the goals usage and font of the effort follow. The Companies plan to conduct market research on these three options.

#### **Slogan Options:**

- What can you save today?
- Energy efficiency. Save without sacrifice.
- Energy efficiency is a powerful idea.

#### **Goals:**

- To increase awareness that "Energy efficiency" does not mean having to sacrifice
- To help summarize the overall benefit of energy-efficiency

#### **Usage:**

To be mutually determined by CL&P and UI in jointly produced CL&P and UI conservation advertising materials and/or related collateral.

#### **Font:**

Consistent with CL&P and UI respective identity standards.

#### **Load Management**

In 2002, both Companies plan to support and administer the ISO New England Load Response Program, as they began to do in 2001.

#### **CL&P Load Management Activities in 2002**

CL&P also plans to continue the training and incentive pilot for C/I customers. Based upon changing needs of the program, CL&P plans to

- Establish a Load Management goal of 10 MW signed up in the ISO-NE program during 2002;
- Increase the allowable customer equipment incentives to up to 100% of incremental costs to promote ISO-NE load response program enrollment;
- Continue with modest incentives to supplement the ISO-NE payments for enrollment in their program;
- 
- In congested areas, focus a Load Management promotional campaign on public buildings, water treatment facilities, schools, hospitals, assisted living complexes etc.;
- Continue the residential thermostat adjustment program;
- Prepare and present two seminars ( one in Stamford) for architects and engineers on how to incorporate load management into new building design
- Work with Program Managers in the O&M and New Construction Programs to reduce duplication of effort and coordinate activities wherever possible
- Incorporate new methodologies to support cost/benefit calculations for Load Management Expenditures in 2002.

The reason for incorporating the new evaluation methodology is to recognize the developmental work and studies done outside of Connecticut that are pertinent to the issue. A short background discussion on this subject follows.

The price volatility associated with the newly formed wholesale markets for electricity has renewed the interest in encouraging load responsive programs (LRPs) aimed at end-use customers. The underlying nature of market supply, characterized by periods of high price volatility, is well suited to highly structured programs at the Independent System Operator level. In CL&P's case, with its involvement in supporting the ISO-NE LRP, the question has arisen as to how to evaluate the benefits that are derived from its activities.

CL&P recognizes that traditional cost effectiveness tests may not be directly applicable because they do not fully account for NE System reliability and market price abatement impacts that constitute the benefits from LRP events, when they come into play in the wholesale market. Recent evaluation work on LRP program impacts in California and New York, find that a large financial impact is realized from only a relatively small amount of load curtailment.

CL&P plans to use the new approach to support the benefit dollars associated with its load management efforts. In particular it will use methods used by NYISO to evaluate its 2001 summer LRP. Their approach is compelling since both it and ISO-NE share many common operational features and commercial terms of trade and often face similar system stress during periods of concurrent peak demand.

The methodology produces four types of benefits. They are:

- Reliability benefits that help preserve system integrity
- Collateral market clearing price impacts that force down the cost of generation in the

ISO-NE bid-stack.

- Longer term dampening of bilateral contract prices resulting from the existence of an effective retail market response resource
- Recognition of geographical value differences due to congestion problems

CL&P has retained Neenan and Associates, the firm that did the NYISO study , to reflect that methodology and the supply conditions in New England for the summer of 2001, in assessing the benefits of the CL&P Load Management goals and planned expenditures for 2002.

As stated in the bullet items listed above, renewed emphasis will be directed to the use of customer incentives to encourage customers to install monitoring and control systems and devices enabling them to participate in the ISO-NE program with larger commitments of load reduction than we have seen so far. Thus, the incentive program will be utilized to better support the ISO-NE program. Also, we will emphasize lost opportunity applications in new construction and major renovation projects. The criteria that will be used on a case-by-case basis for establishing eligibility to receive an incentive have been established. They include two categories of applications, the primary one is for customers who agree to sign up with CL&P for the ISO-NE load response program, Class 1 or Class 2. The other category, capped at a lower level of incentive payment, would involve costs associated with customers installing low cost monitoring and submetering equipment to aid in their identification of curtailable load.

### **UI Load Management Activities in 2002**

In 2002, UI plans to support and administer the ISO New England Load Response Program as we did in 2001. This includes continuing the following:

1. UI's contractual relationship with RETX to offer both the Demand Response and the Price Response programs to customers in Connecticut.
2. Actively promote the ISO LRP program by marketing to commercial and industrial customers that have the capability to respond to either of the ISO NE initiatives by curtailing at least 100 kW of load when given the opportunity to do so.
3. Qualify customers and enter into formal agreements for participation and load reductions.
4. Pass on to customers who participate, 100% of the ISO-NE Demand Response and Price Response payments.
5. Provide C&LM incentives to customers for participation costs up to a \$1000 limit.

## Research, Development and Demonstration

In 2001, the ECMB approved the 15 RD&D projects listed in Attachment 5.

Further, in Order no. 13 in Docket No. 01-01-14, the Department directed the Companies to develop and submit specific goals and targets it is using to evaluate the performance of its research efforts. In response to that order, the following research goals are presented as a result of a consensus process with the RD&D Policy Working Group and ECMB consultant. These goals were intended to be a guide in managing research activities. They are crafted to emphasize potential energy savings while recognizing the importance of maintaining flexibility and encouraging appropriate risk taking. Energy savings are taken to be displaced central station electric energy output.

An Actual Energy Saving Standard will capture energy savings resulting from such RD&D activities such as demonstration projects and pilot programs. The standard is based on a best estimate of performance of projects expected to produce savings in 2002.

A New Project Potential Standard will capture annual potential energy savings from projects approved in 2002. Potential savings will be the estimate of annual savings generated by projects reaching their full commercial potential, weighted for the difference in risk between research, development, and demonstration projects. The standard is based on potential energy savings from previous the year's approved projects.

Ancillary Standards are selected to capture other, non-energy goals. Performance will be predicated on incremental improvements for each metric.

<b>RD&amp;D Performance Standards</b>		
<b>Core Standards (100% target)</b>	<b>2002 Standard</b>	<b>Metric</b>
<b>Energy Savings</b>		
Actual	440	kWh
New Project Potential	300,000,000	kWh
<b>Ancillary Standard</b>		
Leveraging	\$500,000	1% per \$500K
Projects Ready-to-Go	1	1% per Project
New Business	0	1% per New Business
Royalties	0	1% per \$10K

•Notes:

- Leveraging includes contributions from such entities as CCEF and DOE, but not from the applicant.
- Projects Ready-to-Go include not only fully commercialized projects but ones demonstrated to work through a major pilot study.
- New Business includes not only actual new businesses but also businesses that move to Connecticut or undertake a significant expansion. Although RD&D

expenditures have already created some economic activity and new jobs, they have not yet reached the point where they can be called new business activity.

- Royalties are actual payments received. Although current contracts contain royalty clauses they are not expected to accrue in 2002.

### **Expansion of RFP Program to all Classes**

The Companies are pleased to report all C/I customer classes currently are served by the RFP program. Since the program allows third parties to aggregate small commercial customers to meet the size threshold program requirement, the program already serves small, medium and large C/I customers.

The Companies respectfully request the Department to allow them to offer the current RFP program to C/I customers alone and not to residential customers. There are alternative models that may be better suited to increase third party participation in the residential market. For example, the Companies plan to bid out to a third party one or more of the new pilot program initiatives for the Community Based Program. This would allow a specific focus for the third party initiative and not risk the potential for third party projects which are not cost-effective. It also eliminates the difficulties associated with trying to create a “one-size fits all” program for such a broad base of customers.

There are a couple of challenges in trying to incorporate the residential market into what has been designed as a commercial/industrial RFP program model. First, the screening requirements of the program would need to be so different for the residential program that a separate RFP would be required to begin; thus, technically it could not be the same program for residential customers. For example, the cost-effectiveness criteria are different for C/I and residential classes.

Second, the end uses and measures for residential customers are so different from those for C/I and so much more numerous that the review of proposals would require very different information and analyses.

### **Other Program Modifications**

In an effort to make the Companies’ programs more uniform several minor changes have been made to the way programs are portrayed in the budget and related goals.

#### *Residential Lighting*

1. In previous years UI has included Smart Living Catalog sales in its overall lighting program. For 2002 and beyond the Smart Living Catalog will have its own program category, budget and goals. There are no relative changes to the Catalog program other than separating it from other lighting initiatives. This approach aligns the way the two companies present the program.

2. UI will not have Halogen Torchiere (HT) turn-ins as in previous years. Due to the limited size of UI's service territory the large HT event (i.e. weeklong events at a mall) is no longer an effective vehicle.
3. One other lighting issue that is being aligned between the Companies is the way that the lighting goal is measured. In the past UI counted the number of "sales" as a measurement while CL&P counted the number of items sold. For 2002 both Companies will measure based on the number of items sold.

#### *State Buildings*

1. In previous years UI did not have a separate budget and goal category for state buildings. State building projects were done as part of UI's Energy Blueprint and Energy Opportunities programs. In 2002 UI will show state buildings as a separate category, once again aligning with CL&P.

#### **Cost-Effectiveness Screening**

To ensure programs can meet the requirement of cost effectiveness, both CL&P and UI utilize the Massachusetts Program Screening Tool developed by Optimal Energy. This tool was developed to do cost-effectiveness screening of demand side management programs in Massachusetts.

Although both utilities utilize the same screening tool for cost-effectiveness, there are numerous user specified inputs to allow the tool to be tailored to the specific application. The tool also produces several comparisons, or tests against which the user can gauge their programs. Some of the differences in the inputs are the discount rate, the future cost of fuel, different energy savings estimates, different measure life, and different transmission and distribution capacity values and loss estimates. The two companies also use different tests. Although both companies use the electric system test, CL&P uses the total resource test and UI uses the societal test when reviewing programs. These different tests factor in economic and environmental benefits of the conservation programs.

In addition to the differences in the inputs to the benefit cost model, other factors may influence the determination of the benefit to cost ratio of a program for a single program year. The benefit-to-cost ratio can be influenced by the length of time that a program has been offered because of start-up costs associated with new programs. Another factor affecting the benefit-to-cost calculation from year to year is the differences that would normally occur as a result of different combinations of specific customer projects. As programs evolve, factors such as the energy savings, baseline assumptions and incentive packages result in fluctuations in the benefit cost calculation from year to year.

The cost-effectiveness screening tool is a powerful mechanism to ensure that public funds are properly utilized for beneficial purposes. The Companies recognize the importance of using a standardized approach to measure program effectiveness for all entities who perform CLM activities. Representatives from both companies have formed a working group to evaluate the differences in the assumptions used for cost effectiveness screening. This group will be performing an intensive review of the input variables for all of the joint programs throughout 2002. It is expected that both Companies will make changes, as they develop a common basis for calculations.

In order to provide some meaningful comparison data, the Companies have prepared the table in Attachment 6, which shows the budget dollars and lifetime kWh for both Companies' programs for 2002. Despite the minor variations in program metrics and different measure lives, the overall cost rate is similar for both companies. This is a simple indicator of overall program performance.

#### **IV. PROGRAM SUMMARIES**

Attachment 7 provides brief program descriptions for CL&P and UI 2002 programs.

**ATTACHMENT 1  
PUBLIC COMMENTS MATRIX**

<b>Name and Organization</b>	<b>Method/Date of Contact</b>	<b>Request</b>	<b>Status/Context</b>	<b>ECMB Position and Action</b>
1. Dr. David Carter, President of Eastern CT. State University	Presentation to ECMB both in 2000 and 2001. Also presented to DPUC in 2001.	Fund \$500,000 for Endowed Chair in Energy Studies in 2000. Fund \$500,000 in 2001 to begin a Sustainable Energy Institute. Consider funding more in out-years	ECMB supported \$500,000 for Endowed Chair in 2000. ECMB voted to support \$500,000 for Sustainable Energy Institute in August 2001.  CL&P reallocated dollars in the 2001 budget to fund this amount, and the DPUC approved it.	ECMB supported funding in 2000 and 2001. August 2001 resolution documents ECMB expectations including (1) become self-sustaining within three years by obtaining other collaborative funding, (2) submit year-end report, and (3) set performance indicators based on stated goals.
2. Ted McCallum of Westfair Associates of Newtown, CT	Presentation to ECMB at June 26 pubic forum	Vending Miser technology which could be a measure in existing programs to save energy on vending machines by cycling them off periodically	Passed cost-effectiveness screen, and included in CL&P's programs for non-perishable products only. UI will do the same.	Supports incorporation in existing programs (Energy Opportunities, Express, or Custom), subject to utility analysis and available funds.
3. Leo Smith of International Dark Skies	Presentation to ECMB at June 26 public forum and also to the DPUC in 2001	Implement a pilot program for \$300,000 in the Community Based Program for streetlighting technology which would lessen "glare" or "light trespass" and possibly thereby improve health effects and safety	In 2001 CL&P is implementing program with RPI which will develop a whitepaper and training guide for cities on the issue. There is a serious issue about cost-effectiveness for the Companies. The measure does not meet the cost-effectiveness requirements.  The DPUC Decision approved CL&P's plan regarding this topic in 01-01-14.	ECMB believes the utilities should explain the cost-effectiveness requirements and share the analysis results with Mr. Smith. ECMB will review the whitepaper when complete.

Name and Organization	Method/Date of Contact	Request	Status/Context	ECMB Position and Action
4. Paul Puzzo of Community Renewal Team(CRT) of Hartford and Mark Wolfe a consultant to CRT	Letters and meetings with the ECMB and CL&P in 2000 and 2001, including the winter 2001 public comment session	Provide weatherization to homes for low income market such that they may become first time home buyers with energy efficient mortgage. Requested \$10k per home.	Several planning meetings have been held with CRT, Fannie Mae, CL&P and Urban League. Peggy MacLeod has been involved (see below)  Companies are pursuing this program within the context of its community based programs. However, costs per home will need to be much lower.	Supports further discussions with Mr. Puzzo, CRT, and others to implement pilot for low and low/moderate income existing homes. C&LM funding should be much less than \$10,000 per home.

Name and Organization	Method/Date of Contact	Request	Status/Context	ECMB Position and Action
<p>5. Peggy MacLeod of Energy Rated Homes of CT</p>	<p>Presentation to ECMB both at 2000 public meeting and at the June 12 ECMB regular meeting. Also presented at the winter 2001 public session</p>	<p>Provide Energy Efficient Mortgage (EEM) program for existing homes.</p> <p>Allow energy suppliers access to three mills funding</p> <p>Increase emphasis on existing homes</p> <p>Use HERS providers to extend Energy Star Home to smaller builders</p>	<p>Has been party to program planning Item #4.</p> <p>CL&amp;P undertook study which indicated EEMs are mostly useful for the low income market. Also CL&amp;P is assessing residential financing option if Community Based Program.</p> <p>Legislation calls for utility and ECMB responsibility for implementation of funds.</p> <p>CL&amp;P is increasing the role and scope of the audit program in 2002 and both companies are increasing the number of program options to existing homes in CBP pilots.</p> <p>Many small contractors participate currently.</p>	<p>Supports exploring EEMs for low and low/moderate income existing homes as part of a financing pilot in the Community Based Programs (CBP).</p> <p>The ECMB has explored in some detail the issue of third party participation. Some issues that arise include maintaining quality control over energy suppliers.</p> <p>Utilities should explore emphasizing existing homes more for 2003 based upon pilot programs.</p> <p>The companies are increasing the role of HERS. and will look for opportunities to include additional builders as the programs are marketed.</p>
<p>6. John Ruckes of CT Office of Policy and Management</p>	<p>2000 written comments to the ECMB.</p>	<p>1. Implement EEMs with Energy Star Home Program</p> <p>2. Implement Community Based Program (CBP) and integrate with Rebuild America</p>	<p>1. Companies working on EEMs with Paul Puzzo and others, as explained in item #4.</p> <p>2. Began CBP in 2001 and exploring the use of Rebuild America with program and used it as one criteria for selection of a community. did.]</p>	<p>1. Supports exploring EEMs, starting with low and low/moderate income existing homes as part of financing pilot in CBP (see above), rather than in new EnergyStar homes.</p> <p>2. Rebuild America was one consideration for identifying and selecting CBP communities. Supports continuing integration, where appropriate.</p>

Name and Organization	Method/Date of Contact	Request	Status/Context	ECMB Position and Action
<p>7. CT Dept. of Economic and Community Development, various presenters, including Rita Zangari and Doug Rose</p>	<p>Written submission and presentation in 2001 to ECMB and presentation to ECMB at June 26 public forum.</p>	<p>1. \$2 million loan fund for low income housing to complement the existing CHIF loan program. This would be to finance homes or measures.</p> <p>2. \$1.1 million for lean manufacturing for two industry clusters, aerospace and plastics.</p>	<p>The CHIF fund typically falls short of spending its entire budget so it does not seem appropriate to increase funding. Further, due to its fuel blind nature it is not cost-effective on a revenue requirements or societal test.</p> <p>CL&amp;P already has been very actively involved in Lean Manufacturing through its Prime component of the Custom Program. (about \$500,000 per year).</p> <p>UI reimburses ConnStep for energy audits and lead generation for its C&amp;I programs.</p> <p>ConnStep came to the DPUC and praised CL&amp;P's actions with the program, as did customers.</p>	<p>1. CHIF funding was state bonded money in the past; ECMB continues to recommend state bonding. CHIF typically falls short of spending its entire budget and is not cost-effective C&amp;LM using a revenue requirements or societal test. Examine as one option for residential financing, but address concerns about CHIF cost and performance. Also, seek gas funding.</p> <p>2. PRIME and Lean are well-integrated at CL&amp;P. Existing level of funding at CL&amp;P is appropriate given current resources and alternatives, and retrofit is not the highest priority. Subject to available funding and cost-effectiveness, UI may consider an approach similar to CL&amp;P.</p>

Name and Organization	Method/Date of Contact	Request	Status/Context	ECMB Position and Action
8. City of Hartford	Various presentations to ECMB and DPUC over 2000 and 2001	<p>Increase budget to municipal program.</p> <p>Ignore cost-effectiveness criteria with LED traffic signals and fund public cause buildings such as YMCA as well as municipal buildings.</p>	<p>The Companies and ECMB balance equity issues to cities in overall budget allocation, and cities are very active participants for the C&amp;LM programs.</p> <p>The cost effectiveness issues are mandated by the DPUC and the legislation.</p>	<p>1. The utilities and ECMB balance parity issues to cities in the overall budget allocation. In the past, municipal customers have received more funding than they have contributed directly. ECMB supports equitable allocation for 2002. CL&amp;P should consider a marketing partnership with the city for cost-effective measures.</p> <p>2. Cost-effectiveness criteria should not be ignored for traffic signals, public buildings, or other projects.</p>
9. Mark Dyen of Conservation Services Group, Inc.	Presentation in 2000 to ECMB	Improve efficiency of residential cooling systems through a comprehensive systems approach.	Added an HVAC rebate program in 2001. Considering a comprehensive pilot in the CBP.	Supports company pilot of a more comprehensive HVAC systems approach in the CBP or elsewhere in the state and assessment of cost-effectiveness. Ensure that peak demand savings are properly valued.
10. Dave Korn of the Cadmus Group in Waltham, MA	Presentation and handouts to ECMB at June 26 public forum	Implement a campaign to “power manage” computers	CL&P will explore the potential for adding this initiative to existing programs. It is important to assess LAN compatibility and security.	Supports initial test on CL&P and UI computers. If the utility analysis and test is successful, companies should promote to appropriate customers.
11. Bill McDonough of WJM Associates	Presentation to DPUC and ECMB in 2001, including the June 26 public forum	UI should allow incentives for the water treatment “descaling” equipment he sells just as CL&P does	UI is allowing it in the RFP program.	Companies should follow DPUC directive in 01-01-14.

Name and Organization	Method/Date of Contact	Request	Status/Context	ECMB Position and Action
12. Tom Barron of EnVita subsidiary of an Australian energy consulting group	Presentation to ECMB at June 26 public forum	Promote software program to help organizations assess their energy usage and ways to improve it. It is a process to benchmark an organizations ability to manage energy in a qualitative way.	Companies will explore this technology and will encourage EnVita to respond to O&M RFP Pilot	Supports exploring this in the O&M RFP program. Inform Mr. Barron of the upcoming O&M RFP.
13. Mr. Mecca of LongLite, Middlebury, CT	Presentation and handout to ECMB in 2001 at June 26 public forum	Provide incentives for halogen product for use in instances where compact fluorescent are not as desirable.	CL&P performed cost-effectiveness analysis on this and found technology was not cost-effective using DPUC mandated test. Has informed LongLite of test results.	Supports exploring the possibility of using this technology where compact fluorescent are not as desirable. However, first clarify energy savings and the relationship to CFL products in the market. Does not recommend using technologies that are not cost-effective.
14. Warren Leon, of Northeast Sustainable Energy Association	Presentation to the ECMB in 2001 at June 26 public forum	Use environmental and other reasons in messages to promote energy efficiency, e.g. solar system for heating water etc., healthy schools, electric reliability.	CL&P is exploring alternative informational messages to be included in program materials with ECMB consultants. There may not be adequate funding to do some things suggested. Products may need to be qualified by EPA as Energy Star products	Supports promoting other benefits of and linkages to energy efficiency. Much of this can be done for little or no additional cost, in existing contacts and promotions.
15. Jerry Druman of For Power	Presentation to the ECMB in 2001 at June 26 public forum	Utilize a web-based energy analysis tool	Companies will explore this technology and encourage ForPower to respond to O&M RFP Pilot.	Supports exploring this in the O&M RFP program. Inform Mr. Druman of the upcoming O&M RFP.

Name and Organization	Method/Date of Contact	Request	Status/Context	ECMB Position and Action
16. John Hebel of Hebel Energy Solutions	Written comments and presentations to the ECMB both in 2000 and 2001	Add metering information services to the conservation portfolio.	Services requested by Hebel are largely provided by other groups of the Companies  Further, CL&P initiated load management pilots in 2001 to supplement these activities.	Metering information services are not the best fit or priority within C&LM. Current targeted marketing efforts are higher priority than metering information. Metering is likely to be an issue at the legislature.
17. Michael Sherber, President of Sherber Associates, Inc.	Presentation to ECMB in 2000	Implement Performance Contracting and remove the utilities from the “drivers seat”	ECMB explored a wide range of options in 2001 planning sessions and has moved toward more third party programs	Has supported and continues to support exploring third party activities and implementation where beneficial. The RFP program is an approach to performance contracting. Does not support additional funding for new retrofit initiatives given that program budgets are very tight.
18. Northeast Energy Efficiency Partners, Mr. Raynolds and Elizabeth Titus	Presentations to the ECMB both in 2000 and 2001, including the summer and winter sessions in 2001	Increase linkages to NEEP in additional areas such as residential HVAC, Energy Star buildings and new construction, and building operator certification, partly with Community Based Program	The Companies maintain ongoing relationships with NEEP and are always assessing the potential for new linkages on a case by case basis. The Companies will assess participating in market research and baseline studies.	Comprehensive Residential HVAC, see #9.  Utilities should explore NEEP initiatives in the context of cost-effective implementation of services while maintaining the benefits of a regional focus.  UI should consider joining the NEEP building operator certification program as a step to more efficient O&M.  Both Companies should explore continued work on upgrades in building codes

Name and Organization	Method/Date of Contact	Request	Status/Context	ECMB Position and Action
19. Steve Bowcock, of CT Home Energy Consulting Services	Presentation and written comments to ECMB in 2000	Implement measures for duct sealing with forced air heating and cooling system	Exploring ways to increase funding for residential HVAC in 2001, but will be difficult with decreased budget	Comprehensive Residential HVAC, see #9.
20. Tom Swan, CT Citizens Action Group	Presentation and letter to ECMB in 2000	<ol style="list-style-type: none"> <li>1. Put more money into residential programs proportionately</li> <li>2. Decrease the hot shot program</li> <li>3. Stop promoting the company with conservation advertising dollars</li> </ol>	<ol style="list-style-type: none"> <li>1. UI assesses equity with ECMB and DPUC</li> <li>2. CL&amp;P and UI are analyzing new Hot shot technology now</li> <li>3. Company sponsorship of conservation programs strengthens their credibility and accountability. Advertising is needed to reach high levels of program goals and is supported by the DPUC and ECMB.</li> </ol>	<ol style="list-style-type: none"> <li>1. Will address funding and budget parity as part of 2002 budget discussion.</li> <li>2. Given ongoing problems with Hot Shot callbacks, CL&amp;P should continue to improve and then test technology before implementing again. Also important for both companies to have the correct scale of the program for 2002 and for 2003 to put the pilot into a context of a long-term plan for expanding program in comprehensive vendor-driven DHW program.</li> <li>3. Supports marketing focused on benefits of energy efficiency.</li> </ol>
21. Larry Union and Bob Maddox of CT Energy Cooperative	Written comments and presentation to ECMB in 2000 and presentation in 2001 at June 26 public forum	Fund the ICE house a mobile energy efficiency demonstration center	Individual proposals for funding promotional material should take place within a broader education approach. Department staff raised issues with the ICE house.	Fund and promote the use of supplier neutral displays and marketing materials by others, in retail and other locations. Condition the use of materials for eligible products. Increase the role of others in promoting C&LM programs in their products and marketing activity.

Name and Organization	Method/Date of Contact	Request	Status/Context	ECMB Position and Action
22. CT Lighting Center	Commented to ECMB and made comments to legislators and others in 2001	Utilities are engaged in anti-competitive behavior, with funding from ratepayers, which undercuts their ability to sell energy-efficient products in retail markets. Some products promoted by the utilities are not EnergyStar qualifying and have not been tested.	Utilities held meetings with representatives of the CT Lighting Center. The vast majority of lighting products are Energy Star qualifying.	Fund and promote displays and marketing materials for use by CT Lighting Center and others, in retail and other locations. Condition the use of materials for eligible products.  Continue increased emphasis on retail sales compared to catalog sales, and transition from product catalog to magazine.
23. Dept. of Public Works	Written comments provided to the ECMB	<ol style="list-style-type: none"> <li>1. CL&amp;P should address one aspect of the 'cost caps', the cost-effectiveness test, and explore ways to be more flexible when applying the test.</li> <li>2. While lighting opportunities have been addressed in most building locations, this does not preclude addressing a wide variety of other measures. DPW and other agencies are interested in exploring such opportunities as energy management systems and heavy equipment upgrade</li> </ol>	<ol style="list-style-type: none"> <li>1. CL&amp;P will explore its cost caps applications in 2001.</li> <li>2. Consistent with past practice, CL&amp;P will continue to look for cost effective ways to install measures other than lighting.</li> </ol>	ECMB will consider proposals and programs that are cost beneficial.

Name and Organization	Method/Date of Contact	Request	Status/Context	ECMB Position and Action
24..CT Conference of Municipalities	Written comments and presentation to ECMB at June 26 public forum	CCM urges the ECMB to increase the total amounts set aside for municipalities next year to \$10 million for both companies. There is a clear need and desire by the municipalities to improve the energy efficiency of their facilities	The Companies and ECMB balance equity issues to cities in overall budget allocation, and cities are very active participants for the C&LM programs.	1. The utilities and ECMB balance parity issues to cities in the overall budget allocation. In the past, municipal customers have received more funding than they have contributed directly. ECMB supports equitable allocation for 2002.
25. Bill White of U.S. EPA from Boston	Verbal presentation at winter 2001 public comment session	Companies should consider promoting Energy Star Benchmarking for C&I retrofit programs	The Companies will continue to consider ways to promote the EnergyStar product approach where it is appropriate. However, neither company is having difficulty in penetrating the C&I retrofit market.	The ECMB agrees the Energy Star brand is valuable in the residential sector and should be used as appropriate in the retrofit market for C&I.
26. Bryan Garcia of Clean Energy Fund	Verbal presentation at winter 2001 public comment session	Integrate efforts of CEF and ECMB and Companies, especially for education to school children and through C&I new construction	The Companies plan to integrate where possible with the CEF. This has occurred in the RD&D Program, where the CEF is a member of the PWG. The Companies will inquire of the CEF on additional ways that the C&LM and CEF programs can be integrated.	The ECMB supports efforts to integrate programs between CEF and the C&LM fund. The ECMB will seek additional specific recommendations from the CEF on how this goal could be achieved

Name and Organization	Method/Date of Contact	Request	Status/Context	ECMB Position and Action
27. Phil Fine of Savage Alert	Verbal presentation at winter 2001 public comment session	Utilize performance contracting or financing of some sort for C&I customers and also integrate more distributed generation and energy conservation	<p>The Companies have found loan funds to be under-utilized. Performance contracting is one option customers have under the new RFP program.</p> <p>The Companies will be looking for cost-effective integration of distributed generation and conservation projects in 2002.</p>	The Companies should continue to allow performance contracting under the RFP program and also explore cost-effective integration of distributed generation and conservation projects in 2002.
28. Jeff Calcott of Egress Dynamics	Verbal presentation at winter 2001 public comment session	Utilize photoluminescent exit signs in existing programs	The Companies have been providing incentives for LED exit signs, which are now the state of the art. The Photoluminescent signs may not have adequate additional savings to be cost effective	The ECMB believes this product should be screened for possible inclusion in relevant programs if it is cost-effective and a product sought by consumers.
29. Michael Sanders of CT DOT and Peter Winograd of Peak Energy Solutions	Letters to ECMB near the winter 2001 session	Explore possibility of using some conservation dollars for photovoltaic installation at Hartford Bus Facility	CL&P explored this new suggestion and found it to have a payback of over 30 years. Therefore it is not cost-effective	The ECMB requests further detail on this project and suggests that the proposal might be submitted to the RD&D program for review.
30. Mr. Merola	letter to ECMB near winter 2001 session	use window film as an eligible conservation program measure	This is the topic of a legal proceeding brought by Mr. Merola against CL&P.	ECMB will wait the outcome of the legal proceeding prior to commenting further.

ATTACHMENT 2  
DEPARTMENT ORDERS FROM DOCKET NO. 01-01-14 AND RESPONSES

- 1. The Department orders the Companies to file with the Department, its 2002 budget by January 31, 2002.**

*This submittal is in response to this order.*

- 2. The Department directs the Companies to file with the Department any major modifications made to the 2002 budgets and implementation strategies within 10 days of implementation.**

*The Companies will follow this process when the situation arises.*

- 3. The 2002 budget submitted should clearly identify funds allocated to C&LM programs proposed by outside parties.**

*Please see the footnotes on Table A of each Company.*

- 4. The Department will require the Companies to submit its 2003 and 2004 budgets to the Department no later than January 31, 2003.**

*The Companies will file as directed.*

- 5. As discussed in the SmartLiving Catalog Section, the Companies must include a message box on the cover of all future editions of the SmartLiving catalog and submit for approval the language that will appear within that box. The size of the message box cannot be reduced without Department approval.**

*The Companies have followed this process.*

- 6. The Companies will be required to develop a common slogan for the C&LM programs to be implemented by January 2002.**

*Please see Section III above.*

- 7. In its next filing, UI shall include a description of each program in its Comparison of UI Conservation Programs similar to the brief descriptions in CL&P's Application, Appendix B-revision dated 3/26/01.**

*Please see Attachment 7 to this filing.*

- 8. In the next filing, the Companies will file a program summary containing the details illustrated in UI Late Filed Exhibit No. 12.**

*Please see Table B above for each Company.*

- 9. CL&P shall submit the impact evaluations of the C&I Operation & Maintenance Services program to the Department when they become available.**

*The Companies will file as directed..*

- 10. CL&P shall submit to the Department the results of the Load Management Assistance Pilot Fund program and the Residential Load Management Pilot program when they become available.**

*The Companies will file as directed.*

- 11. In the next filing, the Companies shall jointly explain why the CBR of joint programs are different.**

*Please see Section III above.*

- 12. In the next filing, all program names will be consistent throughout all filed documents including budgets, workpapers, spreadsheets and analysis.**

*The Companies have used consistent names throughout this filing..*

- 13. The Department directs the Companies to develop and submit specific goals and targets its using to evaluate the performance of its research efforts.**

*Please see Section III above.*

- 14. All future Plans will provide a description of each existing low-income program. Each program will be described in the Company's individual plan, under the Special Needs section, or when jointly applicable in the Joint Programs Plan, and also referenced in the respective plan, not providing the actual description.**

*The Companies' low income programs are the same as in the last filing. Since there are no major modifications, nothing is added in this document.*

- 15. All future budgets for each joint program, including the Energy Care Program, will be itemized per expense line item per company and combined, and include**

**the total budget for each company and the total combined program budget. The Companies will develop, for Department review, a cohesive detailed line-item budget format, listing general categories and supporting expenses, for each joint program. All joint budgets should be appended to the Joint Programs Plan and the individual Company budget should be included in the Company specific plan.**

*The Companies understand this is a requirement for 2003, based upon discussions with Department staff.*

- 16. The Companies will develop a comprehensive system to track the effectiveness of specific marketing methods used in the joint general marketing campaign, enabling them to identify the particular source of customer information on conservation programs. In developing the system, the Companies will utilize all available tracking mechanisms, such as calls to 877-WISE USE and the individual Companies' telephone numbers and website hits.**

The Companies are complying with this Order as clarified in the Department's letter to Messrs. DeFilippis and Hebert dated November 27, 2001.

- 17. The Department requires in the future that CL&P and UI use two-color rather than four-color brochures unless a particular need can be demonstrated.**

The Companies are complying with this Order as clarified in the Department's letter to Messrs. DeFilippis and Hebert dated November 27, 2001.

- 18. The Department directs the Companies to explore the use of generic informational materials in conjunction with conservation programs.**

The Companies are complying with this Order as clarified in the Department's letter to Messrs. DeFilippis and Hebert dated November 27, 2001.

- 19. By October 1, 2001, the Companies shall make a filing that demonstrates the increased targets for the specific C&LM programs that will receive additional funding in 2001.**

*The Companies filed this material on October 1, 2001.*

- 20. CL&P and UI shall include the results of the 2001 customer awareness survey in its next C&LM filing at a minimum as a performance indicator.**

*The Companies understand this is a requirement for the 2003 filing, based upon*

*discussions with Department staff.*

- 21. The Department directs the Companies to expand its RFP program by specifically allowing ESCOs and third party program managers to bid on and manage all types of programs and customer classes.**

*Please see Section III above.*

- 22. In order to encourage RFP participation and help participants better understand the RFP process and procedures, the Companies and ECMB are directed to continue advertising the RFP programs and must set specific deadlines for the RFP process.**

*The Companies have followed this process.*

ATTACHMENT 3  
FIRST-TIME HOMEBUYERS ENERGY EFFICIENT MORTGAGES PILOT

**Objective:** The goal of this pilot program is to develop a new energy efficient mortgage product for first time homebuyers whose household incomes are 80% or less of Area Mean Income in Connecticut by building partnerships with lenders, community agencies and other interested parties. The specific goals are:

- I. Commit to approximately 20 homes in the City of Hartford and the Town of Vernon during the first year with gradual expansion in subsequent years.
- II. Secure interest in Pilot by non-profits and lender (s).

**Target Market:** According to the 1990 Federal Census, minority home ownership in Connecticut ranked 48<sup>th</sup> out of the 50 United States and the District of Columbia. Preliminary results of the recently completed census shows a modest increase in those numbers. Fannie Mae, one of the leading lenders in the State writes approximately 30 -35 thousand mortgages a year in Connecticut. Nearly half of those people who qualify can be considered to be of low to moderate income.

The focus of the program will be low and moderate income first time homebuyers who are participating in educational seminars. The pilot is designed to encourage this group to upgrade the energy efficiency of their new home and thereby qualify for Energy Efficient Mortgage from Fannie Mae. By focusing on these segments of the market, CL&P has the ability to undertake a variety of energy conservation measures in a cost-effective way that will maximize energy cost savings to prospective homebuyers

**Program Description:** CL&P, Fannie Mae, CRT and others will partner to create a pilot program that supports first-time homebuyers of single family homes by providing grants to make improvements to the home and to purchase appliances that will help lower the homeowners monthly energy and water bills resulting in reduced monthly operating costs.

The first time homebuyers EEM pilot program would entail the following:

- I. Fannie Mae's Energy Efficient Mortgage (EEM)
  - A. Low Down payment requirement
  - B. 2% down for homes selling over \$100,000, or
  - C. 100% loan to value loans w/ minimum 3% borrower contribution
  - D. Projected energy savings added to borrower income to facilitate loan qualifying
  - E. Household incomes at 80% of Area Mean Income (AMI) or below (\$56,400 - \$64,900)

- II. Home Energy Rating (HERS) and estimate of savings for installed measures.
- III. Grants for energy improvements and Energy Star Appliances.
- IV. Linkage to municipal down payment and closing cost assistance programs where possible.

Marketing Strategy:	It is anticipated that this pilot program will initially be implemented through agencies that offer first time home-buying seminars to the public. The long-range strategy is to transition away from grants for the energy efficiency improvements and to roll some or all the costs associated with the improvements into the mortgage product on a sliding scale based on income. At the end of the pilot program, CL&P will perform an evaluation to determine how well the program is working and where changes may be needed.
Incentive Strategy	<p>In the pilot phase of the program, the cost of the measures that could be implemented to help reduce the monthly utility bills on the house would be paid for with grants on average up to \$7,000 per household. The owner would have a set amount of time to complete the upgrades (120 days is suggested).</p> <p>Customers would be given coupons to use to purchase Energy Star appliances. These would be a good cost saving measure for the home-owners and could provide incentive for people to participate (ex. a coupon for \$500 off an Energy Star refrigerator). In addition, lighting incentives could be given to the customer for the purchase of energy efficient Lighting such as an Energy Star fixtures and CFL's.</p>
Barriers	There currently is not a broad infrastructure of certified HERS raters in Connecticut. One possible solution to this problem would be to train home inspectors to offer this service so they could do the HERS rating on top of the regular home inspection. CL&P would pay for the HERS training for interested home inspectors to give them incentive to participate in the Program.

ATTACHMENT 4  
ON-SITE SERVICES PILOT

**Objective:** For over a decade, CL&P has targeted electric heat customers with comprehensive programs which reduce energy consumption through the installation of electric conservation measures. In addition, for over two decades, CL&P has made home energy audits available offering appropriate, low-cost electric saving measures. The Company feels this is an opportune time to consider a new pilot delivery mechanism. The pilot program's objective is to reach the average customer (regardless of fuel type) who would benefit from an energy analysis of the home, receive certain electric saving energy measures, and be presented the opportunity to pursue the installation of fossil fuel saving measures.

**Target Market:** Residents of Vernon, CT, a middle class diverse community located in the North Central part of the State, will be offered participation in the On-site Services Pilot.

**Program Description:**

The program will offer the CL&P customer in Vernon the opportunity to have an in-home audit and a blower door test. The audit will assess the “house as a system” and offer the customer company subsidized electric saving measures and facilitate installation of fossil fuel saving measures to reduce energy consumption. Additionally, as an essential part of the proposed service delivery, the customer will have a blower door test performed on the home. The test will tell the customer how much air leakage is occurring and visually demonstrate areas of heat loss.

The CL&P “Draft Detective” will offer the customer the opportunity to pursue energy saving air sealing work. The amount of air sealing work to be completed would be totally controlled by the customer.

Insulation needs will be assessed and applicable arranging services coordinated by the Company’s contractor.

CL&P will install energy efficient compact fluorescent light bulbs and to give the customer energy efficient table lamps.

Applicable Conservation and Load Management program brochures will be discussed and Energy Star rebate applications will be left with the customer to encourage additional participation in energy efficiency programs.

Finally, as a corollary to the in-home services, CL&P proposes that the “Draft Detective” visit some of the local elementary or middle schools as part of a science curriculum to educate students about air loss in a home, and to demonstrate blower door technology. The intention being to educate the children and to teach energy conservation to the young as perhaps the most effective market transformation strategy available.

**Marketing Strategy:**

Services will be targeted directly to residents of Vernon. The intention is to deliver the pilot during the second quarter of 2002. Initial thoughts suggest that a campaign addressed in the local paper and cable would inform residents about the pilot offering. Residents would be selected on a first-come, first serve basis.

## Incentive Strategy:

CL&P believes the fuel blind pilot will entice customers to complete energy conservation measures.

Electric saving measures, such as compact fluorescent light bulbs, table lamps and other low-cost electric saving measures will be installed free of charge to the customer. Rebates towards the purchase of Energy Star refrigerators will also be provided to encourage the customer to upgrade their existing refrigerator. The exact rebate amount will be determined in consultation with the ECMB and its technical consultants.

The customer will pay the cost of any additional fossil-fuel saving measures such as air sealing or insulation installation. (CL&P will continue to fully subsidize these measures for electric heat customers.) Upon the customer's request, the CL&P contractor will act as the contract coordinator for the customer.

ATTACHMENT 5  
RD&D PROJECTS APPROVED IN 2001

Fifteen (15) RD&D Projects were approved for funding, including eight (8) Distributed Resource Projects and seven (7) Energy Efficiency Projects:

**A. Distributed Resource Projects:**

**1. Fuel Cell Demonstration at IBM:**

Installation, operation and monitoring of one (200kW) fuel cell. Installation will serve as base loaded generation facility sized to carry the emergency electrical loads such as lighting, security for critical data centers, and life-saving equipment.

IBM Corporation., Southbury, CT. *\$1,580,000*

Project has 100% Connecticut Content

**2. High Temperature PEM Fuel Cell Stack Development:**

Development of high performance membrane electrode assemblies (MEA) to allow the operation of proton exchange, membrane (PEM) fuel cells at high temperatures to improve efficiency and lower installed costs.

IONOMEM Corporation, Marlborough, CT. *\$675,000*

Project has 100% Connecticut Content.

**3. Fuel Cell Technology Improvement:**

Development, fabrication and testing of an advanced design fuel cell stack which will enhance interior cooling thereby providing improved efficiency and longer fuel cell life. This technology development is applicable to both molten carbonate (MC) and proton exchange membrane (PEM) fuel cells.

Allen Engineering, Southbury, CT. *\$300,000*

Project has 100% Connecticut Content

**4. Internet Enabled Two-Way Paging System for Load Management:**

Development of an internet based two-way paging thermostat for the residential and small commercial marketplace. This technology will provide end users with an internet capable energy management device to achieve energy savings, and will provide the utility an accurate and verifiable means to curtail load during volatile market and grid conditions.

Power Web Technologies, Wallingford, PA. *\$265,000*

Project has 33% Connecticut Content

**5. PV System Using Transparent Holographic Optical Elements:**

Develop and demonstrate a new photovoltaic (PV) technology that has the potential to dramatically reduce installed cost of PV systems.

Arthur D. Little, Cambridge, MA. *\$220,000*

Project has 40% Connecticut Content

**6. Analysis of Energy Available from Agricultural By-Products:**

Research feasibility study to assess the potential benefits that may be derived from using Connecticut's agriculture byproducts to generate electricity. Study will assess and define latent energy available from an inventory of Connecticut's animal and crop biomass sources.

CT Economic resource Center (CERC), Rocky Hill, CT. *\$143,700*

Project has 100% Connecticut Content

**7. Biomass Gasification:**

Study to assess the feasibility of developing biomass gasification technology to be deployed in distributed plants to generate electricity and thermal energy, (on customer's side of the meter), using sawmill residue resources available in Connecticut.

Renova Engineering, Staten Island, NY.. *\$113,000*

Project has 40% Connecticut Content

**8. Photovoltaic/Variable Speed Drive for Blending Grid/PV Power:**

Development of a Photovoltaic power supply and a variable speed drive that will automatically maximize the utilization of a photovoltaic array in powering HVAC variable speed motors while meeting any additional load from the power grid.

Schultz Electric, New Haven, CT. *\$50,000*

Project has 100% Connecticut Content

**B. Energy Efficiency Projects:****1. High-Tech Centrifugal Compressor for Commercial Air Cond. & Refrigeration Systems-**

**Phase II:** Research, development and adaptation of technologies developed in the aerospace industry to commercial air conditioning and refrigeration. A highly efficient oil free centrifugal compressor has the potential to significantly reduce electricity consumption and uses zero ozone depletion refrigerant.

R&D Dynamics Corp., Bloomfield, CT. *\$594,000*

Project has 100% Connecticut Content

**2. High Efficiency Illuminated Signage:**

Research and Development of new light emitting diode (LED) signage systems that will offer the functionality of neon signs but use much less electric energy.

Gerber Scientific, South Windsor, CT. *\$287,000*

Project has 100% Connecticut Content

**3. Cold Climate Air-to-Air Heat Pump (CCHP):**

Development and field monitoring demonstration of an air to air heat pump designed to achieve improved efficiencies and lower electric costs while operating at low outside ambient temperatures prevalent during winter in northern areas.

Shaw Engineering Associates, LLC, New Britain, CT. *\$285,900*

Project has 50% Connecticut Content

**4. Load Shedding Ballast for Fluorescent Lighting Systems:**

Development of a low cost alternative to fully dimmable electronic ballast technology that will accommodate load reduction dimming up to 20% during times of peak electrical demand.

RPI Lighting Research Center, Troy, NY. *\$225,000*

Project has 20% Connecticut Content

**5. Energy Efficient Lighting for Continuously Occupied Open Plan Offices:**

Develop and demonstrate an energy efficient alternative to current fluorescent lighting systems for open plan offices that will achieve significant reduction in electrical energy.

RPI Lighting Research Center, Troy, NY. *\$197,600*

Project has 75% Connecticut Content

**6. Integrated Refrigerator and Water Pre-Heater-Phase II:**

Development and demonstration of an integrated refrigerator/water pre-heater that recovers

waste heat from the refrigeration cycle and uses it to heat water. Energy can be saved by reducing the energy consumption of the water heater and lowering the condensing temperature of the refrigerator.

Arthur D. Little, Inc., Cambridge, MA. *\$149,000*

Project has 61% Connecticut Content

**7. Removable Covers for Central A/C Supply and Return Openings:**

Research, development and demonstration of a low cost, easy to install and maintain cover that can be placed onto existing central air conditioning vents and returns - when not in use - during the heating season to create a barrier to cold air infiltration thereby reducing heating energy costs.

Ms. Vivian G. Perez, Fairfield, CT. *\$62,000*

Project has 100% Connecticut Content

ATTACHMENT 6

COMPARISON OF COST-EFFECTIVENESS INFORMATION OF TWO COMPANIES

ATTACHMENT 7

PROGRAM DESCRIPTIONS OF TWO COMPANIES